INVESTIGATION ON TQM IMPLEMENTATION IN MEDICAL SCIENCES UNIVERSITIES OF IRAN

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ABSTRACT

Higher education institutes are undergoing fundamental changes and rapid development. Customers (faculty, staff, student)2 demand high quality services at reasonable and affordable costs. Customer dissatisfaction and a growing awareness of gaps between actual and ideal service have led to intensifying pressure to improve quality.
Total Quality Management (TQM) is considered one of the most important methods adopted by managers in recent decades to make their organizations more sustainable, competitive and profitable. It has been admitted that TQM is not embraced by universities as much as industries and governments, particularly in developing countries.
The present research is an important first exploratory empirical study of TQM implementation in Iran which assesses the extent to which the TQM approach is applied in Medical Sciences Universities (MSUs) and to propose a convenient model for effective implementation of TQM to promote the performance of the universities, increasing of customer satisfaction and to remain competitive in the region.
The data were obtained from the field work at two major Iranian medical sciences universities as the representatives of MSUs through self administered questionnaires (adapted from an established Baldrige model) and also face to face semi structured interviews regarding the research objectives and research questions with a rage of stakeholders. The questionnaire aimed to investigate the implementation of TQM in MSUs, while, semi-structured interviews aimed to gain an understanding of themes which had emerged from the questionnaire as well as to validate the findings resulting from the questionnaire.
Different statistical techniques (e.g. descriptive analysis, multiple regression, spearman's correlation, Kruskal-Wallis) were used to describe the respondents' characteristics and identify and explain findings of the data .The analysis of the data revealed that although the current state of the TQM practice in MSUs, in terms of seven Baldrige educational categories, is not satisfied, but it seems the universities have started improving in some areas. The results also indicated four new TQM implementation impediments: a) managers are multi jobs b) financial problems of the staff and lack of interest in participating in TQM training and programs, c) non accountability of the mangers to the ministry, and d) lack of time for TQM implementation. In addition the results showed that, there is a correlation amongst the seven categories. Also, it was found that the government (the ministry) policy acts as an encouraging factor to implement TQM successfully through the assessment of the senior leaders of the university. Moreover, the results showed that there is no difference in their levels of views on Baldrige TQM model by male and female respondents.
The study has proposed a model which would be more helpful to the top managements of hifgher education institutions for providing the quality educational service to their customers as well as improvement in the delivery mechanisms.
The research has identified some useful implications for Universities leadership and academic researchers. The study concludes by identifying recommendations of further research, considers the limitations of the research and discusses the researcher's personal learning.

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Glossary of Abbreviations

AQA	Australian Quality Award
ASQ	American Society of Quality
BQA	*National Quality Award of Brazil*
CQA	Canadian Quality Award
CWQC	Company-Wide Quality Control
DA	Deming Award
EDC	Educational and development Centre
EFQM	European Foundation for Quality Management
EM	Educational and support process management
EQA	European Quality Award
FS	Faculty and Staff focus
HE	Higher Education
IA	Information and Analysis
ISO	International Standardisation Organisation
IUMS	Isfahan University of Medical Sciences
L	Leadership
MBNQA	Malcolm Baldrige National Quality Award
MHME	Ministry of Health and Medical Education
MSRT	Ministry of Science, research and technology
MSU	Medical Sciences University
MSUs	Medical Sciences Universities
NCQI	National Committee for Quality Improvement
NIST	National Institute of Standard and Technology
NQI	National Quality Institute
OR	Organizational performance Results
PDCA	Plan, Do, Check, Act
QA	Quality Assurance
QC	Quality Control
S	Student
SMART	Specific, Measurable, Attainable, Realistic, and Timely
SP	Strategic planning

SQA	Singapore Quality Award
TQC	Total Quality Control
TQM	Total Quality Management
TUMS	Tabriz University of Medical Sciences

CHAPTER 1
INTRODUCTION

1.1 Overview

Higher education institutes are undergoing fundamental changes and rapid development. The influence of rising costs of health care and education in related organizations and in medical sciences universities are apparent and organizations continue to redesign or restructure systems to survive in a highly competitive marketplace (Mosaddeghrad, 2005). Customers demand high quality services at reasonable and affordable costs. So, managers must find new ways to provide services to meet these requirements (Besterfield et al., 1999). Customer dissatisfaction and a growing awareness of gaps between actual and ideal service have led to intensifying pressure to improve quality (Hermann et al., 2000). Therefore, organizations have tailored different managerial approaches to cope with new challenges which are presented. Total Quality Management (TQM) is considered one of the most important methods adopted by managers in recent decades to make their organizations more sustainable, competitive and profitable. . It has been admitted that TQM is not embraced by universities as much as industries and governments, particularly in developing countries. After successful implementation of TQM in high educational institutes of developed countries such as USA, UK and Europe, it is now the right time for full implementation of TQM in developing countries. Iran as a developing country has more than one century of history in terms of having high education universities and experienced the separation of medical sciences courses from non medical ones and established the new universities so called Medical Sciences Universities (MSUs) under supervision of ministry of Health and Medical Education in 1985. The purpose of this research is to evaluate the extent to which the TQM approach is applied in MSUs of Iran and to propose a convenient model for effective implementation of TQM to promote the performance of the universities, increasing of customer satisfaction and to remain competitive in the region. Also the intention of this introductory chapter is to provide the reader with a brief overview of the study. As such, it begins with a summarised explanation of the researcher biography, and the need for the study at third section. Significance of the study is presented at next section. Contribution of the study is another issue which is brought at section five. Finally, at the last section the layout and overall organisation of the thesis is presented.

1.2 The researcher

Jalal Hanaee was born on 23/12/1960 in Iran. He graduated from a high school devoted to gifted and talented students (pupils) in 1979 and at the same year he passed successfully *Konkour* (National university entrance examination) and admitted at school of Pharmacy of Tabriz. In 1985 he earned a doctorate degree in pharmacy (Pharm.D) and then he was offered a scholarship (bursary) from the ministry of health and medical education as a distinguished student to carry out the further higher education. He came to the U.K and obtained a degree in medicinal chemistry (M.Phil) from University of Bradford in 1988 and returned to the country and held a junior lectureship at school of pharmacy of Tabriz. In 1993 he earned a speciality degree (eq Ph.D) from Iranian distinguished national board. Then he worked as assistant professor (1993-1998), associate professor (1998-2005), and full professor (2005-present) at school of pharmacy, Tabriz University of Medical Sciences. He has got an excellent research record with nearly 40 publications in pharmaceutical, chemical and environmental journals, and a large number of presentations at international forums. He also has supervised research projects of about 45 undergraduates and 3 postgraduate (PhD) students.

In terms of his participation in management, during this period, he was the head of Department for 10 years. In 1998 he joined Tabriz university of medical sciences' executive board as vice-chancellor for education and worked at this position until 2004 (about 6 years). During his vice-chancellorship he was the head of the university committee for providing the mission, vision, aims, etc of the university from educational points of view. He conducted many quality processes using a quality four step model so called PDCA (Plan, Do, Check, Act) in order to carry out some improvements at the university level. He always was trying to learn a logic and scientific managerial methodology to run the university successfully. In 2000 it was a good opportunity to him to spend a short course on health policy, management and economics at Nuffield Institute, University of Leeds, U.K. Despite the spending the course he felt that there was still a big gap to run the university using appropriate managerial methodology. Therefore, he decided to carry out a PhD project at Business School of Huddersfield University to learn management fundamentally and methodologically. He enjoys teaching, researching and so by having a strong managerial skill in higher education he thinks that he could apply his combination of knowledge and experience to higher education organizations.

1.3 The Need for the study

Total Quality Management (TQM) is a management approach that aims for long term success by focussing on continuous feedback for making improvements and also customer satisfaction. Since the mid 1980s "quality" has moved in many higher education organizations throughout the world. Universities would be under a lot of pressure from various stakeholders, such as students, academic staff, local and central government, industries and the society. These pressures have been significantly increased at recent years because of increasing of society awareness and quality of life. Globalisation and the rapid introduction of new technologies have created a need to learn how to manage changes quickly and successfully. They have also created the need to introduce new innovative products and services within high quality standards and competitive price to meet customers' needs (Ulrich, 1997). Moreover, organisations have been concerned with how they could grow and improve their profitability while reducing costs, through using their internal resources. (Mirvis, 1993). Lack of senior management and employee commitment, continuous education and training for employees and managers as well as inadequate knowledge or understanding of TQM philosophy are of reasons why organizations fail to successful implementation of TQM into their strategic planning. High levels of quality performance have always been accompanied by an organizational commitment to that goal and it does not exist without strong top management commitment. Top management plays an important role in changing the organizational climate by providing leadership, support and also by face-to-face communication. Top management should actively develop quality plans to meet organizational objectives; communicate organization philosophy to the employees and involve them in the TQM effort and improvement activities; encourage employees to achieve their objectives; ensure adequate resources for employee education and training. Also, education and training in the quality concepts, tools, and techniques is essential for employees to understand quality-related issues. So, providing training to employees in problem solving skills is one of the most important activities for organizational climate change in an organization. Employees should be regarded as valuable, long-term resources worthy of receiving education and training throughout their career (Anupam et al., 2008). In the past twenty years numerous universities have been involved in TQM implementation especially in the USA, UK and Western Europe.

Iran's healthcare system is completely integrated into its medical education system. Every MSU is responsible for providing both education and healthcare services. The MSUs have mostly the similar political and executing systems in terms of visions, missions, values and duties and also are partially dependent on government budget. Despite the existence of number of studies and implementation of TQM in developed countries, there is a paucity of research into this field.

1.4 Significance of the study

Many higher education organizations have embraced the TQM approach to promote the performance of organizations, increase customer satisfaction and to remain accredited and competitive. According to Tuttle (1994), a growing number of universities are embracing TQM for the same reasons that led industry and government to embrace it: "Management systems are outmoded and can no longer ensure success in an increasingly competitive world". Oblinger and Rush (1997) observed that rising costs, reductions in funding and fluctuating enrolments, combined with public demands for higher quality, are raising a number of questions on university campuses. The motivation for the current investigation grew from the period that I was (as member of executive board) involved in TQM team at my university trying to follow a structured method. As I was investigating in expanding my insights and knowledge on the first observation, I spent a short course on management and budgeting in 2000. In the type of organization I work, it is important for organizational culture to maintain an image of managers being the "head". It is particularly interesting from point of view of how the organization seems to require a flexible quality management in order to improve performance without challenging existing structure. Another drive for this investigation was the result of researches that seems there is no wide implementation of TQM in the MSUs in Iran. The proposed study will fill this gap by providing a better understanding of the TQM. The study also aims through empirical investigation to propose a convenient model for effective implementation of TQM in MSUs to promote the performance of the universities, increasing of customer satisfaction and to remain competitive in the region.

1.5 Contribution of the study

The contribution of this study is to produce two major academic and practical contributions to knowledge related to implementation of TQM. Following standpoints will be discussed:

1) The important issues of TQM (e.g. top management commitment, customer satisfaction, training and developing the employees, the involvement of the employees and team working and so on) will be investigated and the interaction among them will be discussed.
2) The possible factors and barriers standing behind the implementation of TQM in the MSUs in Iran will be defined and appropriate solutions for overcoming such obstacles will be recommended.
3) TQM implementation models will be reviewed and discussed. The convenient model in higher education systems will be used at the present research.

1.6 Ethical consideration

For the purpose of this study, all information regarding the identity, position and information provided by all respondents participated at interview as well as questionnaire, that are not content to be known to the public will be treated with the highest level of confidentiality. So, the information collected may only be used to implement this research project and will not be disseminated to the public.

1.7 Structure of the thesis

As shown in figure 1 the thesis is divided into SIX chapters. The following is a brief description of each:

Chapter ONE: Introduction

Chapter one provides the overview and presents the need for the study, significance of the study, contribution of the study, and then finishes off with ethical consideration as well as the structure of the thesis.

Chapter TWO: TQM in service and Higher Education

This chapter explains the history and development of TQM, quality gurus, and seven TQM models. Also, it describes the characteristics and comparisons of different TQM models. Then it explains factors affecting the criteria of the models, benefits, shortcoming and impact of the models and also successful implementation of TQM.

Moreover, it focuses on the TQM in higher education, barriers to TQM in higher education, and measurement of quality at higher education institutions.

Chapter THREE: Higher Education in IRAN

This chapter aims to familiarize with the history and different types of higher education institutions carried out in Iran. The issues that are included this chapter are: history of higher education in Iran, university of Tehran, admission of women to centres of higher education, higher education management system, types of higher education institutes in, higher education credentials, grading system, number of students, staff, and enrolments, and finally current challenges in Iranian higher education and TQM in Iran.

Chapter FOUR: Methodology and Research design

This chapter discusses Methodology and research design. First, it gives review of definition of the methodology, social sciences research, research aim and objectives, research questions, and research design. Then, it describes research philosophy, positivism versus phenomenology, research approach, research strategies. It also explains the data collection methods in details particularly two methods used to collect the data; namely, a survey questionnaire and semi-structured interviews. The questionnaire aims to investigate the implementation of TQM in Medical Sciences Universities in Iran using Baldrige model, while the interview method is mainly used to explain themes that have emerged from the use of a questionnaire and also to validate the questionnaire. The two methods are viewed as complementary to each other; and a brief explanation on contents of questionnaires, piloting the questionnaire, different types of interviews, overcoming the bias in interviews is given and the strengths and weaknesses of each method are also considered. . Finally, the data obtained from the field work performed at two major Iranian (type one) medical sciences universities through self administered questionnaires and also face to face semi structured interviews together with the field work process are presented.

Chapter FIVE: Presentation, analysis, and discussion of the data and findings

This chapter aims to present, analyse the data obtained from both self-administered questionnaires and face to face semi-structured interviews based on the seven categories of

Malcolm Baldrige National Quality Award criteria for education framework in 2006 (Baldrige model) which is in relation to the research's objectives and research questions, and discuss the findings and results that have emerged from the data.

The chapter, hence, is divided into seven main sections. The first one aims to assess the extent data to show the adoption of leadership category (L) in Tabriz University of Medical Sciences (TUMS) and Isfahan University of Medical Sciences (IUMS) in Iran. The second section deals with strategic plan (SP) as an independent variable to improve the university performance. The third section aims to explore the degree of the students focus (S) in the university. The fourth section deals with Information and Analysis (IA) to find out the importance and degree of adoption of this category in the university. The fifth section represents the findings in relation to the faculty and staff focus. At the sixed section the findings in relation to educational and support process management is presented, analysed, and discussed. Finally, the seventh section deals with the organizational performance results as seventh category of the Baldrige model.

At the each section, first the findings are presented. Then, the findings and the quantitative and qualitative results that have emerged from the data are discussed. Furthermore, comparative and related studies have been introduced, especially those that have been conducted in developing countries, particularly in Iran.

At the beginning of the chapter, a brief history of Tabriz and Isfahan Universities of Medical Sciences, the characteristics of the respondents and hypothesis of differences between genders of respondents are introduced. Then the Baldrige categories that are related to TQM implementation in higher education organizations are discussed. The overall aim of this study is to investigate the current status and subsequently to develop a model to assist the successful implementation of TQM in MSUs of Iran

The structure that the researcher adopted to discuss the seven categories which are related to the research objectives and questions was built on three stages. Each category is discussed separately and the key findings for each category are identified

- Present the collected data from the questionnaires.
- Present the findings of the interviews.
- Evaluate the emerged results with the TQM literature.

In addition, at the end of this chapter, the researcher has highlighted the impediments to TQM implementation in general and has given special attention to those in TUMS and IUMS in particular through the questionnaire and particularly semi structured interview.

Chapter SIX: Conclusions and Implications.

The structure of the thesis is presented at Figure 1.1.

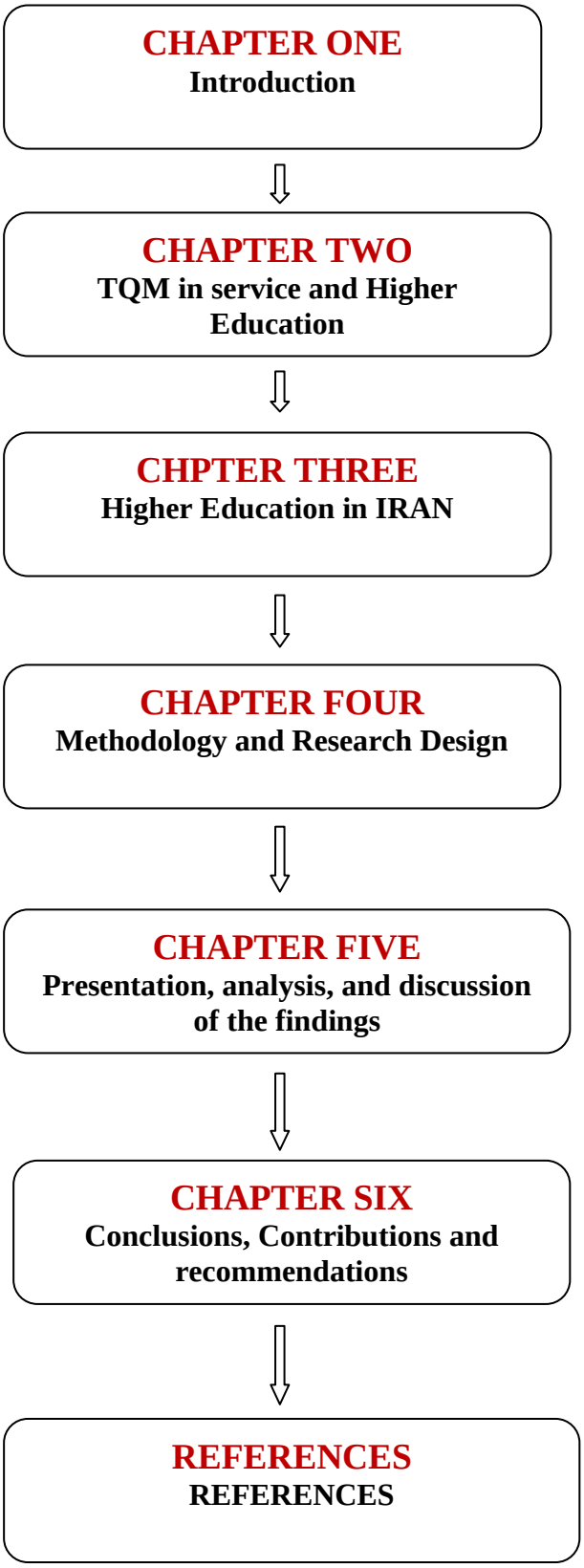


Figure 1.1: The thesis layout

CHAPTER 2
TQM IN SERVICE AND HIGHER EDUCATION

2.1 Introduction

This chapter will discuss several issues regarding TQM. At the beginning, it gives a brief definition of TQM and then highlights the history and development of TQM. After that, The TQM Gurus, namely Deming, Feigenbaum, Juran, Ishikawa, and Crosby will be explained. Then, characteristics of seven important, more relevant to the present research, and most popular TQM models will be studied and compared. Later on, it will focus on scoring methodology as well as factors affecting the criteria of the models. It will also highlight the benefit, shortcoming, and impact of each seven models. TQM in Higher education is another part that will be studied in more detail. Deming's principles and Baldrige criteria in higher education will be dealt from deferent aspects in this part. Finally, TQM in Iran will be explained in terms of background and current situation.

2.2 Definition of TQM

Although TQM is a comprehensive and key approach to organizational management there is no universally recognised definition of TQM and almost all specialists state their own beliefs, understanding and experiences (Kruger, 2001).

Oakland (2000) defines TQM as an approach to improving the effectiveness and flexibility of businesses as a whole through planning, organizing and understanding each activity and involving everyone at each level. Talha (2004) has mentioned that:

> "TQM refers to the broad set of management and control processes designed to focus an entire organization and all of its employees on providing products or services that do the best possible job of satisfying the customer".

Dale (2003) goes further and argues that the above definition is limit and says

> "A management approach that ensures mutual co-operation of everyone in an organisation and associated business processes to produce products and services that meet and, hopefully, exceed the needs and expectations of customers".

Meanwhile, Talha (2004) notes that total quality management incorporates the concepts of product quality, process control, quality assurance and quality improvement. In other

words we can say that the main aim of the TQM is how to make the outcome of the industry in its different aspects match the satisfaction of the customer.
Some other TQM specialists believe that organizations will improve their performance if they are able to change their management systems to be more participative by involving employee in problem solving, decision making, and strategy formulation firms (Rao et al., 1996). According to Crosby (1979), "TQM is a management discipline concerned with preventing problems from occurring by creating attitudes and controls that make prevention possible".

Hellsten and Klefsjo (2000) define TQM as some form of management philosophy based on a number of core values, such as focusing on customer, continuous improvement, process orientation, everybody's commitment, fast response, result orientation, and learn from others. Kruger (2001) considers TQM as a universal business strategy which is not culture-bound. Williams (1993) stated that TQM is viewed as a management tool to increase productivity, keep the customer happy and cut down waste.

Zairi (1994) gives a balanced definition of TQM as "essentially a whole array of techniques, management principles, technologies and methodologies which are put together for the befit of the end customer". Brown (1997) described TQM as an integrated management philosophy and set of practices that emphasize increased employee involvement and teamwork, continuous improvement, meeting customers' requirement by fact, team-based problem solving, constant measurement of results, closer relationship with suppliers. However, despite these different views about the definition and the role of TQM, many other factors can be found for effective and successful implementation of TQM through literature reviews.

2.3 History and development of TQM

Ellis and whitting (1993), Juran (1999), Berwick and Bisognano (1999), Dooley (2001), Maguad (2006) all agree that the concept of quality is timeless. Throughout history the top and wealthy people, managers and leaders tried to differentiate themselves by introducing a higher quality of products and services. The history and development of quality management is often described in the literature as a four-stage process: the first stage *inspection* (I) can be considered to have started during the industrialisation and mass production. The second stage *quality control* (QC) developed in particular in parallel with the wartime industries. The emphasis of the second stage lies in the manufacturing process, which is systematically

developed. The third stage, *quality assurance* (QA), incorporates the entire development and manufacturing process of a product as a factor affecting quality. In the fourth stage, *total quality management (TQM),* quality is seen in a holistic and strategic manner. At this point, the responsibility for quality was extended to include everyone in the organisation and the role of the corporate management becomes central (Tervonen et. al, 2009).

The roots of Total Quality Management can be traced to early 1920's. During the early days of manufacturing, an operative's work was inspected and a decision made whether to accept or reject it. As businesses became larger, full time inspection jobs were created.

Accompanying the creation of inspection functions, some problems arose as follows:

• More technical problems occurred, requiring specialised skills, often not possessed by production workers

• The inspectors lacked training

• Inspectors were ordered to accept defective goods, to increase output and

• Skilled workers were promoted into other roles, leaving less skilled workers to perform the operational jobs, such as manufacturing.

These changes led to the birth of the separate inspection department with a "chief inspector", reporting to either the person in charge of manufacturing or the works manager. With the creation of this new department, there came new services and issues, e.g. standards, training, recording of data and the accuracy of measuring equipment. It became clear that the responsibilities of the "chief inspector" were more than just product acceptance, and a need to address defect prevention emerged. Hence the quality control department evolved, in charge of which was a "quality control manager", with responsibility for the inspection services and quality control engineering. In the 1920's statistical theory began to be applied effectively to quality control, and in 1924 Shewhart made the first sketch of a modern control chart. His work was later developed by Deming. However, there was little use of these techniques in manufacturing companies until the late 1940's. At that time, Japan's industrial system was virtually destroyed, and the Japanese recognised these problems and set about solving them with the help of some notable quality gurus – Juran, Deming and Feigenbaum. In the early 1950's, quality management practices developed rapidly in Japanese plants, and become a major theme in Japanese management philosophy, such that, by 1960, quality control and management had become a national preoccupation. By the late 1960's/ early 1970's Japan's imports into the USA and Europe increased significantly, due to its cheaper, higher quality products, compared to the Western counterparts. In 1969 the first international conference on quality control, sponsored by Japan, America and Europe, was held in Tokyo. In a paper

given by Feigenbaum, the term “total quality” was used for the first time, and referred to wider issues such as planning, organisation and management responsibility. Ishikawa gave a paper explaining how “total quality control” in Japan was different, it meaning “company wide quality control”, and describing how all employees, from top management to the workers, must study and participate in quality control (BPIR, 2009).

The quality revolution in the West was slow to follow, and did not begin until the early 1980’s. In the 1980s to the 1990s, a new phase of quality control and management began. This became known as Total Quality Management (TQM). Having observed Japan’s success of employing quality issues, western companies started to introduce their own quality initiatives. TQM, developed as a catchall phrase for the broad spectrum of quality-focused strategies, programmes and techniques during this period, became the centre of focus for the western quality movement (BPIR, 2009). In a Department of Trade & Industry publication in 1982 it was stated that Britain’s world trade share was declining and this was having a dramatic effect on the standard of living in the country. There was intense global competition and any country’s economic performance and reputation for quality was made up of the reputations and performances of its individual companies and products/services. The British Standard (BS) 5750 for quality systems had been published in 1979, and in 1983 the National Quality Campaign was launched, using BS5750 as its main theme. The aim was to bring to the attention of industry the importance of quality for competitiveness and survival in the world market place. Since then the International Standardisation Organisation (ISO) 9000 has become the internationally recognised standard for quality management systems. It comprises a number of standards that specify the requirements for the documentation, implementation and maintenance of a quality system. TQM is now part of a much wider concept that addresses overall organisational performance and recognises the importance of processes. There is also extensive research evidence that demonstrates the benefits from the approach. As we moved into the 21st century, TQM has developed in many countries into holistic frameworks, aimed at helping organisations achieve excellent performance, particularly in customer and business results. In Europe, a widely adopted framework is the so-called “Business Excellence” or “Excellence” Model, promoted by the European Foundation for Quality Management (EFQM), and in the UK by the British Quality Foundation (DTI, 2009).

2.4 Quality gurus

A guru, by definition, is a good person, a wise person and a teacher. A quality guru should be all of these, plus have a concept and approach to quality within business that has made a major and lasting impact. The gurus mentioned in this section have done, and continue to do and in some cases, even after their death. The implementation of TQM has been strongly influenced by the writings of Deming (1986), Feigenbaum (1993), Juran (1993), Ishikawa (1993) and Crosby (1989), which helped us to understand the essence of TQM. Kruger (2001) argues that the early development of the Total Quality movement influenced by these few quality pioneers.

2.4.1 W Edwards Deming

He placed great importance and responsibility on management, at individual and company level, believing management to be responsible for 94% of quality problems. His fourteen point plan or 14 principles (Deming, 1998) is a complete philosophy of management, which can be applied to small or large organisations in the public, private or service sectors:

• Create constancy of purpose towards improvement of product and service

• Adopt the new philosophy. We can no longer live with commonly accepted levels of delay, mistakes and defective workmanship

• Cease dependence on mass inspection. Instead, require statistical evidence that quality is built in

• End the practice of awarding business on the basis of price

• Find problems. It is management's job to work continually on the system

• Institute modern methods of training on the job

• Institute modern methods of supervision of production workers, the responsibility of foremen must be changed from numbers to quality

• Drive out fear, so that everyone may work effectively for the company

• Break down barriers between departments

• Eliminate numerical goals, posters and slogans for the workforce asking for new levels of productivity without providing methods

• Eliminate work standards that prescribe numerical quotas

• Remove barriers that stand between the hourly worker and their right to pride of workmanship

• Institute a vigorous programme of education and retraining

• Create a structure in top management that will push on the above points every day.

Deming also encouraged a systematic approach to problem solving and promoted the widely known *Plan, Do, Check, Act (PDCA) cycle*. The PDCA cycle is also known as the Deming cycle, although it was developed by a colleague of Deming, Dr Shewhart (Sun, 2000).

2.4.2 Armand V Feigenbaum

He was the originator of "total quality control", often referred to as total quality.
He (1961) defined it as:
"An effective system for integrating quality development, quality maintenance and quality improvement efforts of the various groups within an organisation, so as to enable production and service at the most economical levels that allow full customer satisfaction".
He saw it as a business method and proposed three steps to quality:

- Quality leadership
- Modern quality technology
- Organisational commitment.

Feigenbaum's contributions can be summarised in two main points (Hellsten and Klefsjo, 2000) :

1. Quality is the responsibility of everybody in the organization ranging from top management to unskilled workers.
2. Costs of non-quality have to be categorised if they are to be managed. Costs of control and costs of failure of control have to be minimised by a quality improvement programme.

2.4.3 Joseph Juran

Dr. Joseph Moses Juran was the first to develop the quality trilogy – quality planning, quality control and quality improvement. Good quality management requires quality actions to be planned out, improved and controlled. Juran's approach suggests that quality control has to be conducted as an integral part of the management function, broadened the understanding of quality at the time (kruger, 2001). Juran's quality trilogy is shown in Table 2.1.

Table 2.1: Quality trilogy (Juran, 1993)

Quality planning	Quality control	Quality improvement
Identify the customer	Choose control subjects	Prove the need for improvement
Determine the customers' need	Choose units of measurement	Identify specific projects
Develop products features	Establish measurement	Organize for diagnosis
Establish quality goals	Establish standards for performance	Provide remedies
Develop a process	Measure actual performance	Prove that the remedies are effective under operating conditions
Prove process capability	Interpret the difference (actual vs standard	Provide for control to hold gains
	Take action on the difference	

2.4.4 Kaoru Ishikawa

Kaoru Ishikawa substantially influenced the Japanese understanding of quality. Ishikawa has become known for his work on, in particular, four aspects of TQM: quality circles, the question of continuous training, the quality tool "Ishikawa diagram", and the quality chain. He argued that top management has to lead by example and to demonstrate actively that they are serious about quality. He emphasise the TQM involves everyone within the company; every employee should contribute his ideas of how to improve the work processes (Yamashina, 2000).

2.4.5 Philip B. Crosby

Philip B Crosby is known for the concepts of "Quality is Free" and "Zero Defects". His quality improvement process is based on his four absolutes of quality (Crosby, 1979):

• DIRFT – do it right first time

• The system of quality is prevention

• The performance standard is zero defects
• The measurement of quality is the price of non-conformance.

2.5 Characteristics, and comparison of seven TQM models

In the past 10 or 20 years a few organizations have radically transformed their performance. Many of the concepts and methods they have used are now collectively called total quality or total quality management. The successes of these organizations have dramatically changed how they and others see both quality and the management today. They are rethinking how they are organized, how they manage themselves, and even what businesses they should be in. Achieving quality became the key question to be answered in all organizations today. For example, the economic success of Japan, in the past 30 years, has drawn the attention of western managers to Japanese management techniques and strategies. Japanese management techniques are keenly studied and employed by western corporations. The fact that Japanese corporations used "superior quality" to capture, hold and build market share has not escaped the attention of western managers. Today, most chief executives in the West recognize that in all markets "quality" is a basic requirement for continuous existence and in some markets superior quality is an important source of competitive advantage

As the importance of achieving quality increased, the quest to learn how to achieve it has grown also. The emergence of different quality models have promoted the development of quality by providing a comprehensive, home-grown organizational model for the achievement of quality, and by opening to view organizations that have applied this model successfully. It is difficult to overstate the importance of these models of excellence in the promotion of quality practice over the past two decades. They have provided managers at all levels with evidence that it can be done here and, more important, they have provided in unusual detail, roadmaps of how it was done. Various nations and regional bodies have established quality models. The most widely known of these are the Deming Award (DA) in Japan, the Malcolm Baldrige National Quality Award (MBNQA) in the United States of America, the European Quality Award (EQA) in the Europe, the Canadian Quality Award (CQA) and the Australian Quality Award (AQA). At the second level Brazilian and Singaporean Quality Awards can be added. These models incorporate concepts and principles of Total Quality Management (TQM) and they provide criteria for assessing the excellence throughout the entire organization.

The broad aims of these models are to (McDonald et al., 2002):

- increase awareness of the importance of the "quality of offerings" and interest in "quality management" because of their important contribution to superior competitiveness;
- encourage systematic self-assessment against established criteria and market awareness simultaneously;
- prompt co-operation between organizations on a wide range of non-commercially sensitive issues;
- stimulate sharing and dissemination of information on successfully deployed quality strategies and on benefits derived from implementing these strategies;
- promote understanding of the requirements for the attainment of "quality excellence" and successful deployment of "quality management";
- stimulate organizations to introduce "quality management" improvement process.

Each model is based on a perceived model of TQM. In this section, the above mentioned seven quality models across the world, from advanced to developing countries, are described and the main characteristics, benefits, commonalities and possible differences are discussed.

These models incorporate critical factors of quality evolution, and hence implied sustainability of TQM implementation (McDonald et al., 2002). The evolutionary path is identified as product, service, customer, and market-based orientation. These frameworks also broaden the scope of quality management and offer a tremendous opportunity to operationalise quality management as a universal strategy (McDonald et al., 2002). A number of factors have encouraged many countries to introduce local, national, or transnational quality awards. Among these were: the importance of "quality" as a significant contributor to competitive superiority; the essential contribution of benchmarking and self-assessment techniques to improving performance; and the success of quality awards as a catalyst for spreading quality methods in most countries.

The following factors formed the basis of this comparative analysis:

- application categories;
- underlying framework;
- examination criteria;

- application procedures;
- scoring methods.

The aim of this section is to enhance the understanding of different quality models, highlight their underlying assumptions, and identify the benefits of using them as an audit framework and introduce the closest applicable one to HE organizations.

2.5.1 The EQA model for TQM

Recognizing the importance of quality performance, 14 major European companies formed the European Foundation for Quality Management (EFQM) in 1988, with the endorsement of the European Commission. The objective of the EFQM is to enhance the position of European industry and commerce by strengthening the strategic role of quality in corporations. This is because quality is perceived to be an important contributor to superior competitiveness. To accomplish the above mission, the EFQM intends to implement the following three-step plan (Ghobadian and Woo, 1996):

- publicly recognize and reward the successful implementation of total quality by European-based firms;
- encourage other firms to follow the example of the winning companies through networking and dissemination of information;
- through lobbying, educational and networking events, and wide dissemination of information, enhance the level of awareness among the society and business community as to the growing importance of quality to the European standards of living and competitiveness

The European Quality Award (EQA) was officially launched in 1991. The primary purpose of the model is to support, encourage and recognize the development of effective total quality management by European companies (Cauchick Miguel, 2001). It presently involves 16 countries: Austria, Belgium, the Czech Republic, Denmark, Germany, Hungary, Ireland, Italy, The Netherlands, Norway, Portugal, Russia, Slovenia, Spain, Turkey, and the UK. The model of the EQA is divided into two parts, Enablers and Results (Introducing EFQM, 2007). The enablers are leadership, people management, policy & strategy, resources, and processes. These five aspects steer the business and facilitate the transformation of inputs to outputs. The results are people satisfaction, customer satisfaction, impact on society, and business

results. Overall the EQA model consists of nine primary elements which are shown in Figure 2.1.

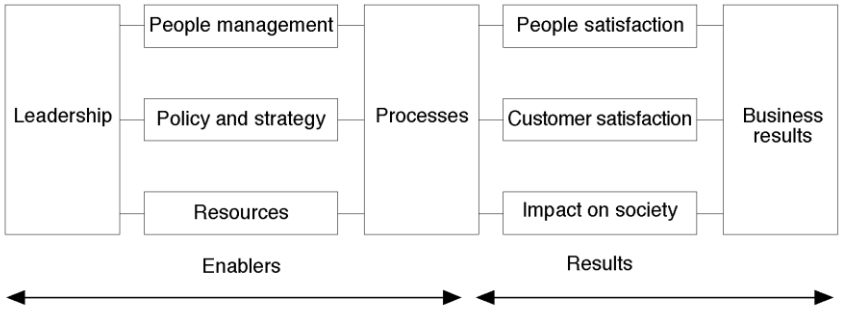


Figure 2.1: EQA framework

The assessment is based on a 1,000-point scale. The model recognizes that management plays the key role in the development of the structures and infrastructures necessary to enable the organization to meet its output and outcome goals. The importance of management leadership in driving quality is acknowledged by most academics and practitioners. Furthermore, the significance of developing human resources, process capability and planning is emphasized. On the result side, the EQA model emphasizes correctly the fact that financial results are not the sole measure of performance. It identifies three other measurement areas. The EQA model assumes that there is a causal relationship between outputs (financial results) and outcomes (customer satisfaction, and acceptance by society) as well as employee satisfaction. This assumption is logically attractive and supported to some extent by empirical evidence.

2.5.2 The MBNQA Model for TQM

In 1987, US Congress passed the Malcolm Baldrige National Quality Improvement Act (MBNQA), and thus established an annual quality award for the USA in an effort to improve quality management practices and competitiveness of USA companies. The MBNQA was created to promote quality awareness, identify the requirements for quality excellence, satisfy customers, and share information about successful quality strategies and benefits. The Baldrige Award is given by the President of the United States to businesses-manufacturing and service, small and large-to education and health care organizations that apply and are judged to be outstanding in the seven criteria areas It is currently administrated by the

National Institute of Standards and Technology (NIST), with the American Society of Quality (ASQ) assisting with the application review process, preparation of award documents and other administrative duties (Cauchick Miguel, 2001). NIST developed a set of core principles for quality management, based on an analysis of successful companies operating in the USA. These core principles are: leadership, customer-driven quality, continuous improvement and learning, design quality and prevention, planning for the future, company responsibility and citizenship, and focus on results. They form a framework for performance excellence and the basis of the award criteria (Figure 2.2). The criteria, used to assess an applicant's performance, are divided into seven categories: leadership, strategic planning, customer and market focus, information and analysis, human resource focus, process management, and business results. For education the Baldrige model criteria are: leadership; strategic planning; student, stakeholder, and market focus; measurement, analysis, and knowledge management; faculty and staff focus; process management; and organizational performance results.

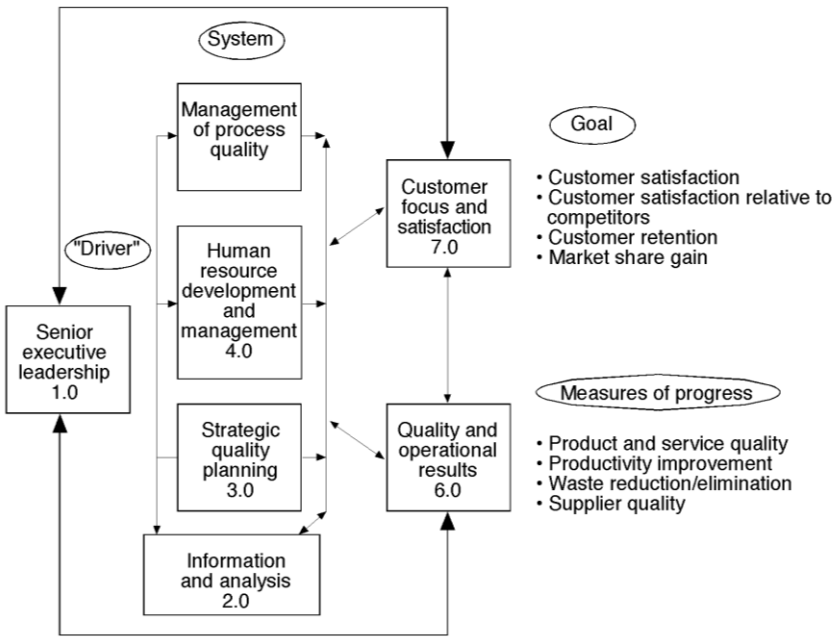


Figure 2.2: Baldrige award framework

The framework has four basic elements: driver; system; measures of progress; and goal. Two key assumptions underpin the model.

First, top management leadership is the primary driver of the business. Thus, like the EQA, Baldrige model recognizes the crucial role of the top management in creating the goals, values and systems that guide the pursuit of continuous performance improvement and external orientation. The latter manifests itself in terms of an emphasis on pursuing customer values and satisfaction as well as the use of benchmarking.

Second, the basic goal of the quality process is the delivery of ever-improving quality and value to customers. The model implicitly assumes that maximizing customer satisfaction is one of the most important corporate.

"System" comprises a set of well-defined and designed processes capable of meeting the customer's quality and performance requirements. The MBNQA model divides the system into four elements: management of process quality; human resources development and management; strategic quality planning; and information and analysis. The inclusion of information and analysis is an attempt to steer managers towards management by fact.

Measures of progress comprise the control elements of the model. The measures provide the basis for determining the type of actions required in the pursuit of the two primary goals of the model - these are continuous improvement of the value of the products or services from the customers' perspective and continuous performance improvement. The model identifies four performance improvement areas: product and service quality; productivity improvement; waste reduction and elimination; and supplier quality.

The four basic elements of the Baldrige model are divided into seven examination categories as presented in Figure 2.2. The model can be used to assess firms current quality management practices, benchmark performance against key competitors and world-class standards, and improve relations with suppliers and customers.

2.5.3 The Deming Application Prize

The Deming Prize was established by the Board of Directors of the Japanese Union of Scientists and Engineers (JUSE) in 1951. Its primary purpose was to spread the quality gospel by recognizing performance improvements flowing from the successful implementation of Company-Wide or Total Quality Control (CWQC or TQC) based on

statistical quality control techniques. The Deming Prize is open to both individuals and groups and is presented annually.

The Deming Application Prize has a check-list containing ten primary factors, involving the following categories: policies, organisation, information, standardisation, human resources, quality assurance, maintenance, improvement, effects, and future plans. The primary factors are further divided variously into a minimum of four and a maximum of 11 secondary factors. Expert panel members judge performance against these factors. It is worth mentioning that all items are equally weighted. The check-list explicitly identifies the factors and procedures which underpin the CWQC process. The check list names specific techniques and approaches. Thus, differently from the other awards, it is inherently prescriptive. However, the factors emphasise values similar to those of the other award models (Miguel, 2001).

2.5.4 The Canadian quality award (CQA)

The Canadian Ministry of Industry introduced the Canada Awards for Business Excellence in 1984, but revised the program in 1989, to reflect the MBNQA concept (Vokurka *et al.*, 2000). The resulting program, the Canadian Quality Award, was released in 1989. Canada's National Quality Institute (NQI) continues to use the reward to honour the practice of continuous quality improvement in Canadian organisations. The NQI, created in 1992, is a not-for-profit organisation which provides strategic focus and direction for Canadian organisations to achieve excellence, enabling Canada to set the standard for quality and healthy workplace practices throughout the world. Researching the approaches and practices of successful companies is part of the ongoing work of the NQI. The criteria is distributed into seven sections: leadership (strategic direction, leadership involvement, and continuous improvement), planning (plan development, plan implementation and review, and continuous improvement),customer focus (customer, market and product knowledge, management of customer relationship, and continuous improvement), people focus (human resources planning, participatory environment, continuous learning, employ satisfaction and wellbeing, and continuous improvement), process management (process development, process control, process improvement, and continuous improvement), partnership (partnering, supplier/partner management, and continuous improvement), and business performance (customer focus, people focus, process management, partnerships, responsibility to society, and owner/shareholder focus). The Canadian Framework for Business Excellence is depicted in Figure 2.3.

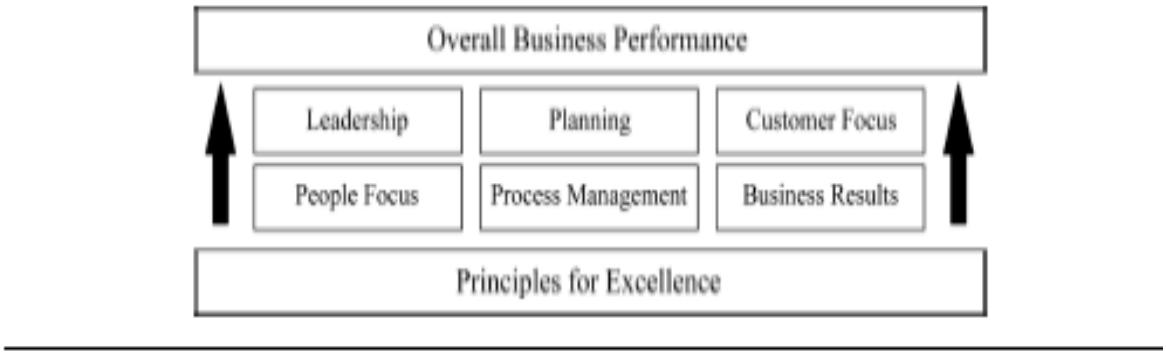


Figure 2.3 Canadian framework for Business Excellence

2.5.5 The Australian Quality Award

The Australian Quality Award (AQA) was established by Enterprise Australia in 1988 to encourage the indigenous companies to improve the quality of their offerings, raise their performance to world class level; and provide a benchmark for their achievements. The strategy they chose for the attainment of these objectives was similar to that of the Baldrige model and Deming Prize discussed previously. The underlying assumption of AQA is that improved quality position will enable the Australian companies to compete more effectively in an ever more competitive and global marketplace.

The AQA's evaluation framework is depicted in Figure 2.4. It has six examination or evaluation categories. Management leadership and customer focus are considered to be the main stimulus in the design of quality-oriented processes and procedures. Quality is seen as "managing the total organization using quality principles". Furthermore, the model implies that "customer focus" in every activity is a necessary condition for achieving improved quality. The AQA's core concepts and framework are similar to that of Baldrige. Like Baldrige, business results are not included in the evaluation process.

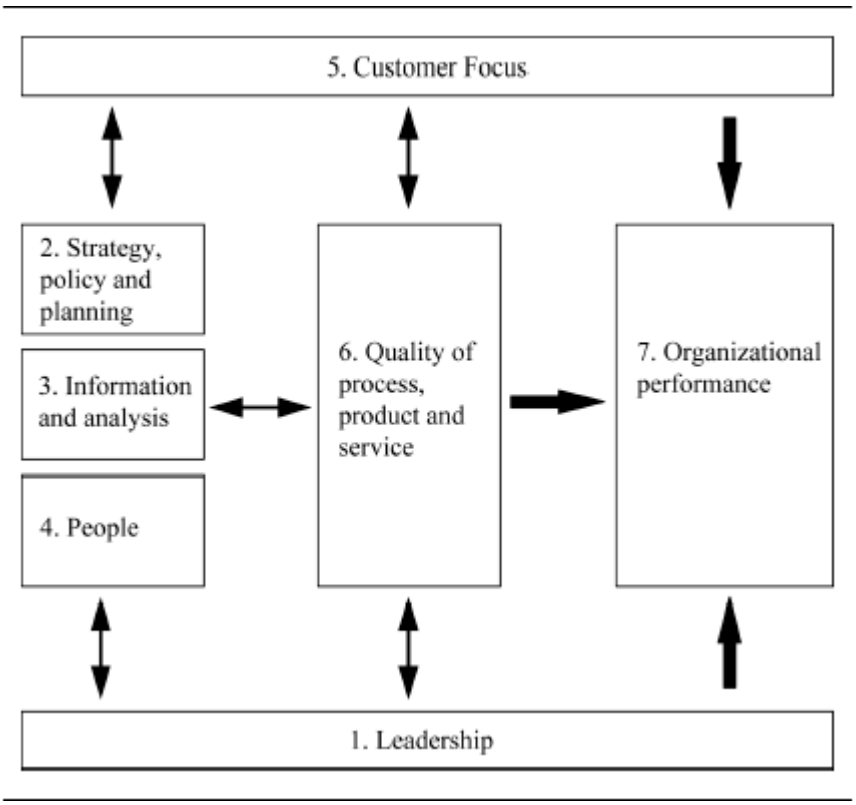


Figure 2.4 Australian quality criteria framework

2.5.6 The National Quality Award of Brazil (BQA)

The primary purpose of this model is to support, encourage and recognise the development of effective total quality management by companies operating in Brazil (Cauchick Miguel, 2001). Its criteria and assessment stages are designed to help identify organisational strengths and areas for improvement. The National Quality Award of Brazil is managed by the National Quality Award Foundation. In 1989, a study group was set up to investigate two of the major quality awards: the Deming Prize and the Baldrige model. Later on, in 1990, the federal government launched the Brazilian Programme for Quality and Productivity. The model was officially launched in 1992.

Since the BQA is strongly based on the US award, the set of core values and concepts are very similar. These core values and concepts include (Cauchick Miguel, 2001):

- *Customer driven quality:* Quality is judged by customers; therefore, customer requirements drive the organisation's strategic plan of how it will realise its goals.
- *Results orientation*: An organisation's performance system needs to focus on key results.

- *Leadership commitment*: An organisation's senior leaders need to set directions and create a customer orientation, clear and visible values and principles, and high expectations.
- *Long-term view of the future:* Successful pursuit of an organisation's goals and mission requires a strong future orientation and willingness to make long-range commitments to all stakeholders.
- *People recognition*: An organisation success in improving performance depends increasingly on the participation, skill and motivation of its workforce.
- *Public responsibility*: An organisation leadership should stress good citizenship and the organisation responsibility to the public
- *Management by processes and facts:* In order to monitor how the organisation is performing, management must analyse the performance on a continuous basis.
- *Continuous improvement and learning*: Improvement seeks to eliminate problems at their source and should become part of the daily work of all individuals and work units. As stated earlier, these core values are the basis of the criteria, described below.

The framework of the Brazilian model is depicted in Figure 2.5. Like the MBNQA model it comprises seven evaluation criteria.

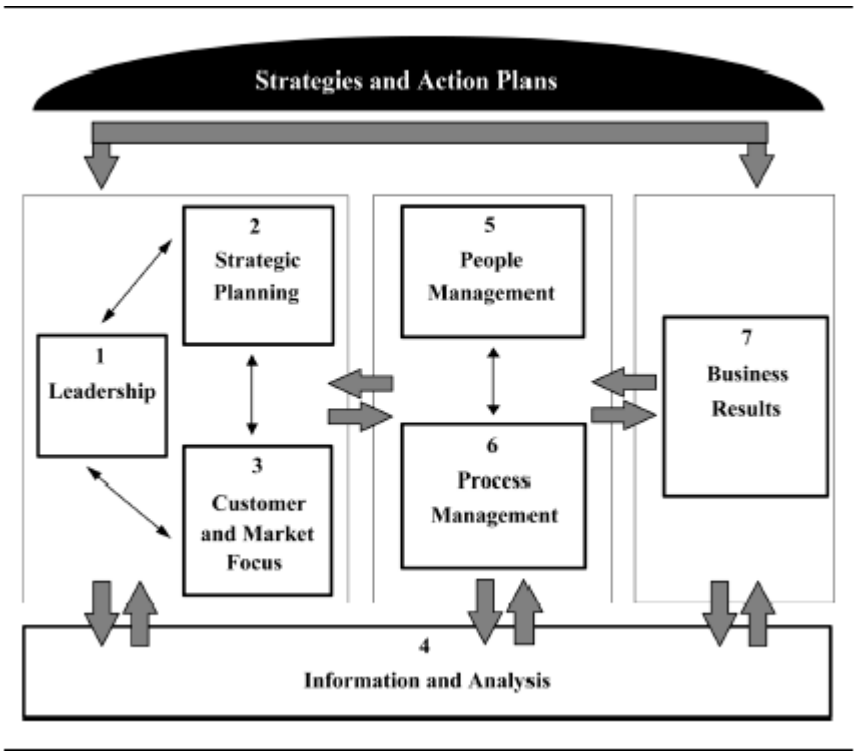


Figure 2.5 framework of the Brazilian quality model

2.5.7 Singapore Quality Award (SQA)

The SQA is modelled on the best features of the MBNQA, EQA and DP. As a symbol of world class business excellence, the SQA encourages organizations to strengthen their management system to improve their competitiveness (Lee and Quazi, 2001). There are seven categories in this model's criteria. Figure 2.6 shows the dynamic relationships among the criteria. It is to be noted that the SQA criteria are also very similar to MBNQA which had exactly the same seven assessment criteria. The criteria are built upon a set of key attributes and concepts. These values and concepts provide the foundation for integrating key performance requirements within the criteria framework. They are:

- Visionary Leadership
- Customer-Centric Excellence
- Innovation Focus
- Organisational and Personal Learning
- Valuing People and Partners
- Agility
- Knowledge-Driven System
- Corporate Social Responsibility
- Results Orientation
- Systems Perspective

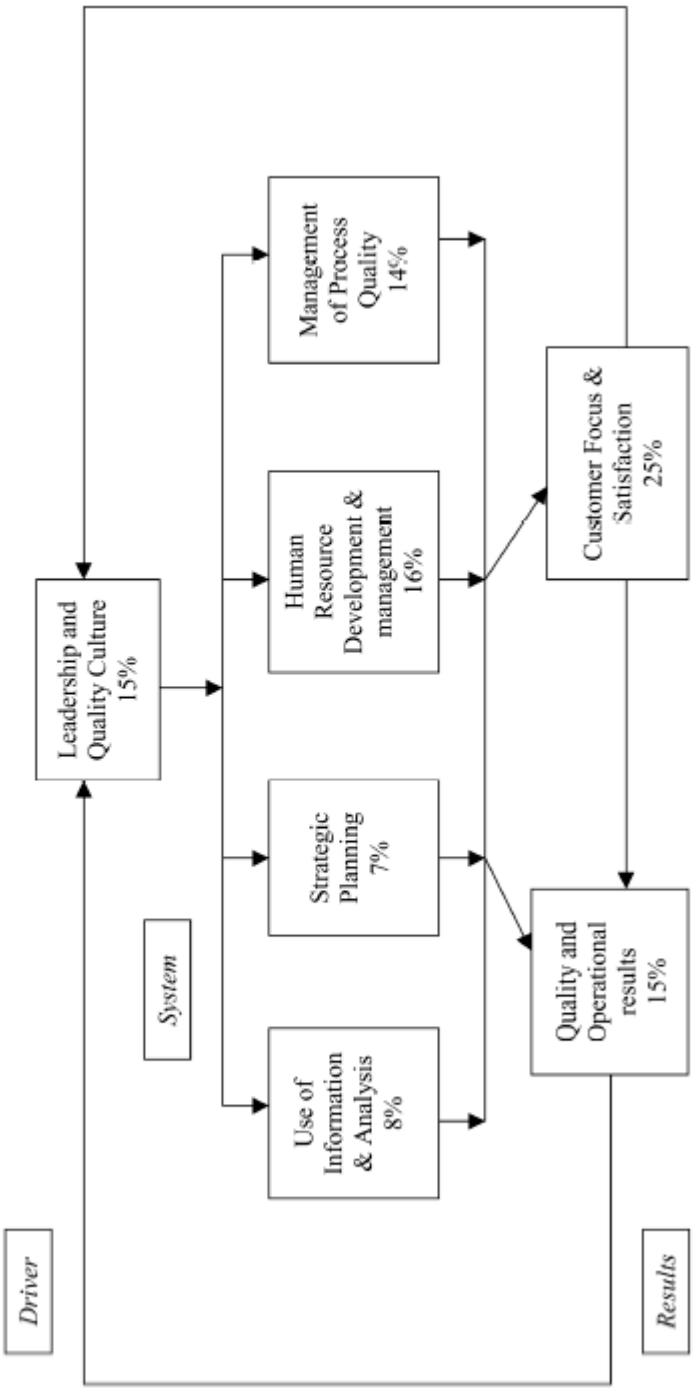


Figure 2.6: Singapore quality model framework

Examination of the above seven frameworks revealed strong similarities between the MBNQA, Brazilian and SQA frameworks. There are, however, differences in weightage, "assessment items" and the "areas to address" in these three frameworks. The EQM appear to be somewhat different both in the structure and the criteria for assessment.

In view of the above analysis, it could be concluded that use of any of the above mentioned quality frameworks for self-assessment is appropriate and adequate to capture the quality management practices of an organization.

2.6 Scoring methodology

The term “scoring” refers to the process of identifying strengths, areas for improvement and site visit issues for each examination item and the process of assigning a numerical score to them (Cauchick Miguel, 2001). There is a significant degree of similarity between the Baldrige, AQA and EQA scoring procedures. The main difference is found in the evaluation dimensions. The Baldrige model and the AQA rely on a maximum of three dimensions and a minimum of one dimension for determining the numerical score of the examination items. The dimensions considered are approach, deployment and results. Applicants are required to provide information relevant to the evaluation dimension(s) specified for a particular examination item. The EQA utilizes a total of four dimensions - two for enablers and two for results. The two dimensions used to evaluate enablers are approach and deployment, while excellence of results and scope are used for results. Submissions are scored at face value. That is to say, what the applicant submits is taken as factually correct. Lack of supporting evidence is highlighted as a site visit issue. At the site visit, examiners will look for factual evidence. The final score will be revised accordingly after the site visit.

Approach is concerned with how the requirements of a particular examination item are met. The emphasis of approach is on prevention rather than detection. Thus, if a company responds to problems but does not take action to correct the cause of those problems and prevent repetitions, the company will not score highly. Factors used to evaluate approach include one or more of the following (Ghobadian and Woo, 1996):

- the appropriateness of the methods, tools and techniques;
- the effectiveness of the methods, tools and techniques;
- how systematic the approach is, and how consistently it is applied;
- the degree of integration;
- the extent to which the approach embodies effective evaluation/ improvement cycles;
- the degree to which the approach is based on objective and reliable quantitative information;
- the extent to which the approach is based on prevention;

- the uniqueness or innovativeness of the approach, including new, significant, or effective adaptations of tools and techniques used in other applications or types of business.

Deployment refers to the extent to which the vision, methods and procedures have cascaded vertically and horizontally, within the organization. Vertical deployment is a measure of the extent to which the key objectives, such as customer focus, have percolated down from top management to lower levels of the organization and horizontal deployment is a measure of the extent to which functional areas other than operations have embraced the quality philosophy, tools, methods and procedures. It is a test of the maturity of the quality improvement program. In evaluating deployment, examiners are concerned with the appropriate and effective application of the stated approach by all work units to all processes and activities, to all products and services features, and to all transactions and interactions with customers, suppliers and the public.

A low score will be given to approach and deployment if the information provided is anecdotal, non-value-adding, or the evidence to support effective usage of plans is light. That is to say, the approach is weak in conception, it is not well deployed, or both. To score highly in approach and deployment the company must demonstrate sound and systematic approach, fully responsive to all the requirements of the examination item. In addition, the approach must be successfully and thoroughly deployed and integrated into everyday working patterns of the company. Evidence is sought to display that there are no weaknesses or gaps in deployment. The EQA goes further by requiring examiners to assess whether the approach could be used as a role model for other organizations.

The models reviewed attempt to identify the factors which influence the end results achieved by the organization. In addition, they attempt to depict the interactions between these factors. Results refer to outputs, outcomes, effects and impacts. The areas addressed include:

- performance levels;
- quality and extent of performance improvement;
- rate of performance improvement;
- breadth and importance of performance improvement;
- demonstration of sustained improvement or sustained high-level performance;
- customer perceptions;

- employees' perceptions.

Responses which score low on results tend to contain little factual or anecdotal data. In addition, there is little fit between the data collected and the major requirements of the examination item. A high score will be allocated to responses which demonstrate appropriateness, sustained and excellent improvement trends in key areas, strong evidence of industry leadership and its maintenance, and generic benchmark evidence (Ghobadian and Woo, 1996).

2.7 Comparing the models

The Deming Prize is not based on an underlying framework linking concepts, activities, processes and results together. Furthermore, it does not assume an underlying causality. It simply provides a list of desirable or good quality-oriented management practices. Its focus is on policies and plans; implementation of plans; information collection, analysis and control; results flowing from the implementation of policies and their effect; and future improvement plans. The Deming Prize is prescriptive in terms of the tools, techniques and practices that it recommends, for example quality circles, standardization, quality control, etc. Moreover, every factor is weighted equally and the assessors consider the overall progress of the organization rather than attaching a numerical score to each individual factor.

The Baldrige, EQA and other models attempt to formulate total quality management by identifying its constituent parts. Furthermore, they assume that there is a causal relationship between different constituents of total quality management; for example, management style and attitudes, or design and implementation of processes and the end results. The Baldrige model and AQA are implicitly based on the premiss that management leadership and customer/external focus are the two key factors underpinning the efforts to introduce total quality. The EQA also implicitly emphasizes the important role of top management, but the external emphasis is explicit rather than implicit. The emphasis on external focus manifests itself in a number of different ways including examination items dealing with customer satisfaction, and the requirement for the applicants to provide evidence of benchmarking. These three models (AQA, EQA and Baldrige) suggest that customers play the major role in defining the desired product and service quality levels and that the goal of quality improvement is enhanced by customer satisfaction.

The Deming Prize also shares these values. However, it presents them as a checklist rather than as an underlying framework.

At the first glance, the models appear to be significantly different in terms of the examination categories they use to establish the standing of an organization. In fact, there is no one single category common to all of the models. However, a closer examination of categories and items within each category reveals a number of common areas. These include:

- formulation of quality policies - these should be formulated in terms of meaningful goals and objectives and aimed towards gaining customer satisfaction;
- assigning responsibility for quality to the top management (management is expected to display quality behaviour openly through regular communication, acting as role models, assisting in provision of training and visits to vendors and customers - the Deming Prize expects the senior executive to undertake 30 or more field visits per annum;
- constant improvement in the level of understanding of the quality policies within and without the organization;
- managing quality procedures and control;
- reviewing the progress of the improvement process;
- delegation of authority, recognition of quality behaviour, and empowerment of the workforce.

Each model also has its unique categories and emphasis. These are identified for each award. The Deming Prize addresses factors concerned with the management of facilities, vendors, procurement and service. The EQA considers the management and provision of resources. This is a key task of management and has a bearing on processes employed by the organization and results obtained. Moreover, this category can be used in considering issues not addressed by the underlying model, for example, innovation. The Baldrige model incorporates projection of the competitive environment, management of data and information, and consideration of human resources. The AQA considers the organizational values. It is suggested that it is the organization’s values that incorporate quality issues.

The models place a different emphasis on the importance of leadership and results. The EQA places significant importance on the results and it has four examination categories for this

purpose. Moreover, it is the only model which unquestionably addresses the financial results. The EQA, Baldrige and AQA also consider the impact on society.

The SQA places the strongest emphasis on leadership while others do the lower emphasis. The reason for this may be that organizations in Singapore are still fairly new to the concept of TQM. Hence, to promote and implement TQM, more emphasis has been placed on senior leaders who are the main decision makers and "drivers" of organizations (Xie et. al, 1998).

In general, the Deming Prize criteria place a greater emphasis on the quality assurance of products and services, whereas the Baldrige model, EQA and AQA criteria have a broader scope and less depth.

Deming and AQA are not competitive prizes and there are no restrictions on the number of winners they can have in each category. The other models are competitive and the number of winners is restricted. The Deming Prize is the only model that formally ascertains the views of the suppliers and customers of the applicant organization.

Business results have the greatest weight for the Baldrige model, customer satisfaction for the EQA, organisational performance for the CQA and people or processes for the AQA. Conversely, all of the checkpoints in the Deming Prize are equally weighted. From Criteria 3 to 6, the BQA scores are similar to the Baldrige model and the European model. Regarding results, it is almost as same as the Baldrige. Other similarities among the awards involve the application and judging procedures. All these quality models evaluate their applicants, with judges and assessors (examiners) trained in the models' programmes and criteria. Additionally, all of the models' criteria are updated periodically by the corresponding administrators in order to represent the most current understanding of organisational quality practice and improvement.

The Baldrige and other models are prescriptive in terms of the philosophy and values which they expound. However, they do not prescribe any particular method or tool to improve total quality. They are based on the following management philosophies and principles:

- Everyone in the organization is responsible for quality but it is top management's function to create the necessary environment for driving quality forward.

- Only top management can influence and alter the system, thus its role (in setting goals and quality policies, establishing targets for the design of systems and procedures, promoting quality awareness, and providing role models by displaying quality behaviour), is crucial to the development of a total quality environment.
- External focus and customer-oriented quality programmes - it is necessary for a company managed in a total quality fashion to benchmark itself against its competitors and have processes and procedures in place to enable it to understand the needs of its customers and manage its customer relationship.
- High level of participation by employees and teamwork - attainment of consistent quality levels and performance targets requires a well motivated and cohesive labour force.
- Education and training designed to develop the organization's human resources is considered by all of the awards to be one of the pillars of total quality.
- Emphasis on management by fact rather than by instinct or feel, which requires the design of an information system encompassing a set of measurable and objective indicators relevant to the way the company provides value to customers.
- A clear understanding of internal processes - self-assessment against fixed and arguably universal criterion is a key emphasis of the awards reviewed. This requires the development of a thorough and systematic understanding of all internal processes.
- Importance of managing supplier relationship and quality.

2.8 Factors affecting the criteria of the models

A number of factors were found to affect how the criteria framework of quality model is initially set up and subsequently modified.

The first factor is the economic and social development of a country. In under-developed and developing countries where few companies practice quality management, the model generally places great emphasis on the leadership system (Hanaee et al., 2011). Many studies have shown that it is of critical importance that senior management is committed to the quality process and leads to foster an environment of quality excellence, competitiveness, and continuous improvement. Without the driving force and commitment of top management, most quality initiatives will fail. In contrast, there is usually less emphasis placed on the

impact on society criterion, perhaps because this does not address a company's immediate competitiveness (Tan, 2002).

The second factor that may shape the development of a quality model is culture. This is clearly seen in the EQA, where a higher weighting is placed on both the Impact on society and people management criteria. European directors recognize the need for their companies to act within a social as well as an economic context. This is because they believe that their companies are "owned" not just by shareholders, but also by the people interacting with them such as employees, clients, suppliers, local communities, etc. Furthermore, European companies have always considered people as an integral part of their businesses. In the people management criterion of the EQA, not only does it examine how companies develop and review human resource plans and ensure involvement and empowerment, equally important is the employees' perception of the company in terms of the working environment, career prospects, employment conditions, etc. The focus is on the results that a company achieves in relation to the satisfaction of its employees (Bloom *et al.*, 1994).

The third factor is the desire to be in line with international standards and practices. For example, in the formulation of Singapore's national quality strategy, which consisted of 13 initiatives to entrench a quality mindset into Singaporeans, two of the initiatives were to ensure that quality systems developed are in line with international standards, and to secure overseas recognition of Singapore's quality capabilities. Therefore, it was important that the SQA is a model of business excellence that truly represents the world's best practices (Calingo, 1995). As another example, in the establishment of the SABEA, business organizations stressed that they would only support an award system that had international standing so as to meet international competitive challenges.

2.9 Benefits, shortcomings and impact of the models

The EQA, Baldrige and AQA attempt to identify key processes which affect total quality and link these with one another as well as the outputs and the outcomes attained. They attempt to establish cause and effect between processes employed and results obtained. The models are not solely concerned with the quality of final offerings. The quality of final offerings is the end result of highly integrated and complex efforts throughout an organization. It is extremely unlikely that high quality offerings can be delivered unless the environment is designed to support the attainment of this goal. The models reviewed attempt to identify and

evaluate factors which affect this environment. On the other hand, the models do not seek to assess the overall management excellence; they are concerned with factors which affect total quality management. The models make a number of assumptions and, arguably, are not as comprehensive as they should be. In designing any model, there are trade-offs between comprehensiveness and complexity. Arguably, too narrow a model would fail to inspire the organizations, while too broad a model would be difficult to manage and evaluate. Judging by the interest shown in the models and comments by industrialists, the models have struck the right note. This does not mean that there is no room for improvement. In fact, the models should practice what they preach and continuously improve the underlying model and ensure that their criteria meet the requirements of the time. The evidence suggests that this lesson is taken on board by those responsible for the administration of the awards; for example, the Baldrige criteria have been modified several times so far.

A major aim of the models reviewed was to raise quality consciousness among industrialists and the general public.

Another aim of these models was to facilitate sharing of experiences and to encourage co-operative behaviour. This is good for the customers but also good for organizations because they have the opportunity to listen and learn from their customers.

The models help organizations to establish a benchmark from which all future progress can be measured, as well as providing the businesses with improvement ideas. The evidence suggests that some companies apply for no other reason than to obtain feedback from the examiners.

Baldrige, AQA and, to a lesser extent, EQA are criticized because of their weak focus on the business results. Detractors also argue that the models are too process oriented and place too much emphasis on TQM as a "check the box activity" and not as a path to sustainable results. They argue that more emphasis should be placed on results over time and not simply reinforce the culture of "just do it". The EQA, by including and examining financial results, has, to some extent, addressed this criticism. However, quality is not an end in itself but a mean to achieve an end.

The other criticisms include:

- model criteria are static and not dynamic;
- supplicants nominate themselves and are not nominated by customers;
- the EQA, Baldrige, Deming and, to a lesser extent, the AQA fail to define quality clearly which is a major shortcoming, because they are unable to help the organizations to reach a common understanding;
- models encourage a home-grown approach to quality and this will not help them to achieve world class performance;
- companies may focus on winning the award rather than opportunities for self-examination, learning and improvement;
- pursuing the model distracts the attention of the key executives from running the business.

The models are based on a perceived model of TQM. They do not focus solely on product, service perfection, or traditional quality control methods, but consider a wide range of management principles and factors which influence the quality of the final offerings. The Description of each model is summarised in Table 2.2.

Table 2.2: Description of the quality awards

MBNQA	EQA	Deming	Canadian	Australian	Brazilian	Singapore
Objectives: 1. To improve performance practices. 2. To facilitate communication and sharing of best practices among US organizations. 3. To serve as a working tool for understanding and managing performance, planning, training and assessment.	**Objectives:** 1. To stimulate and assist European organizations in improving customer and employee satisfaction. 2. To support European managers' efforts to initiate TQM and achieve global competitive advantage.	**Objectives:** 1. To evaluate and recognise methods of company-wide quality control for Japanese businesses	**Objectives:** 1. To encourage the adoption of quality principles, practices and process in Canada 2. To improve profitability, responsiveness and efficiency of organisations through continuous improvement to bring higher	**Objectives:** 1. To give Australian organisations the drive and knowledge for achieving the world's best quality practices. 2. To secure the Australian Quality Council as the commonwealth 's principal quality organisation. 3. To create	**Objectives:** 1. To promote the improvement of quality practices. 2. To facilitate communication and sharing of the best practices among companies operating in Brazil. 3. To encourage the adoption of quality	**Objectives:** 1. Common understanding of the requirements for business excellence 2. Enhancement of organisational performance, practices and

			living standards.	national wealth.	principles and practices in Brazil.	capabilities 3. Benchmarking and sharing of best practices among organisations 4. Recognition of organisations that have attained excellence.
Criteria: 1. Leadership 2. Strategic planning 3. Customer and market focus 4. information and analysis 5. Human resource focus 6. process management 7. Business results	**Criteria:** 1. Leadership 2. policy and strategy 3. People management 4. Resources 5. Process 6. Customer satisfaction 7. People satisfaction 8. impact on society 9. Business results	**Criteria:** 1. Policies 2. Organisation 3. Information 4 Standardisation 5. Human resources 6. Quality assurance 7. Maintenance 8. Improvement 9. Effects 10. Future plans	**Criteria:** 1. Leadership 2. Planning 3. Customer focus 4. People focus 5. Process management 6. Supplier focus 7. Organisational performance	**Criteria:** 1. Leadership 2. Strategy, policy and planning 3. Information and analysis 4. People 5. Customer focus Quality of process, product and service 6. Organisational performance	**Criteria:** 1. Leadership 2. Strategic planning 3. Customer and market focus 4. Information and analysis 5. People management 6. Process management 7. Business results	**Criteria:** 1. Leadership 2. Planning 3. Information 4. People 5. Processes 6. Customers 7. Results

2.10 Successful implementation of TQM

Some investigations indicated that the effective management commitment can play an important role in the success of the organizations. . For example, Senge (1990) says that the research of management has clarified that the commitment of top management is crucial to the success of any effort aimed at changing the operational philosophy of the organisation. Without the support of management the behaviour of the employees of the organisation is unlikely to change and it has been argued that change will be more successful if top management is committed to the change (Senge, 1990). The absence of top management has been considered as main reason for the failure of TQM implementation at the organizations (Al-Zamany et al., 2002). Masters (1996) argued that the lack of the top management commitment can be one of the six possible factors for the unsuccessful implementation of TQM. Krumwiede (1998) believes that top management is responsible for the culture within the organisation; they must work to improve the existing culture. He adds that chief executive officers must accept new ideas and philosophies such as TQM.

Mosadeghrad (2006) in his article explained in more detail about factors causing unsuccessful implementation of TQM. He documented that failure of the TQM is attributed to lack of consistent senior management commitment and support, leadership style of managers – too top down or too laissez faire, superficial knowledge of the implementers of TQM, lack of a formalized strategic plan for change, vague improvement goals, unclear strategies and conflicting priorities, lack of developing and sustaining a quality oriented culture, lack of employees' motivation, participation and team working, employee apathy and resistance to change, lack of linkages between remuneration and firm's performance, lack of recognition for success, lack of training, education and technical knowledge and experience about TQM, poor coordination, close vertical communication (top down and bottoms up), lack of work discipline, lack of resources and support, financial crisis, an organizational approach, a long-term focus and failure in understanding the voice of the customer.

In the case of HE organisations, Sirvanci (2004) explained that presidents and chancellors of higher education institutions do not enjoy ultimate authority in hiring and firing of personnel and allocating resources. He concluded that University presidents and chancellors, as leaders, can naturally set goals, organizational values, and performance expectations. However, since

they lack the necessary authority, it is difficult for them to deploy these values and goals through the layers of the higher education institutions. In addition to role of leadership and top management, three other issues are critical for successful implementation of TQM as follows (Sirvanci, 2004):

1) Cultural and organizational transformation

Organizations that have adopted TQM have transformed their institution's culture into a total quality culture that involves elements such as teamwork, customer and market focus, employee involvement and participation, and process management.

Higher education institutions have deep-rooted traditions, dating back several centuries, which cause them to resist change. So, in adopting the TQM culture, organizations need to move from a product focus to a market focus.

Organizationally, higher education institutions are based on a strong departmental model. The departmental structure is further reinforced by the fact that promotion decisions for faculty are initiated by the departments, and the departments compete with each other for university resources. As a result of the strong departmental organization, implementation of horizontal (or process) management, which involves desirable practices such as interdepartmental team teaching and cooperation among departments for curriculum development, becomes difficult.

2) Customer identification

Customer focus is one of the most important elements of TQM. For this importance, customer satisfaction is often used synonymously with quality, and quality is frequently defined as meeting customer expectations. One of the critical steps in TQM implementation is the step of customer identification, where current and potential customers of an organization are determined. Customer focus provides the direction and targets for improvement efforts, and customers and the market are the driving forces for quality efforts.

Mehrabi, et al. (2008) believe that One of the factors affecting the success of TQM is the attention paid to the customer (customer focus) and recognition the quality from view point of the customer.. He remarked that satisfied customers are considered as income sources for the organizations and those organizations that are unable to obtain the satisfaction of their customers will gradually vanish in competitive markets. They concluded that organization-

customer relations should be improved and all measures taken in the organization have to be directed toward the recognition of customer needs.

As higher education institutions adopt the TQM paradigm and initiate continuous improvement, the customer identification step at these institutions seems to present more difficulties than are encountered in business organizations. Among the main groups within the higher education institutions – namely faculty, students, and administrators – there is not much agreement on who the customers are. Most administrators tend to perceive students as the customers, but others including alumni, employers, society, faculty, local community, academic disciplines, staff and parents should not be neglected

3) Students' role

While in some HE, students are treated as customers, their role as customers is a debatable issue. It is clear that higher education institutions are service organizations, but a closer look at their operation reminds us the flow of products in a production plant. As the finished product carries the brand name and label of the manufacturer, graduating students are issued with diplomas certifying that all the requirements for their degree have been completed. In the context of the production analogy, university graduates compete for jobs just as brands and products compete for customers in the market place. Thus, graduates may be interpreted as the finished product, and that employers are the customers of higher education institutions. However, unlike manufacturing companies, in universities students have other roles besides their product roles. In a comprehensive effort four different roles for students have been identified (Sirvanci, 2004)

Product-in-process –Degree seeking students are the "product-in-process". They are the "raw material" when admitted and the "finished product" when they graduate.

Internal customers for facilities – Students are the "internal customers", in fact, paying customers for many campus facilities and services such as, food services, bookstores, libraries, sport facilities, registrar, and others. These non-academic facilities contribute indirectly to the quality of the institution's product by helping to attract better students, providing a more satisfactory campus climate, and also by supporting academic programs.

Laborers in the learning process – Although students are not technically employees, more likely are considered as lower-level employees. This role evolves because, as they receive service (knowledge) from their instructors, are expected simultaneously to work and exert effort in order to learn the material by various means such as completing projects, term papers, and preparing for tests. The *laborer* role seems to be unique to the students and because of this role, the education process is different from other service industries.

Internal customers for the delivery of course material – This is the other component of the student's dual role in the classroom. In fact, most people have this role in mind when they think of students as customers.

Deming (1982) argued that the principles of TQM can apply both manufacturing and service industries. In this view all universities and HE institutes are considered as service sectors as well. At recent years, many British service organisations and sectors have been studied in terms of application of TQM (Tsang and Antony, 2001). Analysing different successful factors for the study found that most important factor for the implementation of TQM in the service industries in the UK is the "customer focus". They explained that because of more interaction with the customers, some quality problems may rise during to the service. Govindarajulu and Daily (2004) mentioned that "motivated employee" is the key factor in successful implementation of the management and explained four important elements to increase employee motivation:

1) **Management commitment;**

Commitment from top management is like a framework for the improvement. Top management needs to consider organizational culture, because organizations with rigid, top-heavy, and bureaucratic structures have a more difficult time implementing changes than a organization that has a flexible and lean structure. The need for cultural transformation in adoption of a quality management program necessitates training. Through education and training, employees become more aware of the need for quality management and, increase adaptability to change, and change to a proactive attitude. It is also critical for managers to train new employees and continue education of current staff.

2) **Employee empowerment;**

They described employee empowerment as:

The importance of giving employees both the ability and the responsibility to take active steps to identify problems in the working environment that affect quality or customer service and to deal effectively with them.

No vision, no strategy and no goal can be achieved without able and empowered employees. Empowered employees are motivated and committed to participate and engage in good organizational practices. Employees who are not empowered have less commitment for improvement than the empowered employees. One way that management can encourage employee empowerment is by changing the form of the organization. The traditional top-down organization inhibits employee empowerment; instead, a flatter, horizontal organization should be in place to encourage employee empowerment. Empowered employees who have decision-making power are also more likely to be more involved in the improvement of the organization.

In addition, cross-functional teams may be particularly helpful in empowering employees. Benefits of such teams include: collective knowledge to develop comprehensive solutions, avoiding duplication of efforts, and accomplishing many tasks simultaneously

3) **Rewards;**

A well-designed reward system can be helpful in promoting employees to perform sound organizational practices. Rewards can be a reinforcement to continuously motivate and increase commitment from employees to be responsible.

Rewards can be implemented in several forms such as financial rewards and recognition awards. Award and recognition programs, profit-sharing programs, increase in pay, benefits and incentives, are some of the systems that can be used to reward employees for good organizational practices. Monetary rewards may be one of the important motivators for inducing employees to participate in improvement efforts. On the other hand**,** some employees are not likely to be motivated by money all the time. In fact, sometimes, innovative non-monetary rewards like paid vacations, time off from work or gift certificates can be quite effective in encouraging employees. On the other hand, some employees may be

more motivated by recognition and praise than other factors. Some employees may admit that they would do their best if their input is recognized. Moreover, some employees may expect appreciation from managers, colleagues and even their families for their effort. So, managers cannot follow a "one program fits all" approach to employee incentives. They must keep in mind the different motivating factors of the various employees in the organization and develop a reward system that satisfies everybody. Finally, sometimes, negative reinforcement may be necessary for making employees perform certain tasks, but overall "positive rewards" are more effective motivators than their negative counterparts.

4) **Feedback and review**

In order to achieve long-term success most managerial programs need some form of review and feedback for continued improvement. Feedback ensures employees know their responsibilities and communicates the link between their performance outcomes and rewards in environmental endeavours. Without appropriate feedback and communication, employee efforts may come to a standstill.

2.11 Impediments to TQM adoption

The lack of significant success in organizations is often not a failure of the TQM concept, but a failure to pay adequate attention to the cultural and structural variables that influence TQM. TQM, unlike other programmes, involves changing the way people interact and work in organisations.

The change of culture was found to be the first most common barrier for TQM implementation, while is also said to be one of the main determinants for the success of any programme (Gotzamani and Tsiotras, 2002). Unsuitable organisational culture is considered as the most commonly quoted reason for quality programme failure (Prajogo and Sohal, 2004). Cultural change was one of the most critical success factors for the successful implementation of TQM in the UK service sector (Tsang and Antony, 2001). Huq (2005) mentioned that failure to generate a continuous improvement culture contributed significantly towards unsuccessful implementation.

Top management commitment plays a role in successful TQM implementation. There is evidence that lack of top management commitment is one of the main obstacles to implementing TQM (Amar and Zain, 2002; Prajogo and Sohal, 2004). As argued by Al-

Zamany et al. (2002), the absence of top management commitment represents the main reason for the failure of such programmes.

Also, it could be said that traditional managers' resistance to TQM is considered as barrier of applying TQM. These resistances are grounded in some opposing principles. For example some traditional managers believe that they know better than others and also some of them believe that the customer is not always right (Feinberg, 1998).

Lack of employee empowerment is considered another obstacle of TQM implementation. Deming (1986) focused on the importance of empowering employees by giving them authority and autonomy. Amar and Zain (2002) argued in their study that employees' attitude towards quality is seen to be one of the greatest barriers in the respondent organisation. Some respondents found that it is very difficult to change the attitude of employees with regard to quality

Inefficient knowledge and understanding of the concept of TQM is one of the challenges that face the implementation of TQM (Huang and Lin, 2002). Bhanugopan (2002) considered the complications of implementation, which included lack of knowledge as the most common problem for all organisations attempting to implement TQM. Zairi (1996) mentioned that failures in TQM implementation can be attributed to a wide variety of reasons, including:

- failure to sustain quality effects and change the culture of work
- failure to translate TQM principles into tangible outcomes and the lack of measurement for improvement purposes
- failure to understand that quality is a long-term process and that it needs resourcing for long-term results.

Similarly, Adebanjo and Kehoe (1998) pointed out that problems face the quality programme:

- top management does not insist on systematic measuring of customer satisfaction level and training programmes
- inadequate training programmes to enhance workers' skills and involvement in quality improvement activities
- companies do not place enough importance on cases of goods returned or relate such cases to customers

- many companies do not involve suppliers when making improvements to products and, in general, suppliers have problems in meeting the companies' requirements
- insufficient teamwork facilitators and team building techniques such as Belbin are employed
- worker evaluation lacks a systematic approach and hence salary adjustments are not commensurate with job functions. Appreciation of contribution by workers is not apparent.

Salegna and Fazel (2000) surveyed the barriers faced by TQM and non-TQM organisations. The results revealed three major barriers facing TQM in the USA organisations: insufficient time, poor communication and lack of real employee empowerment. For non-TQM organisations, the barriers include lack of motivation, insufficient time and lack of strategic planning for change.

Building on the previous discussion, a summary of the most common barriers to TQM implementation:

- culture issues such as culture change and unsuitable organisational culture
- lack of top management commitment
- lack of systematic measuring of customer satisfaction level
- lack of employees empowerment, poor of training programmes, insufficient teamwork facilitators
- inefficient knowledge and understanding of the TQM concept and its purposes failure to understand quality as a long-term process
- weakness of suppliers relationships
- poor communications.

2.12 TQM in Higher Education

The TQM in Higher Education (HE) seems to have started in the 1990s, as an individual movement in some universities in the USA and UK. Since then, the movement has gathered a lot of momentum and has begun to manifest itself globally. In 1998, education sector organizations first became eligible for application for the MBNQA which is administered through an active partnership between the government and the private sector in USA. This inclusion of the educational sector was in response to several national reports that indicated

concern over the lack of progress in improving the quality of learning centres. It was not until 2001 that a university won the Baldrige Award. The Baldrige committee announced University of Wisconsin at Stout as the winner of the Baldrige award (Thompson, 2004).

There have various views regarding the definition of quality in HE. The clearly definition of quality highlighted by the UNESCO is:

"Quality in HE is a multidimensional concept, which should embrace all its functions and activities: teaching and academic programmes, research and scholarship, staffing, students, infrastructure and the academic environment. Particular attention should be paid to the advancement of knowledge through research" (UNESCO, 1998).

Meanwhile, some researchers believe that the quality in HE organizations is ambiguous (Reeves and Bednar, 1994). Horsburgh (1998) stated five different definitions for quality. First, quality of education can be viewed as high standards. High qualified institutions such as Harvard, Massachusetts, Vancouver, Tokyo, Oxford and Cambridge universities are included in this definition. At the second definition of quality, it is perceived as consistency. At this definition, the aim of all processes is student satisfaction. The aims of education are only achieved by students and academic as well as administrative members are excluded from this consideration. Fitness of purpose is the third aspect of definition of "quality". The view points of clienteles (students, academic members, administrative staff, governing board, etc) are highly considered for either "fitness" or "purpose". The fourth definition of quality is based on as a value for money. For example, a government measure of the quality of education in terms of efficiency and cost effectiveness may be the cost per equivalent full time student. Finally, at the fifth definition, education is perceived as a transformative process in which the student is an active participant rather than passive receiver. In other words, educational institutes need graduates who are not only bright and have the higher level of academic abilities and competencies but they must be adaptable, flexible, self motivated, willingness to learn and also able to interact effectively in team workings and have appropriate interpersonal skills (Hansen, 2001).

In the last 20 years, HE institutions and universities have come under a lot of pressure from various stakeholders, like students, governments, businesses and the society as a whole to improve them.

There are many factors that drive the adoption of TQM in HE institutions. These factors could be categorised under four main headings:

I) Internal stakeholders: The internal factors are part of the nature of HE institutions and stem from their continuous drive to improve their academic standards. Cowles (1993) noted that universities pursued TQM for improving student, faculty and staff offering and thus improve morale.

II) External stakeholders: Government and society pressure are seen as two main external factors for improving HE quality. For example, in the UK there has been explicit pressure from government which has shown increasing concern with quality (Williams, 1993).

III) Competitiveness: Competition is a major reason for the quality movement in general, and it is specifically applicable in HE. Universities and HE institutes compete for funding, new students, faculty, research funding, higher ranking, etc (Yanhong, 1998). Ensby and Mahmoodi (1997) stated that the competitive forces were prompting education institutions to re-evaluate their traditional approaches.

IV) Productivity: Improving the HE institution's productivity through being more productive and cutting waste and cost would be achievable. The majority of authors identified the student as a customer and as product of HE depending on his/her position in the educational process (Michael et al., 1997; Nachlas, 1999). Since universities provide educational services to students, a student is a customer before being admitted, and the university draws up strategies and tactics to improve its standard to attract more applicants in quantity as well as a higher number of more qualified students in final year school grades in quality just as a commercial establishment for attracting more customers. So, at the time of admission, the student is both customer as well as raw material, but when the teachers provide knowledge and skills, a student becomes a product.

As mentioned earlier, most of the definitions of TQM concentrate on satisfying the customer. Thus customer identification is an important step in TQM implementation for all organisations. In the case of universities and HE institutes, it must be realised that identifying the customer is sometimes more complicated. Kanji and Tambi (1999) classified customers of HE institutions into two different groups: internal and external. In this view, the employee is an internal customer and government, industry and society are classified as external customers. Students are considered as external and as well as internal.

2.12.1 Deming's principles in HE

Redmond and co-workers (2008) selected and described six of the Deming's 14 principles and their implications for organisational management in HE. The rationale for choosing these principles was not that they are more important for quality, but rather because the authors considered them as among the most important for management in HE. They believe that these six principles emphasise critical considerations for responsive educational management including leadership, quality improvement as against reliance on inspection, teamwork, the removal of fear in the workplace and the removal of organisational barriers that rob people of their right to pride in their work. The six principles they have selected are as follows:

1) Principle 2. Adapt a new philosophy with management learning what their responsibilities are and by assuming leadership for change

It is no longer acceptable to tolerate delays, mistakes, poor quality work, employees who do not know what their job is and are afraid to enquire, inadequate and ineffective supervision in management. While institutions of HE are concerned with learning and creating knowledge through their research activities, it is ironic that they have been falling behind other organisations in accepting and implementing quality initiatives (Sirvanci, 2004). HE is now being driven towards commercial competition which is a result of the development of education globally and the reduction of financial support from government agencies. Introducing quality management initiatives is seen as a way of responding to the challenges within HE and as a means of improving staff and student morale, increasing productivity, and delivering higher quality services (Redmond et al., 2008).

2) Principle 3. Cease dependence on inspection by building in quality into the service

Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place (Deming, 1986, p. 23).

Dale and Plunkett (1990) discussed that the oldest approach to securing quality in manufacturing is inspection. This typically involves the random testing of products or services at various intervals for their fitness for purpose and frequently involves inspecting the performance behaviour of employees. This surely cannot be the case where teachers, convey misinformation to students, which then has to await detection and correction through periodic inspection. A further criticism is that an institution of HE may be forewarned of an inspection visit thus sensitising everyone in advance with resultant efforts to make

corrections or alterations ahead of inspection. Human services like education that rely on periodic inspection as the sole means of ensuring quality may well encounter poor educational practices (Moullin, 2002). So, if organisations intend to be successful in their pursuit of quality they must as Deming suggests build quality into their service delivery. Only in this way can quality improvement in HE be achieved.

3) Principle 5. Aim for continuous improvement of the service to improve quality and decrease costs

Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs (Deming, 1986, p. 23).

Deming however, was quick to point out that organisations that concentrate on continuous improvement will be truly responsive to customers' needs, display a higher service profile and possess a more competitive edge compared to organisations that concentrate on prevention only. For HE this might include the following: striving to be responsive to the needs of students and other stakeholders, improving and developing curricula, promoting the highest standards of scholarship in teaching and research and in constantly questioning if courses are achieving their intended outcomes.

4) Principle 7. Institute leadership with the aim of supervising people to help them to do a better job

The job of management is not supervision, but leadership. The aim of management should be to improve the performance of man and machine (Deming, 1986, pp. 54 and 248). Deming suggests that leadership is not about finding and recording the failures of employees but rather about removing the causes of failure and helping "people to do a better job with less effort" (Deming, 1986, p. 248). Redmond et al. (2008) explained several reasons why Deming's theory of quality leadership can be used to create improvements in education. First, he places people at the centre of his theory and has repeatedly reminded leaders of the importance of treating employees in a fair and respectful manner. Leaders must also provide working conditions that allow employees to use all their abilities, develop their skills, feel comfortable in their work and enjoy their jobs. In fact, Deming criticized leaders who do not treat employees well. Second, Deming suggested that leaders should lead the way in instituting cooperation within their organisations. They should encourage people to cooperate

and must eliminate barriers within the system that may discourage employees from participating in teams. Third, he emphasised that the customer, which in HE is the student must be of central importance to the leader.

Leadership underpins a quality education system. In fact some authors, for example Lakshman (2006) believes that without leadership it would be impossible to implement a quality system within education.

5) Principle 8. Drive out fear so everyone can work effectively together for the organisation

Deming (1986) emphasises the need to drive out fear, actual or imagined, so that everyone can work effectively for the organisation. This principle implies that fear is part of the organisation and may effect everyone. Such fear may impact on people's effectiveness at work and their ability to work together. When this occurs in the workplace, achievement of quality will suffer and will result in educators being unable to do their jobs effectively. In HE the work commodity is knowledge transmission, research and development. Demarco (2001) states that in knowledge work there are no raw materials product requirements other than inspiration, inventiveness and careful thoughtful work. Fear within an environment of HE affects the transmission and development of knowledge.

Fears within the organisation must be addressed if quality enhancement is to be achieved in HE. Discussing and addressing fears may not always be possible and can sometimes lead to repercussions. Ryan and Oestreich (1991) for example, identified a number of potential repercussions when individuals speak out about fears and these are:

- loss of credibility or reputation;
- lack of career or financial advancement;
- possible damage to relationship with boss;
- loss of employment;
- interpersonal rejection;
- change in job role;
- embarrassment and/or loss of self esteem;
- job transfer or demotion.

These repercussions are not unfamiliar in HE and impact negatively on educators and consume considerable time and energy, which prevent effective advancement towards quality.

In the HE, this is the managers' responsibility to find out the detrimental impact that fears have on employees in the workplace. This is necessary if the aim in HE is to promote academic freedom, a creative work climate and enhanced productivity.

6) Principle 9. Break down barriers between departments and encourage departments to work together

People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or the service (Deming, 1986, p. 24).

Deming (1986) states that team working and collaboration is imperative in contemporary organisations. HE demands close collaboration between all of the various stakeholders including academics, practitioners, administrators, funding agencies, students, employers and society at large. Such collaboration is necessary if a quality education system is to be provided and maintained (Quality Assurance Agency, 2003). A number of barriers to collaborative working are identified in the literature and are seen as divisive in HE. These include a lack of knowledge of each other's role, poor negotiation skills, professional role demarcation or role blurring (D'Amour *et al.*, 2004). Another barrier identified by Deming (1986) is the annual performance review for individual employees, which he considers counterproductive to teamwork. Despite these barriers teamwork is essential to the success of any organisation. In the context of HE such teamwork can be achieved through multi-disciplinary teams (Evans and Lindsay, 2002; Sale, 2005). This viewpoint is supported by Deming, who suggests that for best results teams should consist of members with varying strengths, opinions and experiences. He considers this necessary so as to ensure employees can participate in discussions, feel they make a contribution and learn from each other. D'Amour *et al.* (2004) also believe that for effective collaboration team members require to have some factors: knowledge of each other's roles, good communication and negotiation skills, a willingness to work together, trust related to their own self-competence and competence in other's abilities and mutual respect which implies knowing other team members and their potential contributions .Deming's principle on teamwork is not only about problem solving and decision making but more fundamentally it is about breaking down

organisational and professional barriers (Oandasan and Reeves, 2005). This is necessary for creating opportunities for people to generate new insights and ideas for improving the quality of the service provided by the organisation.

In HE, Moreland and Clark (1998) defined TQM as a process-oriented approach to increasing productivity, decreasing costs and improving quality of service.

Venkatraman (2007) mentioned that TQM has been successfully implemented at the University of Bradford's Management centre. He added that the activities at this TQM Centre are devoted to solving real problems and providing practical methodologies to improve quality throughout all the functional areas of the participating organisations. This TQM Centre along with the European Foundation for Quality Management aims to study culture changes and how best to transform organisations into total quality, market-driven, high-performance ones. Their work also includes the development of process capability indices and the measurement of TQM programmes. Unlike industry, where statistical quality control techniques could be adopted as they deal with tangible processes (such as measuring the quality of the goods / services based on the product specifications), in HE what happens in the classroom is intangible. This results in HE having to face with the main challenge of dealing with the intangibility of education. Therefore, the philosophies of TQM need to be adapted to accommodate the intangible aspects of student learning. So, HE may face with major criticisms from its stakeholders with respect to coping with the ever-changing market situations, socio-economic conditions worldwide. HE could cope with such a dynamic situation by continuously improving their processes and by providing high quality education (Venkatraman, 2007).

2.12.2 Baldrige criteria for higher education

As mentioned earlier, the Malcolm Baldrige National Quality Award (MBNQA) was launched by the US Department of Commerce to enhance competitiveness among American companies in 1987. Over the years, the award has proved to be effective in improving companies' market share, customer satisfaction, employee morale, and also profitability. Baldrige model has been a 'role model' in developing a national quality award for many other countries in the world. The objectives of launching the award are as follows: (1) to recognize the companies who are doing an excellent job in quality management, (2) to increase awareness of quality as an important element in competitiveness, (3) to share

information on successful quality strategies and on the benefits derived from implementation of these strategies, and (4) to promote understanding of the requirements for quality excellence (Badri et al., 2006). The National Institute of Standard and Technology (NIST), an agency of the US Department of Commerce, manages the program and the American Society for Quality (ASQ) assists NIST. The board of examiners consists of noted quality experts who are selected from across the United States. For 2005, the board has about 540 members of which 10 serve as Judges and approximately 110 serve as Senior Examiners and the remainder serve as Examiners. During the period 1988–1998, MBNQA was awarded to only three types of business companies, namely Manufacturing, Service, and Small Business. In 1999, the Health Care and Education sectors were added to the categories of award. This inclusion of the educational sector was in response to several national reports that indicated concern over the lack of progress in improving the quality of education. It was not until 2001 that a university won the Baldrige Award (Thompson, 2004a). Usually, up to three awards may be given annually in each of the five areas. However, if the performance is not up to the desired level, it may be the case that no award is given to any one or multiple areas (Babicz, 2002). The criteria set for Education (henceforth referred to as criteria) are built upon a set of core values and concepts.

2.12.2.1 Core Values and Concepts

Eleven core values and concepts set the foundation of the Baldrige criteria. These include the following (Badri et al., 2007; Islam, 2007):

- **Visionary leadership** that set directions and create a student-focused, learning-oriented climate, clear and visible values, and high expectations.
- **Learning-centred** education that demands constant sensitivity to changing and emerging student, stakeholder, and market requirements and to the factors that drive student learning, satisfaction, and persistence. The process includes formative assessment to measure learning early in the process giving the ability to tailor learning experiences to individual needs and learning styles. In addition, summative assessment is included to measure progress against key, relevant external standards and norms regarding what students should know and should be able to do.
- **Organizational and Personal Learning** involves a well-executed approach to organizational and personal learning which includes processes that encourage

both continuous improvement of existing approaches and adaptation to change leading to new goals and approaches.

- **Valuing Faculty, Staff, and Partners** meaning a better understanding of the need of partnership between leadership and faculty, faculty and staff, and all groups to outside stakeholders in a much more cooperative process working toward the desired goals.
- **Agility** focuses on the ability of the organization to rapidly respond to the changing needs of the market and students. This means with respect to day-to-day operations and toward changing to better meet the needs of the students and the organization's stakeholders.
- **Focus on the Future**
- **Managing for Innovation** so that the culture of the organization is much more centred on the striving to try innovation to improve the organization's effectiveness and responsiveness.
- **Management by Fact** is important that organizations depend on the measurement and analysis of performance rather than vague non-measurable goals.
- **Public Responsibility and Citizenship**
- **Focus on Results and Creating Value**
- **Systems Perspective** is key issue to the organization. The core values and the seven MBNQA categories form the building blocks and integrating mechanisms for the system. Successful management of overall performance requires looking at the organization as a "whole" and aligning the key performance goals with strategies and resources into a cohesive program to improve organizational performance (much related to improving the quality and quantity of student learning) and satisfy student and stakeholders. (BNQP, 2006)

visionary leadership, learning-centred education, organizational and personal learning, valuing faculty, staff, and partners, agility, focus on the future, managing for innovation, management by facts, social responsibility, focus on results and creating value, and systems perspective (BNQP, 2006). The core values and concepts are embodied in seven categories of criteria: leadership, strategic planning, student, stakeholder and market focus, measurement,

analysis and knowledge management, faculty and staff focus, process management, and organizational performance results. The MBNQA criteria for education were developed to:

- To help improve organization performance practices, capabilities, and results
- To facilitate communication and sharing of best practices information among U.S. organizations of all types
- To serve as a working tool for understanding and improving performance and for guiding planning and opportunities for learning. (BNQP, 2005)

More specifically, the criteria were developed to "help organizations use an integrated approach to organizational performance management that results in delivery of ever-improving value to students and stakeholders, contribution to improved educational quality; improvements of overall organizational effectiveness and capabilities; and improvements in organizational and personal learning" (BNQP, 2006).

2.12.2.2 MBNQA criteria in Education

The MBNQA criteria (Baldrige model) provide a system perspective (as shown in Fig. 2.7) to manage organizations leading to performance excellence. The system perspective includes leaders' focus on strategic directions and students and other various stakeholders. Furthermore, senior leaders monitor, respond to, and manage performance based on organizational performance results. System perspective also includes various linkages among key processes and aligning the resources to improve overall performance and satisfy students and stakeholders' needs. The MBNQA Criteria for Performance Excellence for the education sector are similar to that of the business sector as both are built upon the same seven-part framework (see table on next page). The first three categories: leadership, strategic planning, and student, stakeholder & market focus are referred to as the *driving triad* in that these three areas help set the plans and the directions of the organization. Category 5 & 6, faculty & staff focus and process management are considered the work core meaning the work to reach the objectives set by the driving triad is done by processes executed by faculty and staff. The work leads to organizational performance results, which is category 7. In the following, the seven major categories of criteria adopted in 2006 will be explained.

Figure 2.7: Interrelationships among various categories of criteria of Baldrige model

Leadership (Category 1), Strategic Planning (Category 2), and Student, Stakeholder, and Market Focus (Category 3) represent the driving (leadership) triad. These Categories are placed together to emphasize the importance of a leadership focus on strategy and on students and stakeholders. Senior leaders set the organizational direction and seek future opportunities for the organization. Faculty and Staff Focus (Category 5), Process Management (Category 6), and Results (Category 7) represent the results triad. The organization's faculty and staff and key processes accomplish the work of the organization that yields the overall performance results. All actions point toward Results, a composite of student, stakeholder, market, budgetary, financial, and operational performance results, including faculty and staff, governance, and social responsibility results. The horizontal arrow in the centre of the framework links the leadership triad to the results triad, a linkage critical to organizational success. Furthermore, the arrow indicates the central relationship between Leadership

(Category 1) and Results (Category 7). The two-headed arrows indicate the importance of feedback in an effective performance management system.

Measurement, Analysis, and Knowledge Management (Category 4) are critical to the effective management of the organization and to a fact-based, knowledge-driven system for improving performance. Measurement, analysis, and knowledge management serve as a foundation for the performance management system (BNQP, 2006)

Category 1 Leadership

The leadership category examines how the organization's senior leaders address the organization values, directions, and performance expectations, as well as focusing on student and stakeholders, student learning, empowerment, innovation, and organizational learning. Also viewed in this category is how the organization addresses its responsibilities to the public and supports its key communities (BNQP, 2006). This category addresses how senior leaders guide and sustain the organization, set and communicate the organization's vision, values, and performance expectations. It focuses on senior leaders' actions to create and sustain a high-performance organization and an environment that is conducive for learning, student development, and achievement. In the case of universities it refers to the executive board. This also examines how the organization fulfils its public responsibilities, especially how the senior leaders and faculty and staff encourage and practice good citizenship (Islam, 2007). After compiling a list of common characteristics of winning companies, NIST concludes that the leaders from these successful companies are highly visible to all employees. They support and recognize the quality efforts made at every level.

Category 2 Strategic planning

This category examines how the organization sets strategic directions and develops strategic objectives to guide and strengthen the performance of the entire organization. This category also examines how the organization converts the strategic objectives into action plans and how the organization deploys the whole set of strategic objectives and action plans to all levels of the organization (BNQP, 2006).This category also stresses that learning-centred education, long-term organizational sustainability, and competitive environment are the key strategic issues that need to be integral parts of the organization's overall planning

Category 3 Student, stakeholder, and market focus

This category addresses how the organization determines the requirements, expectations, and preferences of the students and other stakeholders with the focus on meeting their needs, delighting students and stakeholders, and building loyalty. This category stresses relationships as an important part of an overall listening, learning, and performance

excellence strategy. Therefore, the category examines how the organization builds relationships with students and stakeholders and determines the key factors that attract students and lead to student and stakeholder satisfaction (Islam, 2007; Badri et al., 2007).

Category 4 Measurement, analysis, and knowledge management

The aim of measurement and analysis is to guide the organization's process management toward the achievement of key organizational performance results and strategic objectives. The category examines how the organization uses the data it collects, analyzes it, and provides it to relevant parts of the organization. This category also addresses knowledge management and all basic performance-related information and comparative information, as well as how such information is analyzed and used to optimize organizational performance.

Category 5 Faculty and staff focus

The faculty and staff focus category examines how the organization motivates and enables faculty and staff to develop and utilize their full potential in alignment with the organization's overall objectives and action plans. In particular, the category examines the organization's compensation package, career progression, faculty and staff performance management, recognition, faculty and staff's continuing education and training. The category also examines the organization's working environment, faculty and staff support climate, and how the organization determines faculty and staff satisfaction, with the aim of fostering the well-being, satisfaction, and motivation of all faculty and staff while recognizing their diverse needs.

Category 6 Educational and Support Process management

This category examines the key aspects of the organization's process management function including learning-focused education design and delivery, key student services, and support processes. This category also examines the organization's support processes and operational planning with respect to financial management and planning for the continuity of operations, with the aim of improving overall operational performance.

Category 7 Organizational performance results

This category examines the organization's actual performance in key areas: students' learning, student and stakeholder satisfaction, overall budgetary, financial, and market performance, faculty and staff performance, leadership, and social responsibility results. However, the MBNQA does not prescribe any specific quality tools, techniques, technology, or systems to achieve the results in the above areas. It is the organizations which need to identify/ develop the required tools and techniques. In higher education, the organizational performance results category provides a results focus that encompasses student learning;

student and stakeholder satisfaction; and overall budgetary, financial, and market performance (Badri et al., 2007)

Forty-five percent of the total value of the Baldrige award is focused on the results category indicating that it is not only important to have a systematic and integrated approach toward items in the criteria, it is also important to have a clear measurable assessment of performance and that performance should be tracked over time, compared with similar organizations. Obviously positive trends in the data are essential to score well on this dimension.

2.12.3 Importance of Managerial leadership in HE

There is no agreed definition of the concepts of "management", "leadership", and "managerial leadership" in the literatures (Adair, 2004 and Mullins, 2005). Despite the lack of agreed definitions, Osseo-Asare et al. (2007) combined the definitions of management (as a function as well as the social position and authority of people who discharge it), leadership (as a combination of persuasion and compulsion that makes people do things they might not otherwise have done) by Adair (2004) and "managerial leadership" (as recognition of the increasing tendency to emphasise the interrelationship between "management" and "leadership" and to see them more as synonymous by Mullins (2005) and concluded that the concept of "managerial leadership" is something what managers in leadership positions are expected to do, i.e. "doing right things" and "doing things right". They also added that this explanation about managerial leadership, suggests a functional relationship exists between "leadership effectiveness" and "management efficiency". In the context of education, it suggests that, staff in leadership positions with responsibility for quality improvement have dual responsibility. First, they are expected to be "effective" leaders in deciding the right teaching and research quality improvement objectives and second, "efficient" managers in the way resources are utilised to achieve predetermined objectives.

The increasing tendency to emphasise the interrelationship between "management" and "leadership" underpins the assumption that there is no single leadership or management style appropriate to all situations but suggests that the appropriate leadership or management style is a combination of relationship behaviour and task behaviour which Mullins (2005) defined as follows:

Relationship behaviour is the extent to which the leader engages in two-way communication with employees, listens to them, and provides support and encouragement. Task behaviour is the extent to which the leader provides directions for the actions of employees, sets goals for them, and defines their roles and how to undertake them.

Relationship and task behaviours also underpin Leithwood et al. (1999) definition of "managerial leadership" as follows:

Managerial leadership assumes that the focus of leaders ought to be on functions, tasks and behaviours and that if these functions are carried out competently the work of others in the organisation will be facilitated.

Effective leadership and efficient management practices are essential if HE organizations are to achieve their overall purpose of providing the skilled manpower required for the development (Osseo-Asare et al., 2007). Clayton (1995) suggested that leadership is the most important ingredient for successful TQM implementation in HE organizations. He explained that the prime role of "leadership" in bringing about improved performance results through continuous process improvement which is recognised by TQM-based models for academic excellence such as the educational versions of Baldrige model in the USA (MBNQA, 2003).

2.12.4 Customers of HE

A customer is anyone being served. Customers may be both internal and external, depending on whether they are located within or outside the organization For example in HE, the students are internal customers, participating in the learning process; they become external customers when they leave the system. They then become the ultimate external customers, functioning effectively in the society. The external customers include higher educational institutions, business, industry and society. Quality starts with the customers and is defined by the customers. So one must be able to identify one's customers, to be able to meet their needs and satisfy them. In education, the criteria for quality and, therefore, the customer requirements, involves a much greater number of interested parties – students, staff, faculty, industry, parents and the society. Nevertheless, it is essential that customers be identified and processes be established in order to determine specific needs and maintain customer-oriented service (Spanbauer, 1995).

Identifying the customers in HE is more difficult and complicated for some following reasons:: First, it is not obvious that the clients of education are the consumers of education. Second, there are various interest groups. Third, some of these interest groups are financial contributors to the maintenance of the educational system (Sahney, 2004).

Spanbauer (1995) refers to the students as the primary customers, with the customer relationship being somewhat different – the student may not know what they need to learn and it does not necessarily mean that they must be given whatever they request. It is the faculty that can determine the needs of the students and balance those with the needs of other customers; namely, the employer and other educators who may later provide advanced instruction. The instructor is a customer or supplier for internal processes, too. The administrative staff are suppliers of services to the students, faculty and staff, and so the students and faculty become the customers of the administrative staff.

As mentioned earlier, Sirvanci (2004) states that while it is generally assumed that students are the customers of the institutions they attend, it is actually more complicated than that and in fact, there is no single role that can be attached to students in higher education.

Kanji and Tambi (1999) classify the customers of higher education into primary and secondary groups on the basis of their locations, i.e. whether internal or external, and the frequency of interactions the institution has with them. While the educator (as employee), is defined as the primary internal customer, the student (as educational partner), is the secondary internal customer. Similarly, the student is also the primary external customer and the government, industry and parents are the secondary external customers.

Among the groups within higher education (students, faculty and staff), there seems to be little agreement as to who the true customers are. In recent Baldrige model criteria, the "customer focus" and "satisfaction", category has been changed to "student focus" and "student and stakeholder satisfaction". The use of "student" and "stakeholder" in place of "customer" may communicate to educational institutions that students are the only customers and lead them to view students' satisfaction as their only ultimate objective. This is, however, misleading.

Tuttle (1994) explains that there are many customers of higher education, and the definition of a customer depends on the "businesses" that are being discussed; namely, research, service,

or teaching and learning. The needs and views of the various customer groups, whether they are internal or external, may not always coincide and the best method of resolving different interests is to recognize their existence and current position.

2.13 Barriers to TQM in HE

Brigham (1993) explains that the TQM itself is important and helpful in HE organizations but he emphasizes that the implementation of TQM has been deficient or erroneous. He states that the common mistakes made in implementing TQM in industry are lack of leadership, middle management muddle, misunderstanding of participation, obsession with process and failure to include the customer. He concludes that in HE, TQM's long-term success depends on the lessons drawn from industry. Kohn (1993) describes this problem from different angle. He believes that prior to implementing the TQM at HE institutes, one should differentiate between education and business. He expresses that in HE, achieving high grades as a measure of success in implementing TQM is a major misunderstanding of the principles of TQM. Therefore, the first major barrier for the application of TQM in education is the misinterpretation of TQM philosophy and the lack of understanding the processes that are different in education as compared to industry. This could be due to lack of the necessary knowledge about TQM. Clearly, lack of proper leadership can be considered as very common barrier to HE and as mentioned before, the top management commitment to the TQM and active participation in the TQM committees can tackle this barrier. So, TQM should be embraced as a strategy by the top management and they should get visibly and explicitly committed to its philosophy (Venkatraman, 2007).

Employees' resistance to change could be another barrier in HE. Most of the employees are predominantly professionals who by tradition expect autonomy and academic freedom. Academic staff may not like being asked to rethink their teaching styles (Blankstein, 1996). In HE, poor curriculum design could lead to quality failure. There could be unsuitable academic systems and procedures that serve as a bottleneck while imposing changes in curriculum or course delivery (Kohn, 1993). Kohn feels that much of TQM implementation in education fails to address the fundamental questions about learning and more specifically whether the curriculum is engaging in the relevant learning processes. Further, with TQM, there could be too much of documentation of processes, which consumes time and effort.

As TQM requires high cost, time and effort, particularly when there is not enough internal expertise at the HE organization, lack of sufficient funds and resources would be dominated as a serious barrier for TQM in HE, Particularly, when the only way of training TQM would be achieved through inviting the expertise from out of the organization (Venkatraman, 2007). In industry, it is easy to measure, monitor and improve product characteristics as compared to the situation in HE. In HE, service quality deals with people, the time of delivery, intangibility (learning process is subtle to be measured) and difficulty in measuring successful output and productivity in a quality audit (Owlia and Aspinwall, 1998). It is definitely not easy to measure academic processes due to the involvement of numerous intangible factors. Hence, suitable models need to be adapted to measure quality in HE**.**

2.14 Measurement of quality at HE Institutions

Any modern quality system relies heavily on measurement: measurement of efficiency, measurement of performance, etc. Indeed, measurement of all aspects of an organisation assists the control of its activities for improvement. Lomas (2004) states that measurement in higher education, is part of top management task. Indeed, an organizations, requires that "outcomes are carefully measured against targets established in a strategic plan to judge how well the organisation is progressing" (Williams, 2002). Green (2007) remarks that one of the reasons for this requirement to measure was the government's drive to increase the numbers of students in higher education without a pro-rata increase in funding. These changes reflect a government policy driven towards a more efficient utilisation of resources within higher education.

At universities, quality can be measured in many areas like student satisfaction and development, teaching and learning, graduates faculty, cost and administrative effectiveness etc. The student is the centre of educational process and universities should drive the measurement effort from this centre. From different angles, the student satisfaction and development could be done, for example by analysing necessary skills, achievements, scores of entering students, student/faculty ratios, attraction of master's and doctoral students, etc (Sharp, 1995; Pounder,1997; Solmon, 1998).

De Miguel (1998) argues that the teaching and learning are priority areas which may define the features of the university and could be done by testing the overall planning and management of the undergraduate and postgraduate programme.

The quality of university faculty is one of the most important quality measures in universities and HE institutions. Divoky and Taylor (1996) insisted the one process measure for effectiveness would be to assess faculty functioning in the classroom. Solmon (1998) and Sharp (1995) considered the faculty productivity in research as the measurement for the universities. Publications, inventions, papers at conferences, patents and consultancies also could be used a measurement of the quality of the academic staff in a university (Pounder, 1997).

Services provided by all HE institutions and universities in general and by medical sciences universities, in which health care system is integrated into medical sciences education, in particular are a very important factor for the quality and measuring these services will give a good indication of the level of the university quality. These services could in relation with educational processes as well as with the society (Pounder, 1997; De Miguel, 1998).

Cost and administrative effectiveness are also important quality measures in universities and could be viewed at different levels, e.g. faculty salaries, educational expenditures per student, organisational health etc (Sharp, 1995; Solmon, 1998).

CHAPTER 3
HIGHER EDUCATION IN IRAN

3.1 Introduction

Iran, officially the Islamic Republic of Iran, is an important country in the Southwest of Asia located in the geographical territories of the Middle East and Southern Asia. The 18th largest country in the world and has a population of over seventy million people. It is the most populous country in the region and the 16th most densely populated country in the world. It is a country of special geostrategic significance due to its central location in Eurasia. Iran borders Armenia, Azerbaijan, and Turkmenistan to the north, Afghanistan and Pakistan to the east, and Turkey and Iraq to the west. In addition, it borders the Persian Gulf, an important oil-producing area, and the Caspian Sea. Islam (Shi'a) is the official state religion and Farsi (Persian) the official language. The political system of Iran is based on the 1979 Constitution. Iran is a founding member of the UN, OPEC, and ECO. This country is the second largest OPEC oil producer and has the world's second largest reserves of gas. Iran is a regional power in Southwest Asia and occupies an important position in the world economy due to its large reserves of petroleum and natural gas. Iran, with an ancient civilisation, has an internationally important cultural significance in both the region and the world (World Bank, 2001). Iran has a large network of private, public, and state affiliated universities offering degrees in higher education. State-run universities of Iran are under the direct supervision of Iran's Ministry of Science, Research and Technology (for non-medical universities) and Ministry of Health and Medical Education (for medical sciences universities).

3.2 History

Education is central to development and a key to attaining the millennium development goals. It is one of the most powerful instruments for reducing poverty and inequality and lays a foundation for sustained economic growth (World Bank, 2009). According to the cultural background of the country, HE and research activities have long records in Iran, that can be traced back to the third century to Gondishapour University, which was regarded as the greatest scientific centre for centuries. Under the Sassanid dynasty in ancient Iran, education was an exclusive right of the nobility and the royal family. Centuries later, under the Safavid

dynasty, due to increased national solidarity and security, advanced programs were developed. Historically, it was Abbas Mirza, the son of Fath Ali Shah Qajar who first dispatched Iranian students to Europe for a western education. He sent Iranian students to Britain to study such subjects as medicine, arms manufacture, languages, and the arts, and he subsidized the translation of several useful books. (Clawson and Rubin, 2005). The history of the establishment of western style academic universities in Iran (Persia) dates back to 1851 with the establishment of Darolfonoon which was founded as a result of the efforts of the royal prime minster *Mirza Taghi Khan Amir Kabir*, aimed at training and teaching Iranian experts in many fields of science and technology (Ganimeh, 1993). However the existence of schools such as the Nizamiyyah and the Academy of Gundishapur provide examples of academic institutions of science that date back to ancient times. In 1855 "The Ministry of Science" was first established, and Ali Gholi Mirza I'tizad al-saltaneh (علیقلی میرزا اعتضاد السلطنه) was appointed Iran's first Minister of Science by Nasereddin Shah qajar.

During the Pahlavi period, the idea of transforming social, economic, military, and cultural institutions in the country on the one hand, and, the shortage of an expert workforce to effect these changes, made it necessary for young people to go to other countries to pursue their education. As the first steps for effecting necessary changes had already been taken and only the required personnel was lacking, action was taken: inside the country, schools were expanded at all levels, including higher education. The academic curricula were reformed and foreign experts were invited to teach in Iran, alongside Iranians. Nevertheless, Iranian statesmen considered sending students to Europe a necessity due to the lack of advanced teaching facilities and the limited number of qualified instructors in specialized fields. Some historians mentioned the following reasons for the need to send students to Europein Pahlavi period:

- to train specialists in science and technology at various levels
- to satisfy the personnel requirements of various centres for higher learning
- the need to train a work force of specialists within the political establishment
- to meet the needs of a new army as well as the prerequisites for industrial development and the development of new services

However, in 1928, with the passage (confirmation) of the law on sending students abroad, a group was sent every year to study modern sciences and technology. The first batch of 110 students left for France on the 15th of October, 1928. The second group was sent in August 1929. The fifth group, consisting of 100 students, went in 1932, while the sixth group of 82 students travelled in 1934. Up to 1934, the total number of students sent abroad to enrol in various advanced scientific and technical disciplines totalled 640. In addition, others were sent by other Ministries as well as some youngsters were sent and supported by their affluent families to study in other countries. It should be noted that in this period, some students were also sent to England, Germany, Switzerland, Belgium and the United States.
Nevertheless, while part of the national income was spent to send students abroad for advanced training, studying for several years a particular discipline decided for them by the Ministry of Science, however, efforts toward modernization and restructuring in Iran were unorganised and were not carried out systematically. Hence, on returning to the country, the graduates faced many problems.

Also, in 1928 Iran's first university, as we know it today, was proposed by an Iranian physicist, Mahmoud Hessaby. The University of Tehran (or Tehran University) was designed by French architect Andre Godard, and built in 1934.when the University of Tehran was founded, many schools, institutes of higher education, colleges and other similar institutions were set up and started operating. In fact, the organisational structure of Tehran University was used as a role model for other HE institutions in Iran (Alashloo, et al., 2005).

Promoting higher education inside the country and the need for establishing institutions for this purpose, were considered a primary objective, especially since specialists in science and technology were required for various projects. In the beginning, schools from the Qajar period, in addition to a number of newly established ones, carried on with their activities in the field of education. Later on, some of these schools merged to form the University of Tehran. Subsequently, other centres of advanced learning began operating, some of which were also absorbed into the University of Tehran after August 1941.
Today, Tehran University is Iran's largest university with over 32,000 students.
In the medical sciences field, it was Joseph Cochran who first founded a professional school in Iran in 1878, and who is often credited for founding Iran's "first contemporary medical college", as well as founding one of Iran's first modern hospitals ("Westminister Hospital") in Urmia (Yourdshahian et al., 2002). The medical faculty Cochran established at Urmia

University was joined by several other Americans, namely Drs. Wright, Homlz, van Nourdon, and Miller. They were all buried in Urmia. Samuel M. Jordan, whom "Jordan Ave." in Tehran is named after, also was directly responsible for the expansion of the American College in Tehran.

After Tehran University, the establishment of other universities in Iran soon followed, and The Shah initiated projects to build Iranian universities modelled after American schools. Thus Pahlavi University (*Shiraz University* today) was modelled after The University of Pennsylvania, while Sharif University was copied after Massachusetts Institute of Technology. Some universities such as Urmia University were even directly founded by Americans. The 1979 revolution put an end to the massive US-Iran academic relations.
The Ministry of Higher Education, which oversees the operation of all institutes of higher education in Iran, was established in 1967. In 1979, Iranian Parliament approved an act for the establishment of the Ministry of Culture and Higher Education (MCHE) which later on its name was changed to Ministry of Science, research and technology (MSRT). With the establishment of MSRT, all institutions of HE, public and private, followed the same administrative structure, including board of trustees, chancellor, the executive board, the administrative board, university council, faculty councils, and departments.
After Iran's Islamic Revolution in 1979 the universities were closed for two years. In 1980, a major overhaul in the academia and higher education system of Iran initiated by Imam Khomeini led to what is referred to in Iran as "Iran's Cultural Revolution". Then, in 1982 Imam Khomeini tasked the Cultural Revolution Committee to reopen them with trustworthy and faithful Muslim professors and students. Fifty-three universities, colleges, and other higher education institutions were re-formed in four groups: engineering and technical sciences; literature and humanities; art; and business and administrative sciences (MSRT, 2009).
In 1986, medical education was delegated to the Ministry of Health and Medical Education (MHME) and all duties and responsibilities of the MSRT in the area of medical education were transferred to the new ministry. This was to optimize use of the medical resources and facilities as well as hospitals in the country, and to promote health, treatment, teaching, and research more efficiently in the field. So, new universities with medicine, pharmacy, dentistry, paramedical sciences, nursing, health and nutrition, rehabilitation schools were founded and called Medical Sciences Universities.

All Medical Sciences Universities under the supervision of the MHME are governed by a board of trustees to make decisions and co-ordinate research and teaching activities. They also deal with initial education and continuous professional development of human resources for the medical and health services Furthermore, the MHME has delegated the responsibility of providing treatment and health services to the Medical Sciences Universities (MSUs) at the provincial level. Presently, about 50 medical sciences universities are active in teaching, research, health and treatment (Alashloo, et al., 2005).

After the Iran-Iraq War in 1988, some new universities were founded and more doctoral programs were developed in the previous universities. The number of university students is now more than six times as many as in 1979.

In 1994, Iran had over 2.2 million students enrolled in universities whereas in 2008 there were over 3.5 million students. Iran currently has about one hundred state universities including medical and non medical ones. These are primarily the top choice for students in national entrance exams, and have the largest and most prestigious programs. There are 289 major private universities operating as well.

Strong competition exists between top ranking Iranian universities. According to the latest ranking published by Iran's Ministry of Science, Research and Technology, University of Tehran stays on top (Noroozi Chakoli, 2008).

In the medical sciences universities, again Tehran University of Medical Sciences tops the list of Iranian Medical universities.

In all these universities, except for private universities such as the Islamic Azad University system, tuition and room and board, is mostly paid for by the government. The universities themselves largely operate on state budgets. There are also institutes like Payame Noor University that offer degrees remotely or online.

Some universities offer degrees in conjunction with European Universities. The Institute for Advanced Studies in Basic Sciences in Zanjan University for example, sends students and faculty to The International Centre for Theoretical Physics in Trieste, Italy for workshops, seminars, and summer schools. The Iranian government also offers intensely competitive but fully paid scholarships for successful applicants to pursue PhD level studies in best universities around the world.

3.3 The University of Tehran

The founding of the University of Tehran was a turning point in the contemporary cultural history of Iran. The main achievements are on the one hand, the teaching of the modern

sciences and the training of specialists within the country (in humanities, natural and technical sciences) and on the other, there was a decline in the number of students sent abroad.

The University of Tehran was formed by virtue of a law passed by the Parliament on May 29th, 1934. The Parliament authorized the Ministry of Science to create an institution called "daaneshgah" (university) in Tehran, for the purpose of disseminating advanced knowledge in relation to the sciences, technology, literature and philosophy. The legislation divided the university into several departments or faculties ("daaneshkadeh"), as follows:

1. Contemplative and Narrated Sciences (theology)
2. Natural Sciences and Mathematics
3. Literature, Philosophy and Educational Sciences
4. Medicine and its various branches
5. Law, Political Science and Economics
6. Engineering

With the passage of the law, the first step was to construct the university's physical facilities, so a property was sought, beginning from the time when the bill was still being debated. Three days before its passage into law, the land deal was finalized. Ali Asghar Hekmat wrote in his memoirs:
"Most of March 1934, I was looking for the land where the university could be erected. I looked around and finally found the Djalalieh Gardens, which measured some 200,000 square meters and were most appropriate for this purpose. The owner, Hadj Rahim Agha Tabrizi, agreed to sell at five rials per square meter. The Finance Minister reduced this price by 10 shahi per square meter (100 shahis = 1 rial). The deed was signed and the land was handed over to the Ministry of Science."

Due to the acute need for the School of Medicine, the first to be built was the Anatomy Hall, the construction of which commenced in June 1934. Therefore, Ali Asghar Hekmat, then minister of science, served as the first president and held the post until 1938. He was followed by Esma'il Mer'at, who was the last person to head the university during the reign of the first Pahlavi.

This was more acute in higher education and the University of Tehran, being the appropriate institution for directing the course of advanced learning within this social system, should have been run by Iranian professors. But such professors could be found in sufficient numbers only in the fields of literature and the Islamic sciences. There were a few, such as Dr. Mahmood Hessabi (civil engineer and Ph.D. in physics), Gholam-Hossein Rahnama (mathematics), Dr. Ghassem Ghani (medicine), Dr. Issa Sadigh (mathematics), Dr. Loghman Adham (medicine), and Dr. Ali Akbar Siasi (education), who studied abroad prior to the modernization movement. Also, some of those sent to Europe and graduated during the years 1928-1933, taught in various fields at the University of Tehran.

3.4 Admission of Women to Centres of Higher Education

In general, until 1934, only men were admitted to the higher educational levels, with the schools located in Tehran. Some centres of learning though were not under the jurisdiction of the Ministry of Culture as they were formed to satisfy the personnel needs of some ministries. In particular, the School of Political Science was initially run by the Foreign Ministry, the School of Law was under the jurisdiction of the Ministry of Justice, and the School of Business was run by the Ministry of Economy. These were later turned over to the Ministry of Culture. In these schools, the expertise and knowledge of foreign instructors were also availed of for the purpose of reforming and updating the curricula. It should be mentioned that the establishment of many of these schools, including the School of Medicine and Pharmacy, the School of Political Science, and the School of Law, went back to the Qajar period, and during the reign of the first Pahlavi, they expanded and developed further (Iran chamber Society Website, 2008). One of the fundamental developments in this era was a change in the image of women, a manifestation of which was their admission into the university and in other centres of advanced education. While the primarily goal of these institutions was the dissemination of modern science and technology, until 1935, the privilege of gaining expertise in such fields was limited to men. Women only reached high school, except for admissions in the Higher School of Midwifery.

In line with the drive initiated many years back toward modernization and European culture, the situation of women had to be altered in step with other social developments. Thus, the doors of the university and other centres of higher learning were opened to women in 1935.

The first to accept women were the Faculties of Literature and Science and the School of Education. But in addition to opportunities inside the country, some families, mostly the wealthy

ones, sent their daughters to study abroad but no woman was sponsored for foreign study by the government. In 1934, nine females were studying in Germany, France, Belgium and Beirut, and in 1935, 10 were enrolled in the said countries, as well as in England.

3.5 Higher Education management system

A recent survey (Rasian, 2009) identified four reasons, why higher education faces fundamental change:

I. the democratization, or "massification," of higher education means that ever increasing numbers of people in "developed" and "developing" countries like Iran are gaining higher education qualifications;

II. the rise of the knowledge of economy for which universities are a vital driver;

III. the globalization of higher education, turning the sector into an import-export industry; and

IV. the competition higher education institutions face for students and funding. These changes mean that higher education funding, recruitment, research, collaboration, and teaching must take place in an outward-looking, international setting (Lunn, 2008).

Schwartzman (2001) believes that , in spite of large differences in social structures, economic conditions, cultural and historical backgrounds, higher education systems in most countries face similar challenges, some of which conflict. They need:

! more research capacity to enhance their countries' presence in a world where science and technology play an ever-growing role;

! to combine elite with mass higher education, in order to provide meaningful and useful information to millions who wish to learn and upgrade their credentials;

! to provide lifelong education to a large public that seeks not only formal degrees, but to keep up and readapt to a rapidly evolving labour market; and

! to maintain and grow their universities as centres for culture and scholarship, providing their societies with a space for the development and maintenance of critical knowledge, independent thinking, social identity building, and values. Schwartzman also believes higher education institutions face two main limitations: First, resources. The same factors inducing higher education reform also limit the availability of resources for higher education institutions. The financial adjustments required by a highly competitive and unpredictable global economy, and the growing demand for social services by impoverished populations, increase the cost of basic education and public health, and limit what is left over for higher education expansion and reform. Second, institutional arrangements and traditions. Almost everywhere, higher education institutions are organized as part of the public service, often with strong collegial decision-making mechanisms.

But, the rules, regulations and operational practices of civil service and collegial management are not the most suitable for adapting rapidly to change. This point states the importance of the type of management chosen for the higher education institutes and many aspects of the cultural, political, historical etc should be taken into account (Rasian, 2009).

Bikmoradi and co-workers (2008) in their investigations discussed in details that the higher education management system in Iran has changed during recent years with the initiation of medical education reforms, including transitioning from a centralized to a decentralized university-based system. Because the medical education management system is only partially under the control of medical faculties, challenges to reform are in part the result of being confronted by the reality that capacity to change is only partially within the power of the institution itself. Indeed, medical sciences universities may have not enough statutory powers to prove the needs to managerial system reform. Contrary to such selection measures, the complexity of academic leadership does not enhance its stature in Iran due to the merging of medical education and health services, where great responsibilities exists. Academic leadership is sometimes worsened by problems such as lack of appropriate budget, supervision, and expansion of health issues. Arguably, selected academic leaders are sometimes lack the appropriate qualifications, so they tend to be conservative. In order to give medical leadership proper recognition and to encourage sensible career development, it is contended that a transparent and consistent approach must be adopted. They concluded that departments are the most important units supporting medical sciences universities, holding the highest potential for transformation. Finally they suggested Iranian academic leadership needs to restructure itself toward a department-based system that decreases the multiple levels of decision-making, while increasing the department's autonomy in support of participatory decision-making. Clearly, the department-based structure decreases the influence of a managerial layer and facilitates inter-departmental communications and networking. Such a structure could also decrease the phenomenon of power distance within the Iranian medical sciences universities. Academic leaders should think and also evaluate the impact of a decision trying to enhance to trust and respect with all faculty members. If these issues are raised with every important decision, then the department, school, and even an entire university, should achieve the desired atmosphere of high levels of mutual trust and respect and increased academic productivity.

3.6 Higher Education Culture in Iran

Culturally, all Iranians would like their children to pursue higher education, and competition for university entrance is fierce. The most desired professions for children are medical and engineering

courses. These fields attract the best and the brightest, and graduates receive an academic social title for both professions. The social rewards are so great for success in these professions that families will push their children into them even if their interests lie elsewhere. Many young people receive an engineering or medical degree and then pursue a completely different career.
women are more eager to pursue a higher education degree and the opportunities for women education and their involvement in higher education has grown exponentially after the Iranian revolution in 1979. Currently Iranian women constitute 65% of student population in Iran's higher education. More than 70 percent of the universities' alumni comprising of women. But, despite this fact, women make up almost 30% of the Iranian labour force, and the percentage of all Iranian women who are economically active is about 14%. Also it is to be noted that about 27% of the ministers and only around 3% of parliamentarians are women.
The high rate of women population of the universities (65%) means male students form about 35% of Iran's higher education, and their share of participants in nationwide universities' entrance exam has fallen remarkably. It seems Iranian men are no longer eager to receive a university degree. Although, some people believe that higher education in Iran is not focused on skill development, then Iranian men have found some other venues to develop their skills and they might be paying to receive necessary education somewhere else. Meanwhile some others explain that the increase in women's enrolment means that women will develop more skills than men and would be able to be more productive.
In terms of academic staff (faculty)-to-student ratio as well as administrative employee (staff)-to students, these values are about 1-to-12 and 1-to-14 respectively. Out of the whole of faculty and staff, women are about 20% and 25% respectively.

3.7 Types of higher education Institutes in Iran

Around half of the country's 75 million population is under the age of 25, which creates huge demand within the education system (Abed Al Aziz Nasser, 2011). In particular, admissions to post-secondary courses are highly competitive and university places are won through the National Entrance Examination *(Konkur).* A high score is necessary for admission to programs that can lead to careers in medicine, dentistry, pharmacy, or engineering. Mid-level scores lead to admission to programs in, for example, the sciences, communications, economics, and political sciences. Special privileges can greatly affect test scores and admission, particularly in graduate programs. Families of students who feel pressure to succeed in their exams may pay for extra tutoring or out-of-school

classes to help prepare for university entrance exams, such is the commitment of Iranian families to education as a social good (Rasian, 2009). There are currently well over 1 million students pursuing courses in Iranian universities, over half of these at private universities. Universities and higher education institutes are governed by a board of trustees. Newly founded and smaller higher education institutes are governed by a joint regional board of trustees. The number of state universities has grown from 22 in 1978 to 104 in 2009. Admission to state universities is based on successful placing in the competitive National Entrance Exam *(Konkur).* (There is a separate *Konkur* for entry into the private university system). Female students are very eager to undertake university studies and usually the top students are among the females.
Different types of higher education Institutes including:

University (or non Medical university)

Medical sciences University

Technology University

Open (Azad) University

Distance learning (payam-e-nour) University

Teacher Training university

3.7.1 Public sector

Presently, 54 universities and institutes of higher education are active under the Ministry of Science, research and Technology. In addition, 50 medical sciences universities are coordinated by the Ministry of Health and Medical education. Universities, Medical sciences Universities, Technology Universities as well as Teacher training Universities are categorised at this sector. In public sector higher education, the two Ministries (MSRT and MHME) are responsible for most post-secondary education (Mehralizadeh et al., 2007).

3.7.2 Private sector

The pressure for places on post-secondary courses is very pronounced and demand far outweighs supply. However, moves have been taken to combat this problem. The Islamic Azad University is one of the main private chains of universities in Iran and is similar to the UK open university. The Islamic Azad University is nongovernmental and the non-profit organization of the public utility

and its budget is provided bycharitable donations and the student tuition fees. The Islamic Azad University was founded in 1982 and during past 30 years existence history, has completed two stages, and now is on its third stage as follows:

First decade: Utilizing scattered capacities of higher education.

Second decade: Upgrading capacities in higher education.

Third decade: Advancing quality of education.

The Islamic Azad University currently has an enrolment of about 1.5 million students in 750 academic fields making it the world's third largest. The Islamic Azad University has 30 research centres. It has over 400 branches across the country and also in other countries. It has branches and universities in U.A.E, United Kingdom, Tanzania, Lebanon and Armenia. The Islamic Azad University's activities quickly expanded throughout the country, so that today thousands of students are benefiting from its high educational standards. The certificates issued by this university are recognized by the Ministry of Science and Higher Education as well as Ministry of Health and Medical Education. Masters and doctorate programs have been widely offered in many different branches of Islamic Azad University. The Islamic Azad University benefited from educational facilities including buildings, equipment and laboratories offered by local officials and generous people. The university is presently active in over 110 cities in Iran.

3.7.3 Other private institutes of higher education

Some 33 private institutes of higher education, offering both undergraduate and postgraduate courses with about 23,000 students are active in Iran.

3.7.4 Distance Education

Another measure taken to tackle the huge demand for higher education was to set up distance-learning universities, such as Payaam-e- Noor, which was established in 1987. It charges tuition fees and principally aims at providing teachers and civil servants the opportunity to continue their education. Like the Open University in the UK, courses are given through television and by correspondence. Students take exams at local university offices. Payam-e-Nour University aimed to expand higher education in remote areas for employed candidates, takes part in training of specialized manpower and make efficient use of educational potentials and facilities. The university

admitted students in 18 disciplines through nationwide entrance examinations in 485 centres across the country (Memariani, 2010).

3.7.5 Students

The number of students enrolled in all institutions in the academic year 2008 were 3500000 including 1.8 million (52%) students in the public sector and 1.7 million (48%) students in the private sector. The proportion of female students was 47% in the public sector and 48% in the private sector. Nearly 700,000 students were admitted by universities and higher education institutes of public and private sectors. (Higher education in Iran, Website, 2011).

3.7.6 Graduates

In academic year 2009-2010 a total of about 500,000 students graduated from universities and higher education institutes (Higher education in Iran, Website, 2011).

3.8 Types of medical sciences universities

Medical sciences universities in Iran are classified into three types: type one, type two and type three. This classification is based on some important factors. The type one medical sciences universities are the most import ones among the universities. They have the following specifications:

A) These universities train specialists in all medical (M.D) and paramedical (PhD) courses.
B) They have enough and complete teaching hospitals in terms of different medical science specialities.
C) They benefit from independent distinguished board which evaluates the academic members' promotions to associate professorship, professorship and is also responsible to evaluate the degrees obtained from other countries.
D) They have got enough financial support and therefore are not fully supported financially by the government.
E) They also support the peripheral universities in terms of medical educational and treatment.

Among the 50 medical sciences universities, there are only nine universities that are ranked as type one. These universities are: Ahvaz, Iran, **Isfahan**, Kerman, Mashad, Shahid beheshti, Shiraz,

Tabriz, and Tehran.

Type two universities are not as developed as type one but have got two or three specifications of type one universities. In other words, they would have a potential to convert to type one and mostly depends on how their senior managers develop the universities at different aspects of education, hospital services, courses etc.

Type three medical sciences universities are the smallest and the weakest universities in terms of sizes, and facilities and fully dependent to the government. They have got none of the above mentioned specifications of the type one universities.

3.9 Higher education credentials

Officially there are five level of credentials as follows:

Associate Degree

Bachelor's Degree

Master's Degree

Doctorate

Specialization

3.9.1 Structure of Higher Education system

Academic year: Classes from: Sep to June including two semesters

Languages of instruction: Persian, English

Level of studies:

University level first stage: Associate Degree (Kardani), Bachelor's degree (Karshenasi) (formerly Licence):

Some universities offer an Associate Degree (Kardani) after two to three years' study (formerly called Fogh-Licence). The Bachelor's degree is conferred after four years' study (or two years after Kardani). Courses follow the credit and semester system. The Bachelor's Degree requires 130 to 140 credit units.

University level second stage: Master's Degree (Karshenasi Arshad) (formerly Fogh-Licence):

The postgraduate qualification of Master's Degree in Arts and Science is generally conferred

after two years' study beyond the Bachelor's Degree. Students must sit for an entrance examination, pass 13 general and 32 to 36 semester units. It is either by course work or research (in this case, students must prepare a thesis (dissertation) and defend it successfully before the advisory committee).

University level third stage: Doctorate (Doctora):

The Doctorate is offered at the professional level (Medicine, Dentistry, Pharmacy, Veterinary Medicine) and at the level of the PhD. Professional Doctorate degrees are conferred in Medicine (After entrance exam: general courses: 7 semesters, 121 units; externship 9 months, 95 units; internship, 18 months, 68 units; submission of a thesis, 6 units. The total number of units for obtaining the Professional Doctorate and practice Medicine is therefore 290. Students may then embark on a "residency" program in different fields (3-5 years beyond the Doctorate). In Dentistry, Pharmacy and Veterinary Medicine, the duration of study for the award of the Professional Doctorate is about six years. PhD programs are divided into educational and research phases. Master's degree holders who are successful in the entrance examination begin the educational phase. They must complete 60 semester units and pass a comprehensive exam after which they enter the research phase. Here, they prepare and defend a thesis. Ph.D students may study for a minimum of 3 years and a maximum of 6 years.

3.10 Teacher training

3.10.1 Training for primary level teachers

Primary school and guidance school teachers (in the general section) are trained in two years in teacher training centers where they obtain an Associate degree. In the technical/vocational sections, they are selected from graduates of technical and vocational schools.

3.10.2 Training for secondary level teachers

Training for secondary level teachers - who must have obtained their High School Diploma and successfully passed the *Konkur* - is undertaken at several major universities, called *Tarbiat-e Mo'allem*, (a specialist teacher training university in Tehran, Tabriz and some other major cities).

3.10.3 Training of higher education teachers

Tarbiat Modares University has been established to train faculty members and researchers in different scientific fields.

3.11 Grading system

Main grading system used by higher education institutions

Full description: 0-20

Highest on scale: 20

Pass/fail level: 10

Lowest on scale: 0

3.12 Number of students, staff, and enrollments

According to the latest figure, the total number of university students, staff, and enrollments in academic year 2007–2008 is as follows (Rasian, 2009 and IRPHE 2008):

Students

Total 3,392000

Male 1,596 47000

Female 1,796 53000

University degrees awarded

Kardani (associate degree) 86 13000

Karshenasi (bachelor degree) 527 80000

Karshenasi Arshad (master degree) 32 5000

Doctori Herfe'e (professional doctorate) 5 1000

Doctori Takhasosi (speciality doctorate) 6 1000

University enrollments by field of study

Medical sciences 219 6000

Humanities 1,516 45000

Basic sciences 341 10000

Technical & Engineering 982 29000

Agriculture and veterinary 189 6000

Arts 144 4000

Numbers of instructional staff

Total 144000

Faculty 108 75000

Male 89000

Female 20000

Other instructional staff 35 24000

Male 25000

Female 8000

Full-time faculty members by rank

Professors 2 4000, Associate Professors 4 7000, Assistant Professors 20 37000, Lecturer 27 51000, and Instructor Lecturer 1 1000.

Primary and secondary school teacher training is undertaken under the supervision of the Ministry of Education. Teachers may train at special 'Rural Teacher Training Centres', at or at specialist primary or guidance level institutes.

3.13 Current challenges in Iranian Higher Education

Iran's current challenges in higher education can be categorized in three groups: internal; external; or a combination of both. Internal factors are those within administrators' control; external factors are those out of administrators' control (Sayyari, 1994, p.20).

● Internal factors

Students: Today, our universities face rapid growth. But, to increase quantity we have sacrificed quality. Sami'e (2008) differentiates between "massification" and "vulgarization". The former means balanced quantitative and qualitative development of a higher education system so that it provides equal opportunity for all applicants without social, economic, political, and cultural discrimination. The latter is a political appeal to massive social requests, and insists merely on quantitative expansion. The vulgarized university diminishes its role to that of a vocational institute, what researchers in Iran call a "big school". The challenges are as follows:

! Students do not learn problem-solving and creative thinking in primary and secondary education. After all the hard work to enter university, many are still unprepared for a very different type of work.

! Senior students imply that they are unfamiliar with library use, research methods, the English language, or even writing in Persian

! Some students travel to universities away from home, resulting in greater expenditure and homesickness.

! Some students are uninterested in their major fields. Many young males are avoiding military duty and choose any major available at their entrance exam rank (Sayyari, 1994, pp.29-30).

Faculty: Iranian professors are not paid high salaries. They are often hired for their connections to powerful politicians rather than for talent or knowledge. Likewise, promotions are often not based on talent, either (Sayyari, 1994, p.26). Many faculty members are under qualified and out of touch, with out of- date knowledge and skills.

Curricula: Curricula have two aspects: *main credits* relate to specialized fields of knowledge; and *general credits* are designed to improve the values, norms, and ideals. In a survey conducted by Majidi and Fatehi (2006), students confirmed that they are satisfied taking religious courses as general curriculum but they object to the instructional methods used. In addition, too many courses are filled with theoretical rather than practical subject matter.

Laboratory and workshop facilities: Sayyari (1994) claims lack of facilities, an improper utilization of available facilities, with students not allowed to use scarce lab equipment.

● Factors both internal and external Management

Leadership styles and management methods across the world are diverse and mostly are influenced by cultural issues (Taleghani et al., 2010). Accordingly a certain leadership style is regarded positive in a country might be regarded as a negative in other countries. To the best of knowledge of the researcher, managers in Iran behave like main decision makers and the staff mostly follow their decisions. In other words, managers behave with mightiness style and in the centralized form. This behaviour usually applies in both public sector and private sector. Dominance of the centralism limits possibility of the team working and consequently use of creative styles is not very popular for solving the problems. Never the less, in some cases (organizations) managers try to participate the staff in decision making and to attract their attention.

As a fact, the senior leaders (managers) are appointed by the government (in the case of university chancellors by the ministry of health and medical education). It seems that government considers the political issue in appointing the chancellors rather than their expertise, capability to run the universities, familiarity with the contemporary managerial methods, as well as the popularities among the faculty, staff, and students. So, they obviously are less accountable to staff, try to support the government programs and plan for the next governmental election.

After the Islamic Revolution, many administrators have operated by trial and error. Particularly at the early stages, there was little evaluation of managers' performance and little professional development. This assumption has been accepted that since they are specialist, so are professional managers. There is little opportunity to share experiences or transfer best practices from one university to another (Sayyari, 1994). There exists a stifling combination of over-centralized, bureaucratic administration with few fixed rules and regulations. Thus, most managers are reluctant to act and do not effectively plan for the future. It is felt universities need transformational leadership to replace bureaucratic management. Universities must also be competitive both nationally and internationally (Rasian, 2009).

Rules and regulations Planning and decision-making are mostly centralized and sometimes put managers under stress and doubt. Yet, there exist many stakeholder organizations which do not necessary coordinate their work, such as: the Ministry of Science Research and Technology; the Ministry of Health and Medical Education; the Ministry of Teaching and Training etc (Soltani, 2008).

Unemployment among university graduates: Education encourages development and development encourages employment. But, few faculty are familiar enough with industrial and service enterprises to offer courses relevant to the job vacancies that exist The most influential factor in Iranian graduates' underemployment is a lack of alignment between their education and the needs of the labour market. Today, women make up more than 50 percent of Iranian university students. Nonetheless, women's employment has decreased in some fields such as industry, management, and high level positions (Rahmani, and Nazari, 2007)

E-learning in Iran: In the last decade, experts have founded an e-learning centre in the IT engineering college at Amirkabir University. The government plans to provide higher education centres throughout the country, especially in remote areas. But there remain many challenges and Arasteh (2004) describes them as follows:

! a poor infrastructure of equipment, facilities, and service, such as proper cables, high-speed Internet, and advanced computer systems;

! few curriculum designers or faculty members experienced in e-learning;

! unreliable telecommunication services;

! students' poor understanding of English; and

! doubts about open- and equal-access to information and information technology.

● External factors

University-industry gap: According to UNESCO, higher education has three functions: knowledge production (research); knowledge transfer (education); and knowledge

distribution (service). Iran's educational system is based on highly knowledge transfer, with little concern for research and services (Rasian, 2009). Soltani (2008) believes the most important challenge in this respect is the lack of demand from industry. About 70 percent of industry is state-run, and the private sector is not strong enough to invest on research. The state-run sector fulfils its needs by purchasing technical information from developed countries with its oil profits. In such a situation there is no need for R&D as all needs can be met from outside sources (Mo'een, 2004).
Another factor may be cultural. In Iran, some early and important steps have been taken to support new methods of investing, team building, and team working but there is still long way to go toward tackling this problem.

3.14 TQM in Iran

Iran is an important country in the Middle East region. With a population of about70 million, it is the most populous country in the region and the 16th most densely populated country in the world. This country is the second largest OPEC oil producer and has the world's second largest reserves of gas. Iran, with an ancient civilisation, has an internationally important cultural significance in both the region and the world (World Bank, 2001).

According to the cultural antecedent of the country, HE and research activities have long records in Iran, that can be traced back to the third century to Gondishapour University, which was regarded as the greatest scientific centre for centuries. Under the Sassanid dynasty in ancient Iran, education was an exclusive right of the nobility and the royal family. Centuries later, under the Safavid dynasty, due to increased national solidarity and security, advanced programs were developed. Amir-Kabir, the Prime Minister at the time, founded Dar al-Fonoun (which could be translated as "polytechnic") in the mid-19th century and sent students to study abroad. He also invited foreign lecturers to teach at various technical colleges in Tehran, Tabriz and Oroumieh (Ganimeh, 1993).

In 1910, the Ministry of Education, Endowments and Fine Arts was established, including several offices for general education, endowments, and research, evaluation and accounting. Subsequently, the Supreme Council for Education in 1921, the Supreme Council for Culture in 1941, Central Council for Universities in 1965, and Central Council for General Education in 1969 were established. The University of Tehran and other universities were established in the 20th century, about one century after Dar al-Fonoun. The Prime Minister appointed the

chancellor of the University of Tehran in 1934 for eight years. The organisational structure of Tehran University was used as a role model for other HE institutions in Iran (Alashloo, et al., 2005).

In 1979, Iranian Parliament approved an act for the establishment of the Ministry of Culture and Higher Education (MCHE) which later on its name was changed to Ministry of Science, research and technology. With the establishment of MSRT, all institutions of HE, public and private, followed the same administrative structure, including board of trustees, chancellor, the executive board, the administrative board, university council, faculty councils, and departments. In 1985, medical education was delegated to the Ministry of Health and Medical Education (MHME) and all duties and responsibilities of the MSRT in the area of medical education were transferred to the new ministry for the purpose of efficient use of facilities and hospitals under the MHME and so, new universities with medicine, pharmacy, dentistry, paramedical sciences, nursing, health and nutrition, rehabilitation schools were founded and called Medical Sciences Universities.

All Medical Sciences Universities under the supervision of the MHME are governed by a board of trustees to make decisions and co-ordinate research and teaching activities. They also deal with initial education and continuous professional development of human resources for the medical and health services Furthermore, the MHME has delegated the responsibility of providing treatment and health services to the Medical Sciences Universities (MSUs) at the provincial level.

At the moment, they have more than 300,000 students at different levels. Additionally, more than 20000 academic staff are employed full-time in the universities. Presently, about 50 medical sciences universities are active in teaching, research, health and treatment (Alashloo, et al., 2005).

It is also to be noted that Iran's higher education, based on financial resources and administration, are divided into two main categories: public and private (non-profit) institutions. In public higher education, the two Ministries (MSRT and MHME) are responsible for most post-secondary education (Mehralizadeh et al., 2007).

TQM has been introduced in Iran from 1981 onwards. In order to encourage firms in implementing TQM, great efforts have been made by the Iranian government and National Productivity Organization. MSUs started implementing TQM programs from

1999 (Lameei, 2005; Mosaddegh, 2005). The long term aim was to provide the necessary conditions for implementing TQM. For this end, a national committee for quality improvement (NCQI) was established. The NCQI was supposed to provide support, training and advice regarding quality improvement initiatives**.** It is important to say that, although the NCQI has prepared a framework for implementation and all necessary training courses and materials, a "blueprint/ roadmap" for implementation was not developed, nor a "prescriptive/compulsory" way of doing the task was imposed. NCQI has acted as a trigger of change and the MSUs have been free to adopt or not adopt the TQM. In addition, they are totally independent in planning for their own quality improvement efforts, even without any input from NCQI. Despite some efforts to implement, improve the TQM but it seems to be still in its infancy in some cases only just a few studies carried out regarding the implementation and application of TQM in different sectors of MSUs. What is TQM implementation really going on these organizations? The existing literature has shown that no wide-scale research has been systematically conducted dealing with TQM practices and their effects on overall performance in MSUs Iran. In order to bridge this gap, an investigation into the effects of TQM implementation in Iranian MSUs is truly needed. Such a study can explore the degree of the impact of TQM implementation on overall performance in MSUs and in long term will enhance the performance. This study also would help in identifying problem areas and possible remedies for the implementation of TQM.

CHAPTER 4

METHODOLOGY AND RESEARCH DESIGN

4.1 Introduction

This chapter identifies some important issues regarding the research methodology in general and will focus on the research methodology used to conduct the present work. It highlights the definition of social sciences research and then explains the research aim and objectives. After that, research question, research design, research philosophy (two main philosophy, positivism or quantitative and phenomenological or qualitative) and research strategy (and case study) will be discussed respectively. Moreover, this chapter explains the data collection as well as data analysis in details. Finally, the data obtained from the field work performed at two major Iranian (type one) medical sciences universities through self administered questionnaires and also face to face semi structured interviews together with the field work process are presented.

4.2 Definition of methodology

A research project without a credible methodology is a wobbly building that will collapse sooner of later. Employing a suitable methodology is a pivotal task for each researcher before carrying out the research. Credibility of each study highly depends on the suitability of the employed methodology with the research context. The term "**methodology**" refers to the way in which we approach problems and seek answers. In essence, it is a system in which tools and techniques used to obtain and analyse data. Cooper and Schindler (1998) believe that the research methodology is a system of explicit rules and procedures on which research is based and against which claims for knowledge are evaluated. The debate on research methodology is never ending because some argue that the two main aspects of the research methodology i.e. quantitative and qualitative research methods are not compatible. Choosing quantitative or qualitative research methods is a very difficult task because there has been a strong debate about the advantages and disadvantages of each (De Vaus, 2001). Cooper and Schindler (1998) also suggested that research methodology should contain research design, sampling design, data collection, data analysis, and limitations that the research faced. It is important to note that while quantitative research methods and qualitative methods are often seen as opposing and polarised views, they are frequently used in conjunction and triangulation of methods in current day research is common (Polit et al., 2001).

This chapter identifies some important issues regarding the research methodology in general and will focus on the research methodology used to conduct the present work. It highlights the definition of social sciences research and then explains the research aim and objectives. After that, research question, research design and research strategy will be discussed respectively. Finally, this chapter explains the data collection as well as data analysis methods in details.

4.3 Social sciences research

General science is divided into four major parts of physical, biological, natural and social science. So, the social science is regarded as one of the four important parts of the general science (Runder, 1996). Since the twentieth century social sciences began to expand and splintered into more specialist disciplines, such as ethnography, social psychology, demography, ecology, economics, linguistic, social and political sciences. Yin (2003) explained that social science research has several types, including experiments, surveys, histories, analysis of archival information and case study. Each type has advantages and disadvantages depending on different conditions. One of the basic difficulties encounter in social research is the fact that in the real world a large number of variables are found to be highly interrelated. This means that both research and action plan become difficult and also individual biases and ideological differences may predominate.

4.4 Research Aim and Objectives

The Main research question of the present work is how effective the TQM practice is to have impact on the performance of MSUs. The overall aim of this research is to elaborate a convenient model for the effective implementation for TQM in MSUs of Iran.
In order to achieve this aim, three objectives are developed:

1. To assess the current state of TQM practices in the MSUs
2. To highlight the degree of progress of TQM implementation in the MSUs and
3. To determine the barriers/ critical factors for a successful implementation of TQM.

4.5 Research questions

Research aim and objectives generate a number of questions. Focusing on the customer, training and educating the employees, top management commitment, employee participation in the processes and finally implementation of TQM are the variables that would be

investigated. Considering the research central aim and objectives, the research conducted will answer to the following questions:

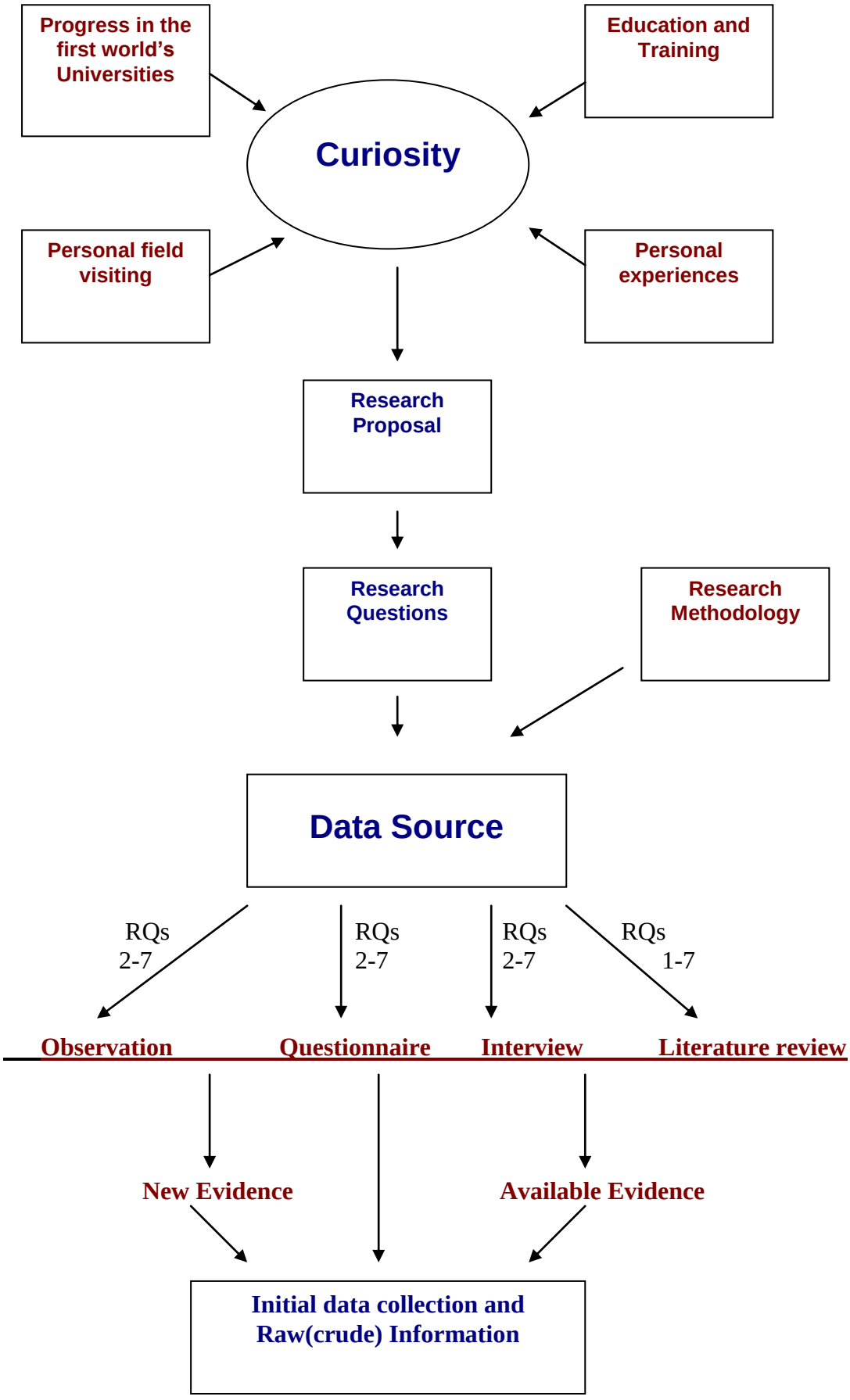
1) How far are MSUs concerned in focusing on the customers?
2) To what level are MSUs interested in training and educating the employees?
3) To what extent the top management in MSUs is committed to TQM and employee empowerment?
4) How far the employees in MSUs involved to develop the organisations, solve the problems, steer committees and participated in decision making?
5) What are the Common barriers/critical factors to successful implementation and development of TQM program in MSUs?

4.6 Research design

Research design is a program specifying the methods and procedures that guides the researcher to collect, analyse and interpret the information and observation. In other words, research design is a blueprint or master plan which enables the researcher to come up with a research framework, oversees solutions to possible problems and act appropriately in various stages of the research processes (Nachmias and Nachmias, 1996). The step by step research design stages are as follows:

1. Identifying the research aim and objectives.
2. Reviewing existing body of TQM literature including: TQM concepts and philosophy, TQM in service, and TQM in higher education (HE).
3. Collecting data through Questionnaire survey of individuals in HE and personal interview with HE officials and representatives.
4. Analysing the secondary and primary data.
5. Presenting a TQM model in HE applicable for MSUs.

The research design stages are illustrated in Figure 4.1.


Progress in the first world's Universities
Education and Training
Curiosity
Personal field visiting
Personal experiences
Research Proposal
Research Questions
Research Methodology
Data Source
RQs 2-7
RQs 2-7
RQs 2-7
RQs 1-7
Observation
Questionnaire
Interview
Literature review
New Evidence
Available Evidence
Initial data collection and Raw(crude) Information

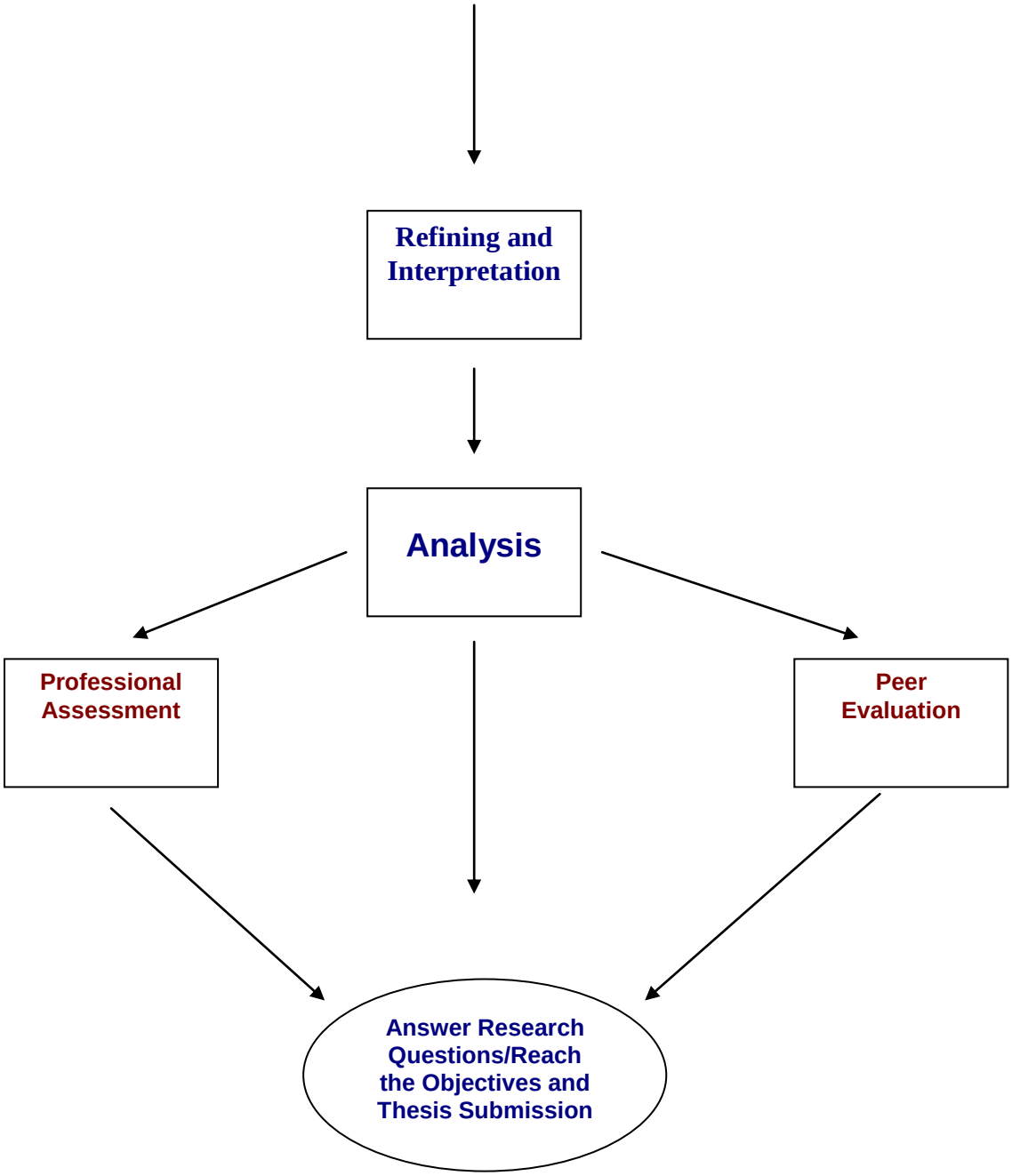


Figure 4.1: The research design stages

4.7 Research approach

The extent to which a researcher is clear about the theory at the beginning of the research raises an important question concerning the design of the research project. Generally, there are two approaches to research: deduction and induction. If the researcher should use an approach, in which s/he develops a theory and hypothesis (or hypotheses) and designs a research strategy to test the hypothesis, this is called inductive approach. If the researcher collects data and develops theory as a result of the data analysis, s/he has followed the inductive approach. In other words, the deductive research approach is used as a theory testing process, which commences with an established theory or generalization, and seeks to see if the theory applies to specific instances. The inductive research approach is used in a theory development process that starts with observations of specific instances and seeks to establish generalizations about the phenomenon under investigation. The deductive paradigm seeks to predict and control employing a predominantly quantitative methodology such as statistical and mathematical techniques whilst the inductive paradigm seeks to gain a greater understanding and meaning of the phenomena under investigation employing a predominantly qualitative methodology such as case study, questionnaire and interview. (Towers and Chen, 2008). Robson (2002) lists five sequential stages through which deductive research will progress:

1 deducing a hypothesis (a testable proposition about the relationship between two or more concepts or variables) from the theory;

2 expressing the hypothesis in operational terms (that is, including exactly how the concepts or variables are to be measured), which propose a relationship between two specific concepts or variable;

3 testing this operational hypothesis (this will involve one or more of the research strategies)

4 examining the specific outcome of the injury (it will either tend to confirm the theory or indicate the need for its modification)

5 if necessary, modifying the theory in the light of the findings.

An attempt is then made to verify the revised theory by going back to the first step and repeating the whole cycle.

Sauders (2007) suggests four important characteristics for deduction approach. First, there is the search to explain causal relationships between variables. For example it may be that a manager wishes to establish the reasons for high employee absenteeism in an organization. After studying it occurs to the manager that there seems to be a relationship between absence, the age of employees and the length of service. Consequently, s/he develops a hypothesis that the absenteeism is more likely to be prevalent among young employees who have worked for the organization for a short period of time. Second, to test this hypothesis the manager collects quantitative data. The third characteristic is controls to allow the testing of hypothesis. In the mentioned example these controls would help to ensure that any change in absenteeism was a function of employee age and length of service rather than any other aspect of the organization. The fourth characteristic of deduction is that concepts need to be operationalised in a way that enables facts to be measured quantitatively. In the example the obvious one is absenteeism of which constitutes would have to be strictly defined. The final characteristic of deduction is generalization. In order to be able to generalise statically about regularities in human social behaviour it is necessary to select samples of sufficient numerical size.

Saunders (2007) also explains that if the manager of the mentioned example wishes to conduct a research on the employee absenteeism s/he would interview a sample of the employees to get a feel of what was going on and to understand better the nature of the problem. The result of data collected by interview and also analyzing them would be the formation of a theory. This may be that there is a relationship between absence and only short period of time. Alternatively, s/he may discover that there are other reasons for absence that may or may not be related to employee age and length of service.

Table 4.1 summarizes some of the major differences between deduction and induction (Saunders, 2007).

Table 4.1: Differences between deduction and induction

Deduction emphasizes:	**Induction emphasises:**
* Scientific principles	* gaining an understanding of the meanings humans attach to events
* moving from theory to data	* a close understanding of the research context
* the need to explain causal relationships between variables	* the collection of qualitative data
* the collection of quantitative data	* a more flexible structure to permit changes of research emphasis as the research progresses
* the application of controls to ensure validity of data	* a realization that the researcher is part of the research process
* the operationalisation of concepts to ensure clarity of definition	* less concern with the need to generalize
* a highly structured approach	
* researcher independence of what is being researched	
* the necessity to select samples of sufficient size in order to generalize conclusions	

Easterby-Smith et al. (2002) suggest three reasons why the choice made about the research approach is important: a) it enables the researcher to take a more informed decision about the research design; b) it will help the researcher to think about those research strategies and choices that will work for her/him and those will not; c) knowledge of the different research approaches enables the researcher to adapt the research design to cater for constraints. Considering the nature of the research approaches, the combination of those is used throughout the present research.

4.8 Research strategies

Strategy", in the terminology, is derived from a Greek term which translates into "the action of the commander". In the battlefield, each commander seeks to mobilise his forces to the greatest advantage against the opposition. It is implicit in the notion of strategy that an organisation or its leaders should be involved in a host of activities which require the gaining of competitive advantage (Theodorakioglou and Wright, 2000). So, research strategy can be defined as a master plan specifying the methods and procedures and how the researcher is going to answer the research question(s). Saunders et al. (2007) classified research strategies into six categories; experiment, case study, grounded theory, ethnography, action research, and survey. Some of these clearly belong to the deductive approach, others to the inductive one. However, what matters is not the label is attached to a particular strategy, but whether it is appropriate for our particular research question(s) and objectives (Saunders et al., 2007).

4.8.1 Experiment

Experiment is a classical form of research that owes much to the natural sciences. When the concept of experiments comes up, most researchers think of laboratories. In them, we expect to find all sorts of instruments by which one observes and measures the phenomena associated with the variables. This could be considered as first type (classic type) of experiment. The second type occurs, not in the laboratory, but out in the" field" or in "nature." Here s/he first observes and records the normal sequence or concatenation of events, and then either waits for some intervening event in order to ascertain its effect on the previously observed pattern of outcome . Historical experiment is the third type of experiment in which events or conditions which have already transpired are treated and investigated (Singer, 1977).

4.8.2 Case study

Case study is a research strategy which focuses on a particular case (an individual, a group or an organization) and uses a variety of methods to explore complex phenomena within the context of the case or cases. In a case study, the primary source of data is interviews, supplemented by documentary evidence such as annual reports, minutes of meetings and so forth. Robson (1993) defines case study as the 'development of detailed', intensive knowledge about a single "case", or a small number of related "cases"; so, this strategy will be a particular interest to researches if they wish to gain a rich understanding of the context of the research and the processes.

Yin (2003) defines a case study as "… an empirical inquiry that investigates a contemporary phenomenon within its real life context, when the boundaries between phenomenon and the context are not clearly evident. It is particularly valuable in answering who, why and how questions in management research

The case study research methodology is often mistakenly thought to be rather informal. In fact, the case study research strategy methodology requires a distinctly formal structured approach because different accurate tools are used to collect data (Stake, 2005).

4.8.3 Grounded theory

Grounded Theory (GT) is a general, inductive and interpretive research method which was originated in 1967 by Barney Glaser and Anselm Strauss (Mansourian, 2006). Glaser (1992) defines GT as follow:

"Grounded theory is based on the systematic generating of theory from data, that itself is systematically obtained from social research."

Strauss and Corbin (1994) describe GT as:

"Grounded theory is a general methodology for developing theory that is grounded in data systematically gathered and analyzed. Theory evolves during actual research, and it does this through continuous interplay between analysis and data collection."

In fact, researchers who use GT as their research method do not test or verify any preconceived hypothesis. In contrary, they develop new theory based on the systematically collected evidence. Instead of having hypotheses to test, researchers in GT studies have research questions to address. In GT a researcher should keep his/her mind open to any possible evidence that might exist in the dataset (Mansourian, 2006).

4.8.4 Ethnography

Ethnographic research comes from social research and cultural anthropology where an ethnographer is required to spend a significant amount of time in the field. Ethnography is also firmly routed in the inductive approach. Ethnographers immerse themselves in the life of people they study and seek to place the phenomena studied in their social and cultural context. Ethnography comes from social research and anthropology. Instead of asking people, what

they believe or what they have done as we do in survey research, we watch what they do. In ethnography, data are collected through participant observation (Sounders, 2007). The profound strength of ethnography is that it is the most "in-depth" or "intensive" research method possible (Myers, 1999).

Unlike a survey, an ethnographer usually studies just the one organization or the one culture (Myers, 1999).

4.8.5 Action research

Lewin in 1946 first used the term 'action research' (Sounders et al., 2007). The strategic intent of action research is to bring about changes in organisational, institutional, business or community relations. What makes action research different from other strategic change methodologies is a combination of participative action and critical reflection. Action research is a form of inquiry grounded in the actions of its participants and their critical reflections about the consequences of their actions (Ballantyne, 2004).

4.8.6 Survey

Survey research is a significant way of generating knowledge of *what is*. The survey method is usually associated with the deductive approach. It is popular and common strategy in business and management research. In some researches, surveys are popular because they allow the collection of large amount of data from a sizable population in a highly economical way. The survey is most often based on a questionnaire. Every day, a news bulletin or a newspaper reports the results of a new survey which indicates, for example, that a certain percentage of the population thinks or behaves in a particular way. Using a survey approach gives more control over the research process. However, much time will be spent in designing and piloting the questionnaire. Analysing the results will also be time consuming. But despite the time consuming, the point is that it will be researcher time and researcher will be independent. In other words, researchers' progress is not delayed by their dependence on others for information. The questionnaire as the most often tool, however, is not the only data collection device which to the survey category. Structured observation and structured/semi structured interviews also fall into this category.

Comparing the six above mentioned categories of research strategy, in this research a survey strategy was employed. It should be noted that at the first look, it seems that the present research strategy is either the case study or used grounded theory. But the researcher has not focused on a particular case (in the present research, particular university) and in fact the

selected universities are the **representative** of the "type one" universities (see page 94). The only common characteristic of the survey for the selected universities with the case study is being different tools used (questionnaire and interview) to collect the data. So, this approach (case study) is simply rejected. Moreover, unlike the grounded theory which is primarily based on interviews, the present research is mainly based on the questionnaires. In addition, the main concern of the researcher was not to develop a theory as postulated in grounded theory. Therefore, this approach is also rejected. According to the definitions of experiment, ethnography, and action research it is obvious that none of them can fit with the present research.

4.9 Time Horizon

Strategic time horizons are an important but sometimes neglected area of research in the strategic management literature. According to the reality that an important question to be asked in planning a research is 'do I want my research to be a "snapshot" or "diary" Sekaran (2003) classified research into cross-sectional (snap shot approach) and longitudinal (dairy perspective) studies. Cross-sectional research is best defined with "the study of a particular phenomenon (or phenomena) at a particular time (Saunders et al., 2007) when data is gathered just once over a period of weeks or months with the purpose of answering the research question. Cross-sectional studies may be seeking to describe the incidence of a phenomenon or to compare factors in different organisations. For example many case studies are based on interviews conducted over a short period of time. Meanwhile, they stated that the main strength of longitudinal research is the capacity that it has to study change and development. They pointed out that there may be a massive amount of published (or even non published) data collected over time just waiting to be analysed. From these surveys the researcher would be able to gain valuable data which would give the researcher a powerful insight into developments in quality management. In longitudinal studies the basic question is "has there been any change over period of time?"

4.10 Data collection methods

Apart from the methods chosen to collect data, they must be reliable and consistency must be obtained. The choice of data collection methods depends on the facilities available, the degree of accuracy required, the expertise of the researcher, the time span of the study, and other costs and resources associated with and available for data gathering (Sekaran, 2003). In general there are two ways to collect data for the research; primary and secondary. In primary data collection, the researcher collects the data own self using methods such as interviews

and questionnaires. The key point here is that the data collected is unique to the researcher and, until the publication; no one else has access to it. But in the secondary, data has already been collected by someone else, even for a different purpose, to the researcher. So, the researcher can report the data in its original format or by doing some modifications. At the present research the both methods will be used. There are two important advantages for using multi-methods approach in this study: the researcher will address all needed qualitative and quantitative issues. Also, this approach will enable triangulation to take place; this concept refers to the use of different data collection strategies in order to ensure that the data are telling you what you think they are telling you. (Saunders; Lewis and Thornhill, 2000).

4.10.1 Primary data collection methods

There are many methods of collecting primary data. Among those, questionnaires and interview are regarded main methods which both will be used in this research.

4.10.1.1 Questionnaires

Questionnaires are a popular means of collecting data, but are difficult to design and often require many rewrites before an acceptable questionnaire is produced. It can be defined as a form containing a set of questions; submitted to people (respondents) to gain statistical information by recording their answers (Sekaran, 2003). The greatest use of questionnaires is made by the survey strategy, because it provides an efficient way of collecting responses from a large sample prior to quantitative analysis. . However, both experiment and case study research strategies can make use of these techniques. Bell (1993) suggests that to produce a good questionnaire, a researcher needs to ensure that it will collect the precise data required to answer the specified research questions and to achieve research objectives. This is truly important, as the researcher is unlikely to be able to go back to respondents and collect additional data, using another questionnaire. Meanwhile, Saunders et al. (2003) argued that questionnaires are not particularly good for exploratory or other research that requires large numbers of open-ended questions. They work best with standardised questions which the researcher can be confident will be interpreted the same way by all respondents. They concluded that questionnaires can therefore be used for descriptive research (such as that using attitude and opinion questionnaires and questionnaires of organisational practices which enable researcher to identify and describe the variability in different phenomena) or explanatory research (Which enables the researcher to examine and explain relationships

between variables). There are many question types, many scales can be used in the questionnaire the choice depend on the nature of research questions and objectives and the type of investigation. Some of the advantages of the questionnaires are:

- Can be posted, e-mailed or faxed.
- Can cover a large number of people or organisations.
- Wide geographic coverage. Relatively cheap.
- No prior arrangements are needed. No interviewer bias etc.

On the other hand some disadvantages can be imagined for this method and some of the most important ones are as follows:

- Design problems.
- Historically low response rate (although inducements may help).
- Time delay whilst waiting for responses to be returned.
- Several reminders may be required.
- No control over who completes it. Not possible to give assistance if required.
- Problems with incomplete questionnaires etc.

At the present study, suitable questionnaire(s) has been designed and is being distributed to the respondents.

4.10.1.2. Questionnaire sample

Population refers to the totality of the elements under study. A physical population is composed of elementary units (for example Universities), each of which possesses a certain characteristic of interest (for example, universities applies TQM), which is under study. Zikmund (1997) defined a population as any complete group of people, companies, universities, hospitals, stores, students that share set of characteristics.

If the population is large, then the researcher may take a sample of the total population; this approach is called sampling. Waters (1994) believes that sampling is a method of collecting data from a representative sample of items or people and these data are used to infer and understand characteristics about all items or people. There are many types of sampling, mainly divided into random (probability) and non-random (non-probability) sampling. Both them have some subtypes. For example, non-random sampling could be convenience sampling, judgment sampling, quota sampling, or snowball sampling. Among those, convenient sampling will be used in this research to determine the universities for case study. This sampling method refers to the procedure of obtaining units or people who are most conveniently available (Zikmund, 1997). Another characteristic should be acquired in the case studies sampling is that the sample should be information rich. In other words, the participants for the research should have experiential expertises and also they are well aware of the system and authorities on a particular experience. This supports the choice of the convenience sampling for the case studies in this research.

If a researcher is investigating all the population, this approach is called a census, and Waters (1994) and Zikmund (1997) defined the census as an investigation of all individual elements making up a population. It has the obvious disadvantage of being time-consuming and expensive, but its advantage is that the researcher is finding the views of every one, and it has the benefit that very accurate data can be obtained. If the population size is small and the results obtained from every member of the population are important, it may be worthy doing a census. In this case, the sample is the same as the population. Because the number of population in the present research is large, so, census approach will not be used to collect data. Therefore, some MSUs of Iran which are about 50 universities being selected as the target population of the study. For time consuming and expense reasons, the census approach will not be possible. Most of the managers responsible for TQM in MSUs will be considered as main participants and the representatives of the population.

4.10.1.3 Questionnaire design (questionnaire developing)

The validity and reliability of the data collected and the response rate achieved depend, to a large extent, on the design and the structure of the questionnaire (Sekaran, 2003). A valid question will enable accurate data to be collected while one which is reliable will mean that these data are collected consistently. He emphasises that ‘the question must be understood by the respondent in the way intended by the researcher and the answer given by the respondent

must be understood by the researcher in the way intended by the respondent'. Therefore, the designing of the questionnaire is likely to involve the researcher in substantial rewriting in order to ensure that the respondent decodes the question in the way the researcher intended. Bourque and Clark (1994) suggest researchers to do three things when designing questions:

- To adopt questions used in other questionnaires;
- To adapt questions used in other questionnaires;
- To develop their own questions.

Adopting or adapting questions are necessary if researchers wish to replicate, or to compare their own findings with, another study. Clear wording of questions using terms that are likely to be familiar to, and understood by, respondents can improve the validity of the questionnaire. Most types of questionnaire include a combination of open and closed questions (Saunders et al., 2007). Open questions allow respondents to give answers in their own way. Open questions are used widely in in-depth and semi-structured interviews. In questionnaire they are useful if the researcher requires a detailed answer or wants to find out what is uppermost in the respondent's mind. With open questions, the precise wording of the questions and the amount of space partially determines the length and fullness of response. Closed questions, sometimes referred to as close-ended questions and provide a number of alternative answers from which the respondent is instructed to choose. The latter are usually quicker and easier to answer, as they require minimal writing. However, if these responses cannot be easily interpreted then these benefits are, to say the least, marginal. Usually closed questions are categorised into six types as follows (Bell, 1999):

- List where the respondent is offered a list of items, any of which may be selected;
- Category where only one response can be selected from a given set of categories;
- Ranking where the responded is asked to place something in order;
- Scale in which a scaling device is used to record response;
- Quantity to which the response is a number giving the amount and;

- Grid where responses to two or more questions can be recorded using the same matrix.

List questions

Such questions are useful when the researcher needs to be sure the respondent has considered all possible responses. However, the list of responses must be defined clearly and meaningfully to the respondent. The response categories used vary widely and include 'yes/no', 'agree/disagree' and 'applies/does not apply' along with 'don't know' or 'not sure'. Some time a catch-all category of 'other' is added to the response category in order to get the possible complete list of response (Saunders et al., 2007).

Category questions

In contrast, these questions are designed so that each respondent's answer can fit only one category. Such questions particularly useful if the researcher needs to collect data about behaviour or attributes (Saunders et al., 2007).

Ranking questions

A ranking question asks the respondent to place thing in order. This means that the researcher can discover their relative importance to the respondent. With such questions, the researcher needs to ensure that the instructions are clear and will be understood by the respondent (Kervin, 1999).

Scale questions

Scale or rating questions are often used to collect attitude and belief data. The most common approach is the likert-style rating scale in which the researcher asks the responded how strongly they agree or disagree with a statement or series of statements. Each response is given a numerical score to reflect the respondent's degree of opinion or attitude favourableness. Mostly, he scale indicates the respondent's opinion as, 1= strongly disagree; 2= disagree; 3= neutral; 4= agree; and 5= strongly agree with the statement(s) given related to the research questions and information to achieve the research objectives (Kervin, 1999).

Quantity questions

Responses to quantity questions are a number, which gives the amount of a characteristic. For this reason, they tend to be used to collect behaviour or attribute data.

Grid (matrix)

A grid or matrix enables the researcher to record the responses to two or more similar questions at the same time. Although using a grid saves space, the respondents have difficulties comprehending these designs and that they are a barrier to response.

Mainly, the scale questionnaires along with category and list questionnaires are used throughout the research.

4.10.1.4 Questionnaire wording

The wording of the questionnaire should approximate the level of understanding of the respondents. The choice of words would depend on their educational level, the usage of terms and idioms in the culture, and the frame of reference of the respondents. If some questions are either not understood or are interpreted differently by the respondent, the researcher will obtain the wrong answers to the questions, and responses will thus be biased (Sekaran, 2003). Saunders et al. (2007) suggests researchers to consider some important points in terms of questionnaire wording:

- Words used in the question should be familiar and all respondents should understand them in the same way. Use simple words and avoid jargon, abbreviations and colloquialisms.

- Use words in the question that not to cause offence. These might result in biased responses or lower response rate.

- Shorten the question. Long questions are often difficult to understand.

- Avoid, if possible, asking question which includes a negative or double negative. Questions that include the word ‘not’ are some times difficult to understand.

- Avoid asking question which implies a certain answer is correct. If it does, the question is biased and will need to be reworded.

- Make sure that your question not to embarrass the respondent. If it is then you need either to reword it or to place it toward the end of the survey when you will, it is hoped, have gained the respondent's confidence.

4.10.1.5 Questionnaire Layout

Layout is important for both self-administered and interviewer-administered questionnaires. Interviewer-administered questionnaires should de designed to make reading questions and filling in responses easy. The layout of self-administered questionnaires should, in addition, be attractive to encourage the respondent to fill it in and to return it, while not appearing too long (Saunders et al., 2007). Sekaran (2003) states that it is necessary to pay attention to how the questionnaire looks. He adds an attractive and neat questionnaire with appropriate introduction, instructions, and well-arrayed set of questions and response alternatives will make it easier for the respondents to answer them. For ease of comprehension and translation, it is desirable to have two or more simple questions rather than a single complex question. For the introduction he believes that a proper introduction that clearly discloses the identity of the researcher and conveys the purpose of the survey is absolutely necessary. Assurance of confidentiality of the information provided by them will allow for less biased answers. He also suggests that the introduction section should end on a courteous note, thanking the respondent for taking the time to respond to the survey. Moreover, the sequence of the questions in the questionnaires should be such that the respondent is led from questions of a general nature to those that are more specific, and from questions that are relatively easy to answer to those that are progressively more difficult, as it is called funnel approach (Sekaran, 2003). Easy questions might relate to issue that do not involve much thinking; the more difficult ones might call for more thought, judgment, and decision making in providing the answers. In determining the sequence of questions, it is also advisable not to place contiguously a positively worded and a negatively worded question tapping the same element or dimension of a concept. Saunders et al. (2007) argue that the length of the questionnaire will affect the response rate. Optimal length will depend on the research population, research question(s) and the objectives. The specialised the population and the more relevant the topic the longer the questionnaire can be. Although the general rule is to keep questionnaires as short as possible (e.g., for within-organisation self-administered questionnaires an optimal

length is sex to eight A4 pages). Finally, they recommend that the questionnaire should be printed on good-quality paper along with on warm-pastel-coloured one. The good-quality paper will imply that the survey is important and the warm pastel shades such yellow and pink generate more responses than cool colours such as green and blue. White is neutral colour but bright or fluorescent colours should be avoided.

4.10.1.6 Translation of the research questionnaire

The language used along with the questions asked and wording should be appropriate to top respondents' attitudes, perceptions and feeling. Although English is widely used and spoken (particularly written and read) in all universities in Iran, the decision made to translate the research questionnaires into Persian (Farsi), the official language in Iran, in order to make it very clear for the respondents. The translated questionnaire (Appendix 28) was also edited by a bilingual academic member of Bangor business school. Despite translating, the questionnaire was distributed in both English and Farsi to meet the satisfaction of the respondents (particularly academic staff) at MSUs. Moreover, even some Iranian respondent would prefer to answer the questions in English. However, the questionnaire was designed at Huddersfield University and all corrections, particularly wording points of view, was made by the supervisors (Appendix 29). There are four techniques for the questionnaire translation (Saunders et al., 2007): direct translation, back translation, parallel translation, and mixed technique. In direct translation, a bilingual translator translates the questionnaire directly from a base language to the respondent's language, is frequently used. However, if the translator is not fluent in both languages and familiar with both cultures, direct translation of certain words and phrases may be erroneous. Procedures like back-translation and parallel translation have been suggested to avoid these errors. In back-translation, the questionnaire is translated from the base language by a bilingual speaker whose native language is the language into which the questionnaire is being translated. This version is then retranslated back into the original language by a bilingual whose native language is the initial or base language. Translation errors can then be identified. Several repeat translations and back-translations may be necessary to develop equivalent questionnaires, and this process can be expensive and time-consuming. An alternative procedure is parallel translation. A committee of translators, each of whom is fluent in at least two of the languages in which the questionnaire will be administered, discusses alternative versions of the questionnaire and makes modifications until consensus is reached. It is important that any non-verbal stimuli

(pictures and advertisements) are also translated using similar procedures (Malhotra et al., 1996). A mixed technique is the combination of the mentioned procedures. Taking into account the advantages and disadvantages as well as the conditions, direct technique has been adopted for the translation of the questionnaire.

4.10.1.7 Contents of questionnaires

The nature of the variable tapped (subjective feeling or objective facts) will determine what kinds of questions will be asked. If the variables tapped are of a subjective nature (e.g., satisfaction, involvement), where respondents' beliefs, perceptions, and attitudes are to be measured, the questions should tap the dimensions and elements of the concept. Where objective variables such as age and educational levels of respondents are tapped, a single direct question (preferably one that has an ordinal scaled set of categories) would be appropriate (Sekaran, 2003). Thus, the purpose of each question should be carefully considered so that the variables are adequately measured.

4.10.1.8 Piloting the questionnaire

A pilot study can be defined as a preliminary survey using a limited number of respondents and often employing less rigorous sampling than are employed in actual quantitative studies (McDaniel and Gates, 2001). Prior to using the questionnaire to collect data it should be pilot tested. It is remarkable the number of problems that testing can highlight even when all the previous steps have been followed with maximum attention. Zikmund (1997) mentioned the pilot work is extremely useful in refining the wording, ordering, layout, and so on, and in helping to refine the questionnaire to a manageable length. Saunders et al. (2007) add that it will enable researchers to obtain some assessment of the questions' validity and the likely reliability of the data that will be collected. They suggest asking an expert or group of experts to comment on the representativeness and suitability of the questions. As well as allowing suggestions to be made to the structure of the questionnaire this will enable the researcher to make necessary amendments prior to pilot testing with a group as similar as possible to the final population in the sample. They also endorse Bell's (1999) advice, 'do your best to give the questionnaire a trial run', as, without a trial run, you have no way of knowing your questionnaire will succeed. The number of people on whom the questionnaire is piloted and the number of pilot tests conducted are dependent on research question(s), objectives, size of the research project, the time and money resources available and how well the initial

questionnaire has been designed. Forza (2002) argues that Pre-testing a questionnaire should be done by submitting the "final" questionnaire to at least two types of people: colleagues, and target respondents. The role of colleagues is to test whether the questionnaire accomplishes the study objectives. The role of target respondents is to provide feedback on everything that can affect answering by and the answer of the targeted respondents. The target respondents can pre-test the questionnaire separately or in a group. He adds if the questionnaire is mailed it can be sent to a small pre-testing sample. Telephone questionnaires must be tested by telephone as some aspects cannot be tested in a face-to-face situation. This type of questionnaire is easy to test and the researcher can modify and use the revised questionnaire the same day. As part of the pilot, the researcher should check each completed pilot questionnaire to ensure that respondents have had no problems understanding or answering questions and have followed all instructions correctly. For self-administered questionnaires, additional information about problems can be obtained by giving respondents a further short questionnaire. Bell (1999) suggests using this to find out:

- How long the questionnaire took to complete;
- The clarity of instructions;
- Which, if any, questions were unclear;
- Which, if any, questions the respondent felt uneasy about answering;
- Whether in their opinion there were any major topic omissions;
- Whether the layout was clear and attractive;
- Any other comments.

Interviewer-administered questionnaires also need to be tested with the respondents for all these points. In addition the researcher needs to pilot test the questionnaire with interviewer to discover whether:

- There are any questions for which visual aids should have been provided;
- They have difficulty in finding their way through the questionnaire;

- They are recording answers correctly.

4.10.1.9 Interviews

Interviewing is a technique that is primarily used to gain an understanding of the underlying reasons and motivations for people's attitudes, preferences or behaviour. The purpose of interviewing is to find out what is in and on someone else's mind. Thus, evidently, the purpose of interviewing is not to put things in someone's mind but to access the perspective of the person being interviewed (Österåker, 2001). Interviews can be undertaken on a personal one-to-one basis or in a group. In reality, the research interview is a general term for several types of interview. This fact is significant since the nature of any interview should be consistent with the research question(s) and objectives, the purpose of the research and the research strategy that has been adopted. Saunders et al. (2007) suggest that the data-quality issues, interviewing competency, and the logistic and resource management issues determine interview effectiveness. They also mention that the management of interviewer and interviewee bias is important to demonstrate the researcher's credibility, and to obtain the confidence of the respondents. They add the researcher's competency could be developed and demonstrated through the opening of the interview, using appropriate language, questioning and listening skills, behavioural cues, and recording of data. Like questionnaires, interviews would have advantages and disadvantages. For example some of the strengths and weaknesses of this method are:

Advantages:

- Serious approach by respondent resulting in accurate information.
- Good response rate. Completed and immediate.
- Interviewer can give help if there is a problem.
- Characteristics of respondent assessed – tone of voice, facial expression, hesitation, etc.
- Flexibility in terms of adapting and adopting, and
- Changing the questions as the researcher proceeds with the interviews.

Disadvantages:

- Need to set up interviews.
- Geographic limitations. Can be expensive.
- Respondent bias – tendency to please or impress, create false personal image, or end interview quickly etc.

Saunders et al. (2007) have found that most people, particularly managers are most agree to be interviewed, rather than complete a questionnaire, especially where the interview topic is relevant to their own current work. They also believe that personal interviews, where appropriate, may achieve a higher response rate than using questionnaires because most respondents are reluctant to spend time providing written explanatory answers especially if the meaning of any question is not entirely clear.

4.10.1.10. Types of interview

In general, there are three types of the interview; Structured, Semi-structured and Unstructured. Based on the research purpose and the facilities available one to all these types are use to collect the data.

4.10.1.11 Structured interviews

Structured interviews are those conducted when it is known at the outset what information is needed. In other words, structured interviews use questionnaires based on a predetermined and standardised or identical set of questions. The interviewer has a list of predetermined questions to be asked of the respondents either personally, through the telephone, or through the medium of a PC. As the respondents express their views, the researcher would take a note or record them. The same questions will be asked of everybody in the same manner. Sometimes, however, based on the exigencies of the situation, the researcher might take a lead from a respondent's answer and ask other relevant questions not on the interview protocol. Through this process, new factors might be identified, resulting in deeper understanding. However, to be able to recognise a probable response, the interviewer must comprehend the purpose and goal of each question (Sekaran, 2003). In terms of the types of question which might be used to structure the interview, two particular types of question

which have been widely studied are “situational questions” and “past behaviour” type questions. In situational questions situations that may occur on the job and respondents are asked what they would do. In contrast, past behaviour (or behavioural) questions focus on past behaviour by asking respondents to describe what they did in past jobs (Barclay, 2001). For example, where a job requires persuasiveness, behavioural questions ask respondents to describe a situation where they had to persuade someone to change their view or gain support for something. The interviewer seeks evidence of successful persuasive skills from past events, the inference being that having been successful in the past, such a respondent would be likely to also be successful at persuading in the future, given a similar situation. Both past behaviour questions and situational questions require interviewers to have a clear idea of the competencies required for the job and to focus questions on these competencies. Other question types include those on opinions or attitudes, goals and aspirations, and self-descriptions and self-evaluations. These are weaker because they allow respondents to present their credentials in an overly favourable manner or avoid revealing weaknesses.

Sekaran (2003) recommends that when a sufficient number of structured interviews have been conducted and adequate information obtained to understand and describe the important factors operating in the situation, the researcher would stop the interview. The information would then be tabulated and the data analyzed.

4.10.1.12 Unstructured interviews

Unstructured interviews are informal. This method is used to explore in depth a general area in which the researcher is interested. Sauders et al. (2007) describe these as in-depth interviews. There is no predetermined list of questions to work through the situation, although the researcher needs to have a clear idea about the aspects to be explored. The interviewee (respondent) is given the opportunity to talk freely about events, behaviour and beliefs in relation to the topic area. The type and nature of the questions asked of individuals might vary according to the job level and type of work done by them. For instance, top and middle-level managers might be asked more direct questions about their perceptions of the problem and the situation. Employees at lower levels may have to be approached differently.

4.10.1.13 Semi-structured interviews

The semi structured interviews are focused by asking certain questions but with scope for the respondent to express him or herself at length. Semi-structured interviews will be used to enable the researcher to understand a wide range of issues and meaning concerned the research variables, to explore many areas regarding the TQM implementation, to reveal and understand the what, how and why questions relating to the research (Saunders et al., 2003). Semi-structured interviews may lead to areas which have not been considered before and it may be important for the research. So it helps to add more understanding and to address the research questions and objectives well. Wass and Wells (1994) state that the semi-structured interviews are used to explore and explain themes that have emerged from the use of the questionnaires. Meanwhile, they argue that a combination of styles may be used within one interview: 'one section of an interview may ask a common set of factual questions, while in another section a semi-structured qualitative approach may be used to explore responses. They also add that the semi structured interviews may also be used as a means to validate findings from the use of questionnaires.

In summary, each type of interview outlined above has a different purpose and application. Structured interview can be used in survey research to gather data, which will be the subject of quantitative analysis. Whereas, unstructured and semi-structured interviews are used in qualitative research (phenomenological approach) in order to conduct exploratory discussions not only to reveal and understand the 'what' and the 'how' but also to place more emphasis on exploring the 'why' (Saunders et al., 2007). Table 4.2 shows the uses of different types of interview.

Table 4.2: Uses of different types of interview in each of the main research categories

	Exploratory	Descriptive	Explanatory
Structured		+ +	+
Unstructured	+ +		
Semi-structured	+		+ +

+ +: more frequent, +: less frequent

Considering the purpose of the research, semi-structured interview has been employed for this research.

4.10.1.14 Other data collection methods

Modern technology is increasingly playing a key role in shaping data collection methods. Computer-assisted surveys, which help both interviewing as well as preparing and administering questionnaires electronically, are on the increase. Computer-assisted telephone interviewing, as well as administering questionnaires through electronic mail (e-mail), are now being used to facilitate data gathering.

4.10.1.15 Face-to-face and Telephone interviews

Types of interview related to the form of interaction that is established between the researcher and the respondent should be differentiated. Some interviews, therefore, may be conducted on a face-to-face basis, by meeting the respondents depending on the level of complexity of the issues involved, duration of the interview, the convenience of both parties, and the geographical area covered by the survey. The main advantage of face-to-face interviews is that the researcher can adapt the questions as necessary, clarify doubts, and ensure that the responses are properly understood, by repeating or rephrasing the questions. Any discomfort, stress, or problems that the respondent experiences can be detected through frowns, nervous tapping, and other body language unconsciously exhibited by her/him. The main disadvantages of face-to-face interviews are the geographical limitations they may impose on the surveys and the vast resources needed if such surveys need to be done nationally or internationally. Another drawback is that respondents might feel uneasy about the anonymity of their responses when they interact face-to-face with the interviewer (Sekaran, 2003).

Telephone interviewing is another way that is used in some situations. The main advantage of telephone interviewing, from the researcher's point of view, is that a number of different people can be reached in a relatively short period of time. On the other hand, from the respondents' standpoint it would eliminate any discomfort that some of them might feel in facing the interviewer. Moreover, it is possible that most of them would feel less uncomfortable disclosing personal information over the phone than face to face. Interviews by telephone may lead to advantages associated with access, speed and lower cost. This method allows the researcher to make contract with participants with whom it would be impractical to conduct an interview on a face-to-face basis because of the distance involved and prohibitive costs and time required. But, the main disadvantage of telephone interviewing is that the respondent could terminate the interview without warning or explanation. To

minimize this nonresponsive problem, it would be advisable to call the respondent (interviewee) to give an approximate idea of how long the interview would last, and to set up a mutually convenient time. The researcher may also encounter difficulties in developing more complex questions in comparison with a face-to-face interview situation. Unlike the face-to-face interviewing, in the telephone interview the researcher will not be able to see the respondent and read the nonverbal communication (Sekaran, 2003). Saunders et al. (2007) believe that qualitative interviewing by telephone is only likely to be appropriate in particular circumstances. They add it may be appropriate to conduct a short, follow-up telephone interview to clarify the meaning of some data, where the researcher has already undertaken a face-to-face interview with a participant. They finally point out that it may also be appropriate where access would otherwise be prohibited because of long distance and the researcher has been able to establish her/his credibility prior contact and made clear that the requirements are reasonable and guided by ethical principles.

4.10.1.16 Overcoming the bias in interviews

Bias in interviewing approach resulted from the nature of research, researcher, respondents who agree to be interviewed. In order to avoid the bias, Saunders et al. (2007) point out nine important key points which the researcher needs to consider. These points are as follows:

1. Preparation and readiness of the researcher for the interview; the researcher needs to be knowledgeable about the organisational or situational context
2. The level of information supplied to the interviewee; providing respondents with a list of the interview themes before the event promotes the validity and reliability through enabling the interviewee to consider the information being requested.
3. The appropriateness of the researcher's appearance at the interview; the researcher appearance may affect the perception of the interviewee. Where this has an adverse affect on the researcher credibility in the view of interviewee, this resulting bias may affect the reliability of the information provided.
4. The nature of opening comments to be made when the interview commences; where the interviewee has not met the researcher before, the first few minutes of conversation may have a significant impact on the outcome of the interview. The interview is likely to occur in a setting that is unfamiliar to the

researcher, but it will nevertheless be the researcher responsibility to shape the start of the discussion.

5. Approach the questioning; the researcher approach to questioning should reduce the scope for bias during the interview and increase the reliability of the information obtained. The questions need to be clearly phrased, so that the respondent can understand them, and the researcher should ask them in a neutral tone of voice. It is usually best to leave sensitive questions until near the end of an interview because this allows a greater time for the respondent to build up trust and confidence in the researchers.
6. Nature and impact of the interviewer's behaviour during the course of interview; appropriate behaviour by the researcher reduces the scope for bias during the interview. Comments or non-verbal behaviour, such as gestures, which indicate any bias should be avoided. The researcher should enjoy the opportunity, or at least appears to do so.
7. Demonstration of attentive listening skills; the purpose of a semi-structured or unstructured interview is to understand the participant's explanations and meaning, where the concentration on listening is highly important and allow the researcher to identify comments that are significant to the research topic. Although it is necessary for the researcher to explore and probe explanations and meaning but respondents must be provided with reasonable time to develop their responses, and the researcher must avoid projecting her/his own views.
8. Scope to test understanding; the researcher may test the understanding by summarising an explanation provided by the respondent. This will also allow the respondent to evaluate the adequacy of the interpretation and correct where necessary.
9. Approach to recording data; a full record of the interview should be compiled as soon as possible after it has taken place. Where the researcher doesn't do this, the exact nature of explanation s provided may be lost as well as general points of value. There is the possibility that the researcher may mix up data from different interviews.

With all due consideration of the researcher, it is often difficult to control bias in all cases and other factors may become significant. For example, there may be misinterpretation of responses because of cultural differences between the interviewee and the interviewer.

4.10.2 Secondary data collection

Secondary data collection deals with information which has already been collected and published from other sources. An extensive amount of related literature review will be undertaken in the TQM in higher education institutions and universities. The sources of the secondary will be:

1. Published reports, articles, books,
2. All electronic sources,
3. Government publications, census data,
4. Annual reports of organisations, and
5. Case studies and other archival records.

Different researchers have generated a variety of classification for secondary data. Among those the classification made by Saunders et al. (2007) considered all ideas and created a new classification which almost captures the full variety of data. They therefore classified the secondary data into three main sub-groups: documentary data, survey-based data and those compiled from multiple sources.

Documentary secondary data includes written documents such books, journal and magazine articles and newspapers. Written documents can also include notices, correspondence, minutes of meeting, transcripts of speeches and administrative and public records. Documentary secondary data also includes non-written documents such as tape and video recordings, pictures, drawings, films and television programmes. An appropriate way to obtain an understanding to guide future research is to review related published studies. Journals and periodicals are a major part of the formal communication system for exchanging information. Their content will normally be judged more critically for theoretical content and will see more efforts channelled towards theory building in the context. However, there are hundreds of journals addressing issues in the field, so an analysis of every one of them would be prohibitive, but analysing a number of leading journals would provide a good understanding of the priorities and concerns of the research field (Shi and Bennett, 2001). The internet-based information systems are also very popular approaches adopted by many organisations and individuals to enhance their performance and capabilities for competition.

They are considered the major applications that change the types of organizational competition and can help them improve their standing in a dynamic environment (Yang et al., 2007).

Survey-based data refers usually to data collected by questionnaires which have already been analysed for their original purposes. They are made available as compiled data tables or as a computer readable matrix of raw data for secondary analysis and to answer the research question(s) and to meet the objectives.

Multiple-source secondary data can be based entirely on documentary or on survey data or can be an amalgam of the two. The key factor is that different data sets have been combined to form another data set prior to the assessing the data.

4.10.2.1 Advantages and disadvantages of secondary data

Advantages to the secondary data collection method are - 1) it saves time that would otherwise be spent collecting data, 2) provides a larger database (usually) than what would be possible to collect on ones own, 3) it saves the costs of acquiring information, 4) it can be useful to compare the collected data with secondary data. This mean that the researcher can place her/his own findings within a more general context, 5) it can result in unforeseen discoveries where that re-analysing secondary data can lead to unexpected new discoveries (Saunders, 2007).

However there are disadvantages to the fact that 1) the researcher cannot personally check the data so its reliability may be questioned, 2) also, secondary data are, sometimes, not meeting the specific needs of the particular situation or setting. Hence, it is important to refer to sources that offer current and up-to-date information, 3) access may be difficult or costly. Market research reports may cost hundreds of pounds, 4) initial purpose may affect how data are presented. Saunders et al. (2007) recommend that when data used which are part of a report the researcher needs to be aware of the purpose of that report and the impact that it will have on the way the data are presented. Hence, they emphasis researchers to evaluate any secondary data used.

All these sources are very important and can enrich the investigations which have been used appropriately throughout the research.

4.10.3 Reliability evaluation

Reliability is defined as:
The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable (Golfshani, 2003).
There are several different methods for estimating the reliability of a test that two are very common amongst: test/retest and internal consistency.

Test/retest is the more conservative method to estimate reliability. Test/retest is that the researcher should get the same score on test 1 as s/he does on test 2. The three main components to this method are as follows:

1.) implementation the measurement instrument at two separate times for each subject;
2.) computing the correlation between the two separate measurements; and
3.) assumption that there is no change in the underlying condition between test 1 and test 2.

Internal consistency estimates reliability by grouping questions in a questionnaire that measure the same concept. For example, the researcher could write two sets of three questions that measures the same concept and after collecting the responses, runs a correlation between those two groups of three questions to determine if the instrument is reliably measuring that concept (Sekaran, 2003).
Sounders et al. (2007) highlights the four threats to reliability. They are subject error, subject bias, observer error, and observer bias. Therefore, a reliability of a measure or research element is established by testing consistency and stability, and helps to assess the goodness of a measure. Consistency indicates how well the items measuring a concept hang together as a set of research constructs. Two tests that are useful to examine consistency are inter-item consistency and split-half reliability test.
Stability indicates the ability of a measure to remain the same over time despite uncontrollable testing conditions, and low vulnerability to changes in situation. Two tests appropriate for stability are test-retest and parallel-form methods. Reliability test is shown by high correlation between measures which means homogeneity of items underlying the construct. Cronbach,s alpha is a common reliability coefficient that indicates how well the items in a set are positively correlated to one another. It is computed in terms of the average

inter-correlations among the items in measuring the concept. The closer alpha is to 1, the higher the internal consistency reliability. According to Kline (2000), Cronbach's alpha coefficient should be above 0.7 to be considered as reliable.

The question of reliability in a social research context refers to the demonstration that the operations and procedures of the research inquiry can be repeated by other researchers, which then achieve similar findings, that is, the extent to which findings can be replicated. Contradictly, this could raise problems in a case of qualitative research because individuals' opinion and perception are not as static as measurements used in quantitative research (Golfshani, 2003). Even if researchers were concerned to assure that others could precisely follow each step, results may still differ. In fact, data on real-life events, collected by different researchers, may not converge into one consistent picture.

4.10.4 Validity evaluation

Validity refers to how accurately a test is measuring what it is supposed to measure. To be valid, the test must first be reliable, but not all reliable tests demonstrate validity. In other words, reliability is a necessary but not sufficient condition for validity.

There are different types of validity depending on the purpose of the test. Commonly used types of validity are content validity, criterion-related validity, and construct validity. Content validity is the most important type of validity for assessment of staff/student learning. Content validity refers to how well the test items represent what is learned in a course or in a similar knowledge domain. That is, to what extent are the test items representative of the types of content or skills that were taught? Content validity ensures that the measure includes an adequate and representative set of items that clarify the concept. The more the scale items represent the domain of the concept being measured, the greater the content validity. Face validity is considered as a basic and a very minimum index of content validity. Face validity refers to how well the item "on the face of it" looks like it measures what it is supposed to measure.

Criterion-related validity is established when the measure differentiates individuals on a criterion it is expected to predict. This validity is concerned with the relationship between a measuring instrument and measurement outcomes. This can be done by establishing concurrent validity or predictive validity testing.

Construct validity indicates how well the results obtained from the use of the measure fit the theories around which the test is designed. For example, when individuals are placed in a stress environment, it would be expected that their scores on an anxiety test would go up.

It is a significant problem to determine which test should be used when evaluating the validity of a particular measuring instrument. However, it is recommended that a thorough examination of a measuring instrument would include information about all types of validity. Therefore, for this research, after constructing a measurement instrument (questionnaire design and interviewing), we will identify which validity is sufficient to get precise results.

4.11 Presentation of field work findings

The data obtained from the field work performed in early 2010 at two major Iranian (type one) medical sciences universities through self administered questionnaires and also face to face semi structured interviews regarding the research objectives and research questions are presented.

4.11.1Questionnaire developing

Prior to start the field work, and as the data collection methods mainly based on the questionnaire as the first data collection method, the final version of the questionnaire was developed at six stages (Figure 4.2) as follows :

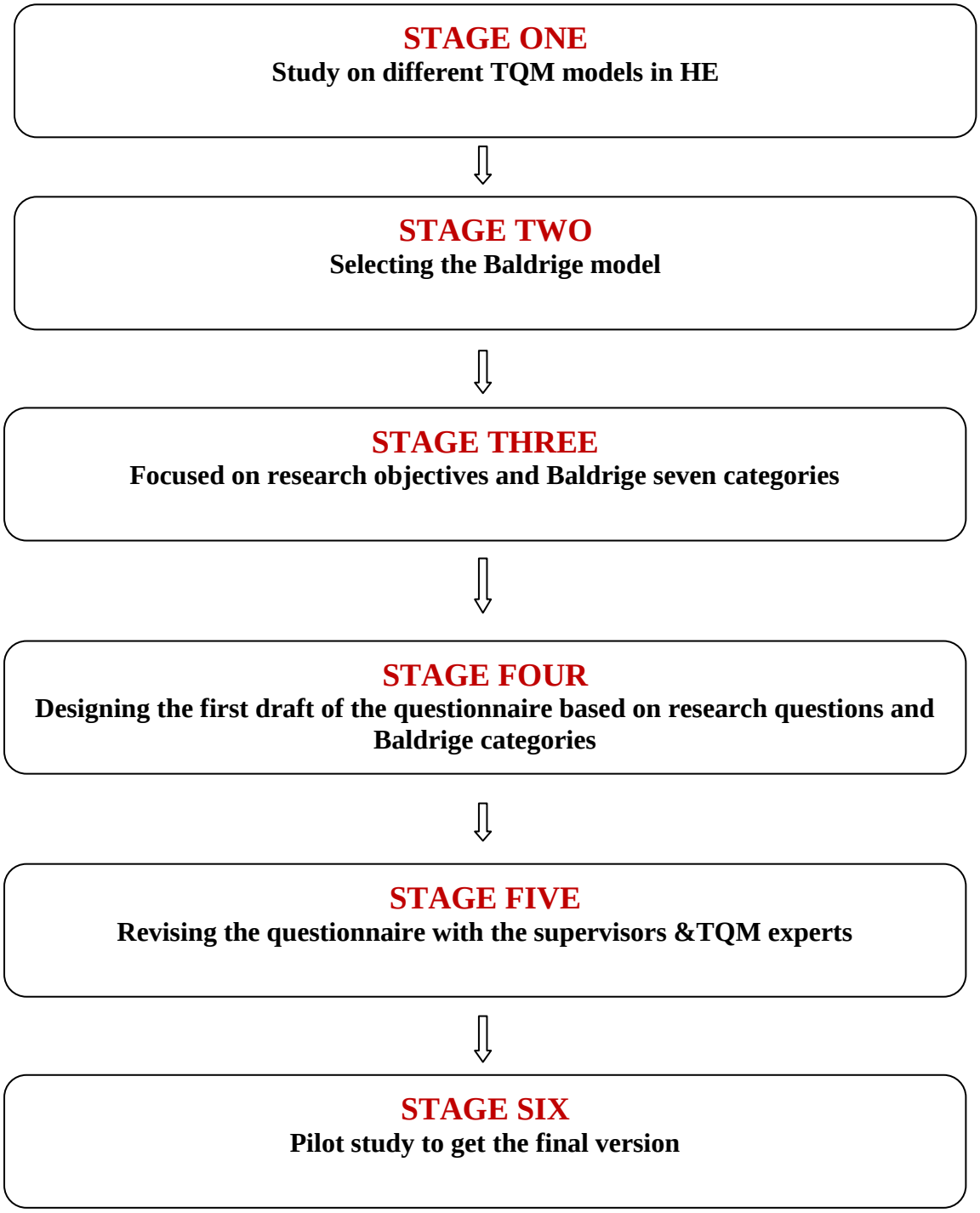


Figure 4.2: Six stages of the questionnaire developing

Stage one:

In order to select a model to investigate the TQM implementation at Iranian medical sciences universities, more than five worldwide popular TQM models were studied (see chapter 2). Differences and similarities of different TQM models were identified.

Stage two:

Among those, the Baldrige model was selected for the following reasons:

A) It has been successfully implemented at Higher education organizations,
B) It is not complicated,
C) The Baldrige categories are very sensible to Iranian managerial system,
D) Cultural closeness of Iranian higher education system with organization presented Baldrige model, and
E) Personal interest of the researcher to this model.

Stage three:

Once again, the research objectives were reviewed and tried to find a linkage between Baldrige seven categories in terms of suitability of the categories to cover the research objectives. It was noted that the seven categories are good enough and could be used for this purpose.

Stage four:

Using the Baldrige model guideline and research objectives and research questions, the first draft of the questionnaire was designed. In designing the questionnaire, it was tried to design as much as questions to make sure nothing ignored and therefore, fifty five questions were designed. Furthermore, in designing the questionnaire, the researcher tried to benefit from the principles should be taken into account in questionnaire design, questionnaire wording, and questionnaire layout explained in details at chapter four.

Stage five:

The first draft of the questionnaire was revised first with a TQM expert and then with the supervisors. They made very good points from different points of view and all points were used to construct the revised questionnaire. In the revised questionnaire, the number of questions downed to 48 clear and understandable questions.

Stage six:

Because of importance of the pilot study in the research (see chapter four) and knowing this fact that even when all the previous steps have been followed with maximum attention, pilot work is necessary in refining the wording, contents, ordering, lay out and so on. So, in this research, taking into account of suggestions put forward by TQM authors the pilot study was conducted at three steps. At the first step, the first revised questionnaire was submitted to a colleague who is lecturer at university of Bradford. His suggestions in terms of question wording, contents, ordering and layout was extremely useful to obtain the second revised

questionnaire. At the second step, the prepared questionnaire was delivered to three Iranian academic members, two of those were former university vice-chancellor and the third person is the lecturer of managerial methods at TUMS. Their input was very helpful and provided the researcher with useful comments and suggestions from different points of the view to obtain the third revised questionnaire.

Finally, at the last step, the third revised questionnaires were distributed to the four groups of the respondents (each two) and asked them to highlight any ambiguous or irrelevant questions. Three of them gave some minor corrections, particularly in Farsi (Persian) version and the corrections were applied to the questionnaire and hence, the final questionnaire was constructed successfully.

It is to be noted that at the first step the English version of the questionnaire, at the second step both English and Farsi versions were distributed to corresponding persons. At the third step, only the Farsi version of the questionnaire was distributed to the respondents. Distribution of the questionnaires to the respondents in the field work process was carried out as the Farsi version.

4.11.2 Response rate

The prepared final questionnaires were distributed to two medical sciences universities in Iran. A total number of 160 questionnaires (each university 80) were distributed to four groups of respondents including academic staff (faculty), non academic staff (staff), students, and senior mangers. The portion of the respondents who received the questionnaires in both universities was summarised in the Table 4.3.

Table 4.3: Portion of the responds received questionnaires in Tabriz + Isfahan

	Faculty	Staff	Students	Senior managers	Total
Quantity	25+21	20+24	25+25	10+10	160
Percent	29	27.5	31	12.5	100

The distribution of the questionnaires was carried by hand and email, of which 149 were returned completed and acceptable. Saunders et al. (2007) suggested a simple formula to find out the response using the following equation:

$$Total\ response\ \ rate\ \ =\ \ \frac{Total\ number\ of\ \ responses}{Total\ number\ in\ sample-Ineligible}$$

As there was no ineligible questionnaire, therefore the response rate of the research is:

149/160 = 93%

The response rate was quite high indicating good contribution of the respondents with researcher. The following reasons were factors, the researcher thinks, to obtain this high rate of response:

A) Respect and reputation of the researcher among the respondents.
B) Contacting with the respondents and informing them the importance of the responding for the success of the study and the university and reminding them to answer the questionnaire.
C) Using the email facilities to accelerate the communication.
D) The questionnaire was short and easy to complete due to successful piloting.
E) Hiring a postgraduate student to help the researcher in distributing and collecting the questionnaires.
F) The researcher delivered and collected the questionnaires by himself, hired person, and email to save respondents' time and cost.
G) Written and orally (where possible) assuring the respondents that all information will be treated with total confidentiality.

4.11.3 Semi-structured interviews

As mentioned earlier in this chapter, two major collection methods (questionnaire and interview) were used for this research to collect data. So, the semi-structured interview was used as the second data collection method. The benefits and different types of interview have been discussed earlier but there were three main reasons that the researcher used the interview. The first reason as Saunders et al. (2007) pointed out, semi-structured interviews can be used to explore and explain themes that have emerged from the use of the questionnaire. They also added that "semi structure interviews are used not only to reveal and understand **what** and the **how** but, also, to place more emphasis on exploring the **why**". Validating the findings from the use of the questionnaire was the second reason. Many questions which were asked in the questionnaire were re-explained in semi-structured interviews to ensure that the findings from the questionnaire would be validated by the findings from the semi-structured interviews. The third reason to use the semi-structured

interview was the fact that the managerial system in Iranian universities is more or less individual based at all managerial levels and therefore the managers prefer to have a talk. They are usually very busy and reluctant to complete a questionnaire or so.

4.11.4 Semi-structured interview's questions and piloting

In order to validate the findings from the questionnaires and along with the research questions, three questions were formulated. The questions were justified following meetings with the two colleagues who were former university vice-chancellors and their suggestions were taken into account to formulate three refined questions. The questions are:

1) Among the seven categories of the Baldrige model for TQM, which category (or categories) has been implemented in the university?
   - Top management commitment
   - Strategic planning
   - Students satisfaction
   - Information and analysis system
   - Faculty and staff focus
   - Improving the educational programs
   - Meeting the university targets by performance results

2) Has customer satisfaction been met/ achieved by the university top management?
3) What are the main barriers/difficulties that limit the TQM implementation at the university?

4.11.5 Reliability, validity and bias evaluation

As motioned earlier in this chapter , Reliability is defined as:

The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable (Golfshani, 2003), but Validity refers to **whether the questionnaire or survey measures what it intends to measure**. Overall validation is a convenient way to optimise processes (Abdi and Repolles, 2008). Meanwhile, bias could, for example, lead one to accept or not-accept the truth of a claim, not because of the strength of the claim itself, but because it does or does not correspond to one's own preconceived ideas.

In this study, Cronbach's alpha measurement of all seven categories variables was undertaken to evaluate the overall reliability of the measurement scale, where alpha gives an

estimate of the proportion of the total variance that is not due to error which represents the reliability of the scale (Oppenheim, 1992). The recommended minimum acceptable level of reliability "alpha" is 0.60 using Hair et al.'s (1998) criterion. Table 4.4 shows the variables Cronbach's alpha results.

Table 4.4: Seven categories variables Cronbach's alpha results

NO. of category	Category description	Questions	Reliability
1	Leadership	1, 2, 3, 4, 5, 6, 7	0.693
2	Strategic Planning	8, 9, 10, 11, 12, 13	0.739
3	Students	14, 15, 16, 17, 18	0.739
4	Information and Analysis	19, 20, 21, 22, 23, 24, 25	0.697
5	Faculty and Staff	26, 27, 28, 29, 30, 31, 32, 33	0.828
6	Educational and Support process Management	34, 35, 36, 37, 38	0.732
7	Organizational performance results	39, 40, 41, 42, 43, 44, 45,46, 47, 48	0.812

Meanwhile the total reliability of all 48 questions was obtained 0.945. All these results indicated the questions were reliable.

Reliability Statistics

Cronbach's Alpha	N of Items (questions)
0.945	48

So, in this research in order to ensure of reliability and validity of the research findings and also to overcome the bias following steps were taken by the researcher:

A) Reliability

A1- Throughout the process of collecting the questionnaire the researcher tried to ensure that it was the respondents who had completed the questionnaire by having discussions with respondents.

A2- Using a statistical measurement (Cronbach's method) to show that the findings are reliable (Table 5.2)

B) Validity

B1- The use of different data collection method in this research (questionnaire and interview) to ensure that data are really about what they appear to be about.

B2- Some questions which were asked in the questionnaire were re-explained in semi-structured interviews to ensure that the findings resulting from the questionnaire would be validated by the findings from the semi-structured interviews.

B3- The use of the entire population (four different groups) was targeted as the sample for this research to raise the validity.

B4- A high response rate, for the questionnaire (93% was obtained) to indicate the validity of the research findings.

B5- The pilot study for the questionnaire was conducted suggesting that the validity of the questionnaire was established.

B6- In this research the frame of questions used in the questionnaire were adapted from an established model (Baldrige model).

B7- The self- administrated questionnaire was distributed and collected by the researcher himself, email and a well briefed post graduate student to give the researcher a good opportunity to clarify any misunderstanding or ambiguity about questions and to check the collected questionnaire in order to make sure that the questionnaires were completed.

C) Bias

C1-The questionnaires distributed to the vast range of respondents in terms of groups, ages, genders, positions.

C2- The respondents were provided with reasonable time to develop their responses,

C3- The questions were clearly phrased, so that the respondents understood them.

C4- The researcher attended at the interview with appropriate appearance.

4.12 Fieldwork process

The fieldwork of this research was conducted in 7 stages.

Stage 1: identifying the universities

At this stage two universities in which the questionnaires to be distributed were identified. The first university was Tabriz University of Medical Science (TUMS) because the researcher is member of this university. The researcher was one of the top managers for years at this university and conducting the research was seemed feasible.

The second one was Isfahan University of Medical Sciences (IUMS). The similarity of this university to TUMS in terms of ranking (type), size, number of students, staff etc encouraged the researcher to spot it as the second field. As mentioned earlier (see page 94) these two universities are categorized as type one universities and therefore in terms of facilities and equipments are very close to each other. Also these two universities are located at two different parts of the country; TUMS at the north west of the country and IUMS at the central Iran, therefore both can be good representative of MSUs from two different geographical locations. However, the another important point about these two universities is that in the past few years they started implementing TQM. Moreover, the good and close academic relationship between these two universities was another reason for fieldwork. In addition, the researcher has some sincere and impact colleagues at EUMS that can support the researcher to conduct the project.

Stage 2: Piloting the questionnaire to formulate the final version.

The piloting the questionnaire was explained in details earlier at this chapter.

Stage 3: Distributing the questionnaires

The 160 questionnaires were distributed by the researcher, email, and a hired postgraduate student to two universities (each 80 questionnaires) among different groups of the respondents including students, staff, faculty, and managers.

Stage 4: Following up the questionnaire

One week after completion the distributing the questionnaires, the researcher contacted the respondents to encourage and remind them to complete the questionnaire. At this stage the importance of the completing the questionnaire was explained and the researcher thanked them in advance for the time and the commitment.

Stage 5: collecting the questionnaires

The completed questionnaires came through email was about 20%. The rest of those collected physically by the researcher and the hired person. The low number of the respondents handed in the completed questionnaires to the researcher office at the university. The collected questionnaires were 149 out of 160 (93%) which indicates the higher response rate.

Stage 6: preliminary analysing the questionnaire data

By reviewing and quick calculating the mean scores of the responses in the questionnaires it was concluded that TQM programs have not been highly implemented at the university and the customer satisfaction rate is not high.

Stage 7: conducting the selected interviews

In order to explore and have a clear understanding of the themes that have emerged from the questionnaire, to explore reasons (why) of the finding from the questionnaires and finally to validate the finding from the questionnaire, the semi-structured interviews were conducted with 9 respondents (3 students, 3 staff, and 3 faculties which one of those was former manager of the university). The time of interview was flexible and chosen by the interviewees. The students and staff were interviewed at the researcher office. The faculties' interview was carried out at their offices. Three questions were asked at same manner and the researcher took notes of the interview. The researcher thought that taking note is preferred to the recording as long as it is not causing long pauses while the researcher is writing. It should be noted that culturally, in taking notes rather than recording, the interviewees are more comfortable and feel free to answer honestly to the questions. However, every interview was finished at warm and friendly environment because of close relationship of the researcher with the interviewees. Despite the fact that some of the interviewees were the researcher's close colleagues and friends, but using and considering the principles of successful interview (for example, attendance with appropriate appearance, asking the questions at the same manner from the interviewees, notifying the importance of their answers, assuring that all information will be treated with total confidentiality, etc) the interviews were carried out effectively and elicited reliable data. At the end, the researcher thanked them for the time and valuable information.

4.13 Field work success

Generally, the cooperation of all groups of the respondents was unexpectedly very good and they provided the researcher with high rate of completed questionnaires as well as supportive and informative interviews. Moreover, 6 reports to the supervisors from the scheduled process during the fieldwork period indicated that the progress of the fieldwork was satisfied.

CHAPTER 5

Presentation, analysis, and discussion of the findings

5.1 Introduction

This chapter aims to present, analyse the data obtained from both self-administered questionnaires and face to face semi-structured interviews based on the seven categories of Malcolm Baldrige National Quality Award criteria for education framework in 2006 (Baldrige model) which is in relation to the research's objectives and research questions, and discuss the findings and results that have emerged from the data.

The chapter, hence, is divided into seven main sections. The first one aims to assess the extant data to show the adoption of leadership category (L) in Tabriz University of Medical Sciences (TUMS) and Isfahan University of Medical Sciences (IUMS) in Iran. The second section deals with strategic plan (SP) as an independent variable to improve the university performance. The third section aims to explore the degree of the students focus (S) in the university. The fourth section deals with Information and Analysis (IA) to find out the importance and degree of adoption of this category in the university. The fifth section represents the findings in relation to the faculty and staff focus. At the sixth section the findings in relation to educational and support process management is presented, analysed, and discussed. Finally, the seventh section deals with the organizational performance results as seventh category of the Baldrige model.

At the each section, first the findings are presented. Then, the findings and the quantitative and qualitative results that have emerged from the data are discussed. Furthermore, comparative and related studies have been introduced, especially those that have been conducted in developing countries, particularly in Iran.

At the beginning of the chapter, a brief history of Tabriz and Isfahan Universities of Medical Sciences, the characteristics of the respondents and hypothesis of differences between genders of respondents are introduced. Then the Baldrige categories that are related to TQM implementation in higher education organizations are discussed. The overall aim of this study is to investigate the current status and subsequently to develop a model to assist the successful implementation of TQM in MSUs of Iran.

The structure that the researcher adopted to discuss the seven categories which are related to the research objectives and questions was built on three stages. Each category is discussed separately and the key findings for each category are identified

- Present the collected data from the questionnaires.
- Present the findings of the interviews.
- Evaluate the emerged results with the TQM literature.

In addition, at the end of this chapter, the researcher has highlighted the impediments to TQM implementation in general and has given special attention to those in TUMS and IUMS in particular through the questionnaire and particularly semi structured interview.

5.2 A brief history of Tabriz University of Medical Sciences

Tabriz University of Medical Sciences (TUMS) is public medical sciences university located in Tabriz, East Azarbaijan Province, Iran. The university was initially established as the University of Azarabadegan on June 12, 1947, and entitled as a university on October 30, 1947. The university was renamed the University of Tabriz following the 1979 Islamic Revolution. . In 1985, the Iranian Ministry of Health and Medical Education (MHME) took over the departments and faculties in the medical sciences and the Tabriz University of Medical Sciences (TUMS) became an independent institution.It is the second-oldest and university in Iran after the Tehran University of Medical Sciences and the biggest academic institution in north west of Iran and one of five biggest universities in Iran with more than 6000 students.. Furthermore, the University is definitely well-known because of its all-round students who have got high ranks in the Iranian Entrance Exam to Universities to enter this university. However, it is ranked as one of Iran's top medical universities,

The University consists of eight faculties: Medicine, Pharmacy, Dentistry, Paramedical Sciences, Health & Nutrition, Rehabilitation, Nursing & Midwifery, and Advanced Biomedical Sciences. The university offers professional doctorate degrees in Medicine (M.D.), Dentistry (D.D.S.), and Pharmacy (Pharm.D); Bachelor's, Master's, and Doctor of Philosophy (Ph.D.) in various other medically-related subjects. The university also offers technical courses in pursuit of Associate's degrees and certification in medically-related fields.

The university has 500 academic staff. Out of this teaching staff, 92 are full professors, 172 are associate professors, 151 are assistant professors and the remaining 85 are instructors. 827 administrative personnel are supporting academic activities.

In addition, TUMS operates over 10 teaching hospitals and is a major medical care provider in North West of Iran and the surrounding provinces.

5.3 A brief history of Isfahan University of Medical Sciences

Isfahan University of Medical Sciences (IUMS) is located in the Isfahan city, capital of Isfahan province in central Iran. The university was established in 1946 under the name "The Higher Institute of Health" and later was elevated to the "School of Medicine". The decision to establish the university was rooted in an idea developed by a number of doctors at Amin Hospital in 1939. Finally, the hospital's board of directors approved a plan to establish The Isfahan Higher Institute of Health in 1946. On October 29, 1950, the first series of classes were held at the new campus, named University of Isfahan .

The university later offered programs in human sciences, engineering and other medical sciences. Related programs of medical sciences were then separated from the University of Isfahan and became an independent university named Isfahan University of Medical Sciences (IUMS) in 1985. Isfahan University of Medical Sciences is the biggest academic institution in central Iran and one of five biggest universities in the country with more than 10000 students. The university is currently a regional health care provider and the main medical center in the Province and central Iran.

The University consists of seven faculties: Medicine, Pharmacy, Dentistry, Management & Information, Health, Rehabilitation, and Nursing & Midwifery. The university offers professional doctorate degrees in Medicine (M.D.), Dentistry (D.D.S.), and Pharmacy (Pharm.D.); Bachelor's, Master's, and Doctor of Philosophy (Ph.D.) in various other medically-related subjects. The university also offers technical courses in pursuit of Associate's degrees and certification in medically-related fields.

The university has 600 academic staff. Out of this teaching staff, 103 are full professors, 191 are associate professors, 182 are assistant professors and the remaining 124 are instructors. 860 administrative personnel are supporting academic activities.

In addition, IUMS consists of 12 teaching hospitals, five research centres and is a main medical care provider in central part of Iran.

5.4 Characteristics of the respondents

This section provides a description of the respondents of the study carried out in Tabriz University (TUMS) and Isfahan University (IUMS) to obtain data from the field work performed in early 2010 at two major Iranian (type one) medical sciences universities through self administered questionnaires and also face to face semi structured interviews using Baldrige model, regarding the research objectives and research questions.

A total of 149 (out of 160) respondents from four different groups including academic staff (faculty), non-academic staff (staff), students, university senior leaders (managers) took part in the study. The total questionnaires collected from all respondent groups were 149 out of 160 (93%) indicated quite good contribution of the respondents with the researcher. Tables 5.1-5.6 summarised the description of the respondents from different points of view.

Table 5.1: Occupation of the respondents in Tabriz

Occupation	Frequency	Percent	Cumulative Percent
Faculty	25	33.8	33.8
Staff	19	25.7	59.5
Student	23	31.1	90.5
manager	7	9.5	100.0
Total	74	100.0	

Table 5.2: Occupation of the respondents in Isfahan

Occupation	Frequency	Percent	Cumulative Percent
Faculty	19	25.3	25.3
Staff	23	30.7	56.0
Student	24	32.0	88.0
manager	9	12.0	100.0
Total	75	100.0	

The number of respondents according to age groups was presented in the Tables 5.3 and 5.4.

Table 5.3: Age of the respondents in Tabriz

Age	Frequency	Percent	Cumulative Percent
20 -30	26	35.1	35.1
31 - 40	18	24.3	59.5
41 - 50	28	37.8	97.3
≥51	2	2.7	100.0
Total	74	100.0	

Table 5.4: Age of the respondents in Isfahan

Age	Frequency	Percent	Cumulative Percent
20 -30	27	36.0	36.0
31 - 40	22	29.3	65.3
41 - 50	23	30.7	96.0
≥51	3	4.0	100.0
Total	75	100.0	

The age category is broken down into four main levels, where 35.5% of the respondents were aged between 20 and 30 years, 26.8% were aged between 31 and 40 years, 34.2% between 41 and 50 years and only 3.4% were more than 50 years old indicating the respondents' population were considerably young.

The gender of the respondents according to gender was shown in the Table 5.5 and 5.6 as follows:

Table 5.5: Gender of the respondents in Tabriz

Gender	Frequency	Percent	Cumulative Percent
male	41	55.4	55.4
female	33	44.6	100.0
Total	74	100.0	

Table 5.6: Gender of the respondents in Isfahan

Gender	Frequency	Percent	Cumulative Percent
male	39	52.0	52.0
female	36	48.0	100.0
Total	75	100.0	

5.5 Hypothesis of differences between genders of respondents

A t-test was conducted to investigate the hypothesized difference in views of male and female respondents on the leadership category of Baldrige TQM model. The hypothesis that "Male respondents' views are different from female respondents" was not substantiated (Tables 5.7 and 5.8).

Table 5.7: t-Test analysis between Male and female respondents in Tabriz

Category	gender	Mean	Std. Deviation	P Value
leadership	Male	45.6301	11.31105	0.834
	Female	43.9394	11.99405	
Strategic planning	Male	45.6301	13.43552	0.577
	Female	43.9394	12.24084	
Students	Male	43.2927	10.40491	0.371
	Female	43.2927	13.81356	
Information and Analysis	Male	44.6864	11.24070	0.768
	Female	45.4545	10.87208	
Faculty & Staff	Male	49.0854	14.69488	0.806
	Female	48.2955	12.33017	
Educational Management	Male	49.0244	13.56556	0.412
	Female	46.5152	12.27834	
Organizational Results	Male	43.4756	11.96189	0.644
	Female	42.2727	9.88930	

To show this, Mean scores of Male respondents in all seven categories was compared with the mean scores of female at the same categories in both universities. The difference was not

significant in all categories because of higher p values (p-values of less than 0.05 are considered significant and rejects the hypothesis).

Table 5.8: t-Test analysis between Male and female respondents in Isfahan

Category	gender	Mean	Std. Deviation	P Value
leadership	Male	50.1007	13.40835	0.113
	Female	53.8115	12.82290	
Strategic planning	Male	48.2894	13.41884	0.395
	Female	47.8472	15.70989	
Students	Male	41.6777	12.48512	0.369
	Female	45.3175	14.33201	
Information and Analysis	Male	44.1941	11.99286	0.110
	Female	48.7183	11.65292	
Faculty & Staff	Male	50.8375	12.86950	0.118
	Female	53.4164	13.00113	
Educational Management	Male	46.8062	14.81053	0.312
	Female	52.2321	13.90999	
Organizational Results	Male	46.7473	15.77140	0.534
	Female	46.7222	13.84784	

There is a traditional view in Iranian societies on the women, stating that the women would better carry out the child-caring and housekeeping responsibilities and have less contact with men. Although the Iranian constitution says: "Members of the Iranian people, both men and women, are protected equally by the Law and enjoy all the same humanitarian, political, economic and cultural rights under the protection of our system of Islamic principles". Some of these rights are specifically confirmed in the *Treaty of Women's Rights and Responsibilities*, such as the right to freedom of thought, protection from objections to the right to enjoy social equality when implementing the law without consideration of gender (male or female), the right to acquire knowledge and the right to establish parties, participate in elections and stand for parliament (Clauses 3-11 Section One, and Clauses 112 and 115 Section Four). Moreover, the Iranian culture mostly depends on the males in the social structure as financial suppliers to the household. So, it is postulated that in some areas views

of male and female are different from each other. But this study showed that there is no difference in their levels of views on Baldrige TQM model by male and female respondents. The researcher believes that there are four main reasons for this result.

1) Almost all of the female members of the universities are highly educated. Since education (particularly higher education) is a key part of strategies to improve individuals' social perception, at least in the university level they are expected to have equal level of views.
2) Generally speaking females are more sincere and committed to their work. If these two important characteristics are combined with higher education a good level of customer satisfaction, which is one of the core values of TQM, is met.
3) As a fact Women in Iran are also more likely to enrol in universities than they were in the past. At the present time the ratio of the female students at universities is higher than male students.
4) With reviewing Tables 5.3 and 5.4 it is concluded that the most respondents are young (20-40 years old). So, the traditional view stating that the women would better carry out the child-caring and housekeeping responsibilities are not fully accepted and it is fair to say that women in Iranian universities have got an advanced level of strategic and managerial views.

5.6 Data analysis presentation and discussion

The fundamental aim of this section is:

1) To analyse the collected data that came from the current study and present them in sequence based on Baldrige model which covers, also the research objectives and research questions.
2) To discuss and evaluate the findings which emerged from the empirical study reflecting the implementation of the seven TQM Baldrige categories. The structure adopted in this section was built on six stages:

    - Present the results from a mixed methodology, both quantitative (self administrative questionnaire) and qualitative (face to face semi-structured interviews).
    - Divide and discuss each category at each university separately
    - Present the key findings
    - Introduce the collected data from the distributed questionnaire

- Introduce the interview's finding
- Match and compare the findings with the TQM literature
- Comparison of each category at Tabriz and Isfahan universities.

The researcher adopted this strategy to help the reader understand and differentiate the literature's finding from the empirical study finding. Furthermore, this strategy assisted the researcher in seeking to clarify the ideas in more depth.

5.6.1 Leadership

Through seven questions, this category evaluates how the TUMS's and IUMS's senior leaders abide by the university values and to what extent focus on the staff, students and other stakeholders' performances and views. It also examines to what extent they improve the managerial system, create a safe atmosphere for all stakeholders to learn and participate at improvement activities. Finally, it examines to what extent the university has sufficient financial and human resources for quality programs, as well as assessment tools for evaluating students, faculties and staff's performances.

Using a four points of likert scale and converting the scores as fractions of 100, the Mean score for this category was found to be 47.39 and 51.88 for TUMS and IUMS respectively. In The lowest and highest scores were 14.00 and 71.43 (Table 5.9 and Figures 5.1 and 5.2). All 149 respondents answered the questions of this category (choice 0 was not ticked).

Table 5.9: The Mean score of leadership category in TUMS and IUMS

		TUMS	IUMS
N	Valid	74	75
	Missing	0	0
	Mean	47.3938	51.8819
	Std. Deviation	11.54323	13.17476
	Minimum	25.00	14.00
	Maximum	71.43	71.43

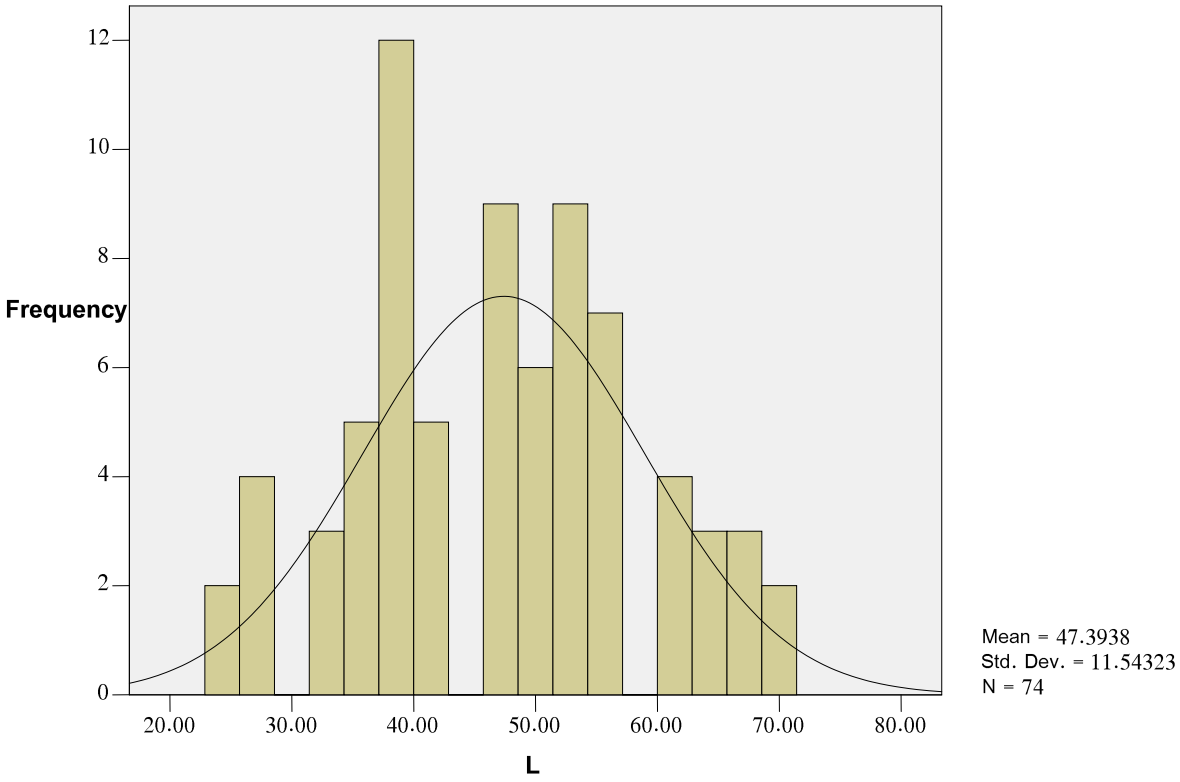


Figure 5.1: Mean score of leadership category in Tabriz with standardised residuals

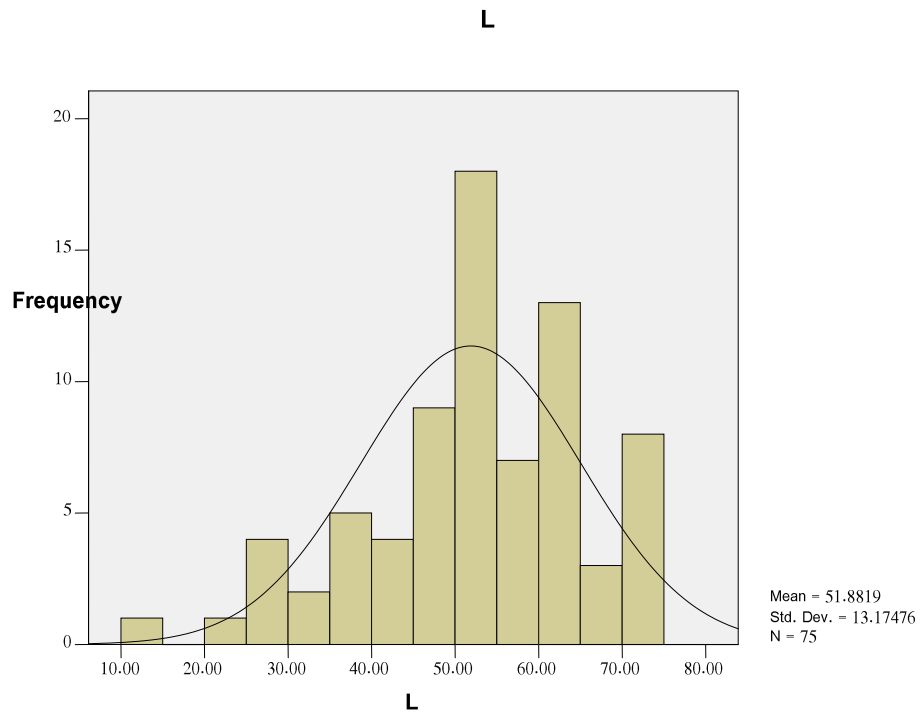


Figure 5.2: Mean score of leadership category in Isfahan with standardised residuals

As at this study, the respondents are divided into four main groups and each group may have different view on the TQM categories, a comparison was carried to find out mean score of each group separately at both universities (Tables 5.10, 5.11 and Figures 5.3, 5.4).

Table 5.10: Mean scores of four groups of respondents in Tabriz for leadership category

Group	N	Mean	Std. Deviation	Minimum	Maximum
Faculty	25	47.2857	12.25439	28.57	71.43
Staff	19	44.3609	9.98268	25.00	57.14
Student	23	46.1180	10.81731	25.00	67.86
manager	7	60.2041	8.09924	46.43	71.43
Total	74	47.3938	11.54323	25.00	71.43

According to the results obtained from the respondents, the faculties gave a mean score of 47.29. This value for the staff and student groups were 44.36 and 46.12 respectively. Meanwhile, the manager group gave the highest score (60.20) for this category as expected. But the results obtained from Isfahan respondents were higher than the Tabriz's ones (all above 50) as shown in Table 5.11.

Table 5.11: Mean scores of four groups of respondents in Isfahan for leadership category

Group	N	Mean	SD	Minimum	Maximum
Faculty	19	50.8403	14.42549	20.00	71.43
Staff	23	51.6746	8.58996	32.14	57.14
Student	24	52.7286	14.21972	14.00	67.86
manager	9	71.0503	9.28878	70.83	71.43
Total	75	51.8819	13.17476	14.00	71.43

The Kruskal-Wallis test (independent group comparison test) was done for 4 main groups.

Kruskal-Wallis test is a non-parametric test for a difference in central location (median) between two or more independent samples.

The requirements of the test are:

- Two or more independent samples measured on an ordinal or continuous scale.
- Samples have similar shape distributions, although the distributions need not be normal.

If the P≤0.010, the difference is said to be significant. The results showed that the difference of mean scores of the groups in both universities is significant as shown in the Tables 5.12 and 5.13.

Table 5.12: Kruskal Wallis test result of four different groups of Tabriz for leadership category

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1361.222	3	453.741	3.797	0.010
Within Groups	8365.750	70	119.511		
Total	9726.972	73			

Table 5.13: Kruskal Wallis test result of four different groups of Isfahan for leadership category

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2954.349	3	984.783	6.458	.001
Within Groups	10826.144	71	152.481		
Total	13780.493	74			
Total	14889.301	74			

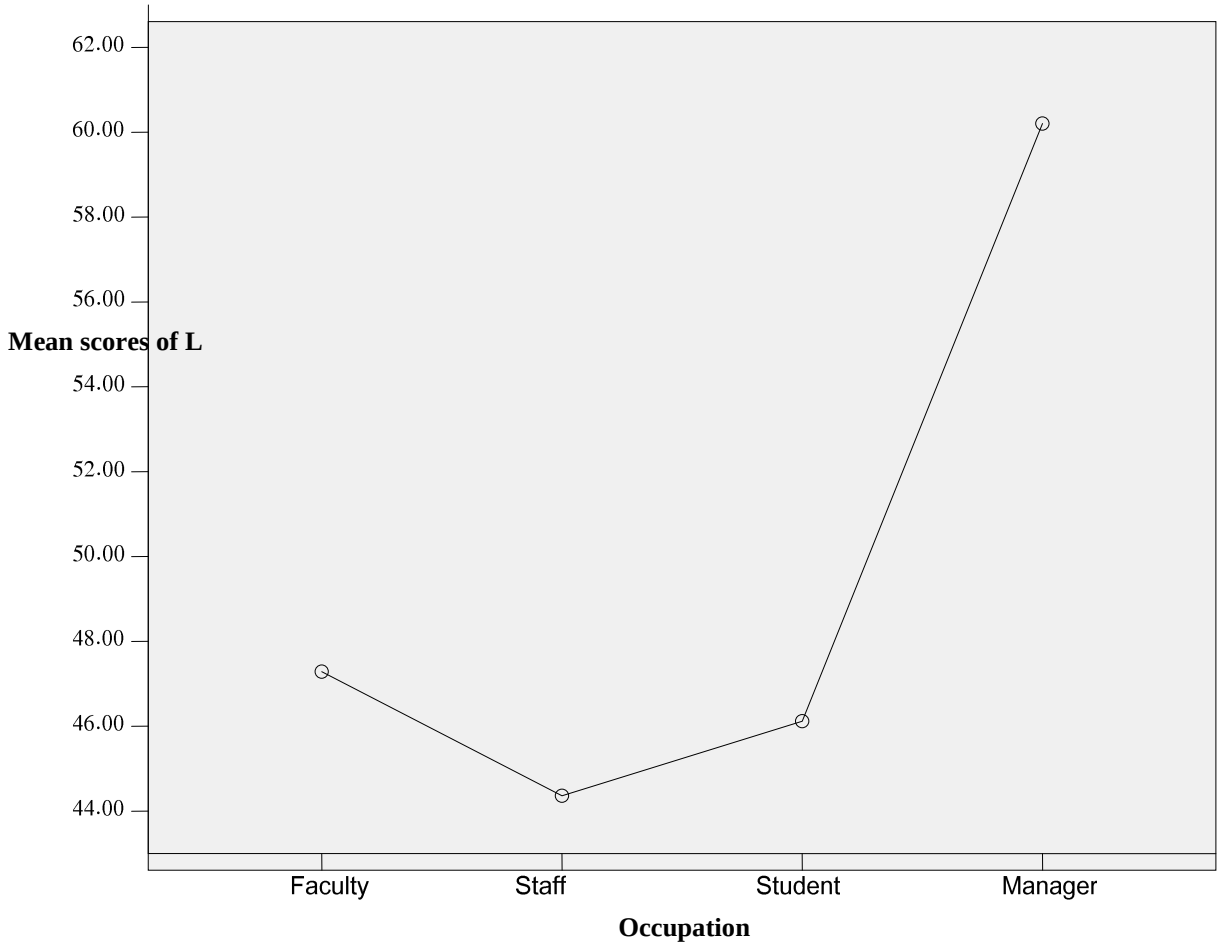


Figure 5.3: Means Plot of four different groups of respondents in Tabriz

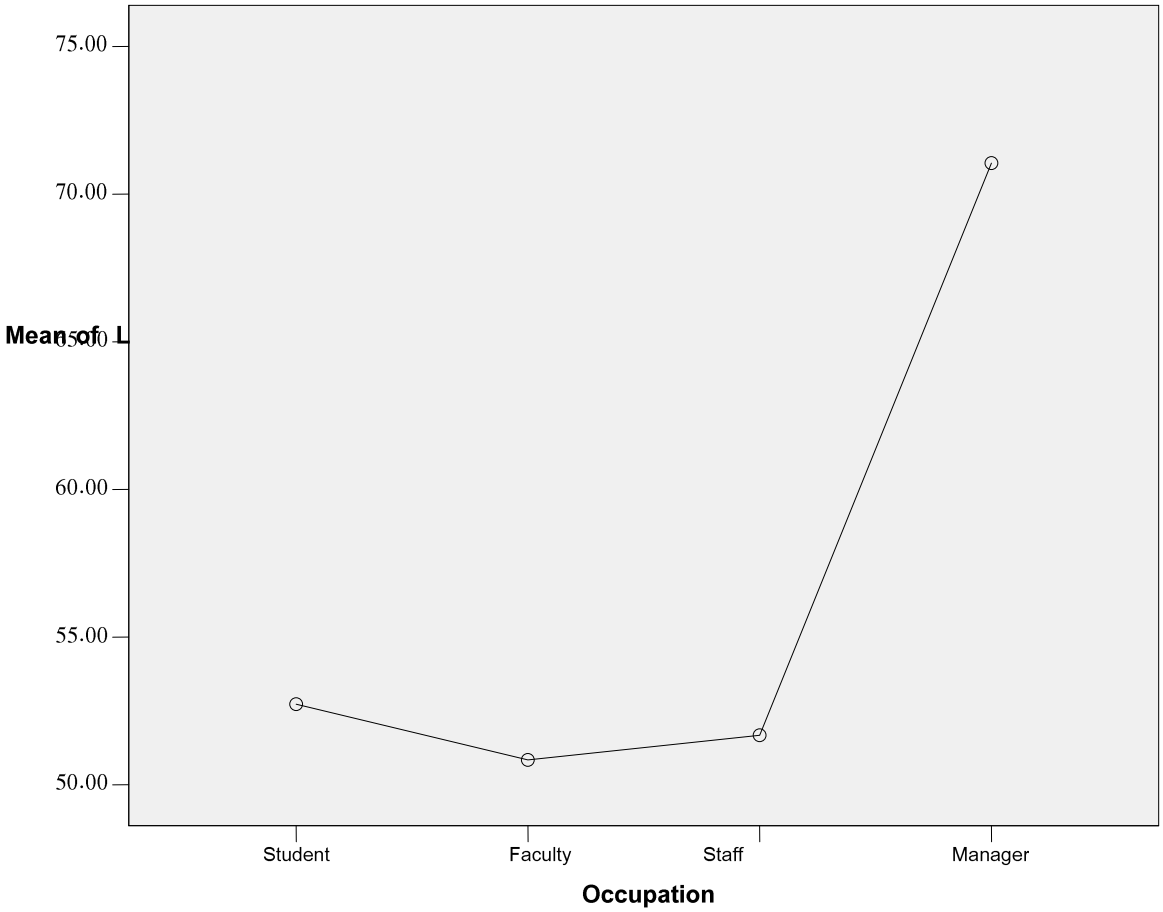


Figure 5.4: Means Plot of four different groups of respondents in Isfahan

These Figures clearly showed that manager group gave the highest score for the leadership category. Generally, the research findings revealed that there is a difference in views of four groups of respondents on the situation of the university from TQM points of view. This difference is remarkable when three groups are compared with the managers. Basically, the reason for this difference is very obvious because, the managers are in the defending position and trying to support the existing managerial system which they running it. They sometimes feel that any weakness of the system reflects their managerial weakness. So, it seems that the mangers views are slightly away from the reality. On the other hand, three other groups are in the criticism position and intending to have an ideal system for the organization.

Meanwhile, Using a four points of likert scale and converting the scores as fractions of 100, the Mean scores of seven questions (statements) for this category at Tabriz and Isfahan universities are summarised in Tables 5.14 and 5.15. The details were brought in Appendix 13 and 15 respectively.

Table 5.14: The Mean score of leadership (L) category's statements by four different groups in Tabriz

NO	Statement	Mean % faculty	Mean % staff	Mean % student	Mean % manager	Mean % total	Std. Dev.
1 **(L)**	The senior leaders improve the managerial system at the university.	47.62	45.43	45.93	60.23	47.63	8.9
2 **(L)**	The senior leaders create a safe atmosphere for all stakeholders to learn, participate and improve.	46.91	43.91	45.42	59.13	45.92	11.3
3 **(L)**	The senior leaders abide by the values defined in the Strategic Planning which gives commitment to improvement of faculty, staff, students and other stakeholders.	47.55	43.54	44.12	58.86	45.53	9.4
4 **(L)**	The senior leaders have been elected among the most active staff to run quality initiatives.	45.07	43.04	45.02	63.78	47.02	8.9
5 **(L)**	The university has the financial (allocated budget) and human (staff, etc) resources for quality programmes.	48.39	48.43	49.82	54.34	52.42	10.3
6 **(L)**	The university has measuring tools to evaluate faculty, staff, students and other stakeholders' performances.	47.33	42.21	46.65	61.48	51.35	12.1
7 **(L)**	The senior leaders consider the faculty, staff, students and other stakeholders' views in the evaluation.	48.16	43.95	45.91	63.62	43.92	9.8
	Total	47.29	44.36	46.12	60.20	47.34	11.5

Table 5.14 shows that the extent and degree of Leadership in TUMS is low rank. Only, statements 5 and 6 achieved the highest mean of 52.42 and 51.35 respectively which shows that the university has no serious problem in terms of financial and human resources for TQM programs. Also, it indicates the measuring tools are available to evaluate the faculty, staff, and students. On the other hand, the statement 7 with the lowest mean of 43.92 revealed that the views of the university's main stakeholders (faculty, staff, and students) are not welcomed by the senior leaders in the evaluation. Moreover, the means of other statements showed that there is no indication of the senior leaders to implement TQM programs. The overall mean of 47.34 indicated the respondents' disagreement to the statement in relation with the leadership towards the TQM program.

Table 5.15: The Mean score of leadership (L) category's statements by four different groups in Isfahan

NO	Statement	Mean % faculty	Mean % staff	Mean % student	Mean % manager	Mean % total	Std. Dev.
1 **(L)**	The senior leaders improve the managerial system at the university.	51.92	52.65	53.98	70.23	53.04	8.7
2 **(L)**	The senior leaders create a safe atmosphere for all stakeholders to learn, participate and improve.	49.28	50.45	51.63	72.45	51.32	10.3
3 **(L)**	The senior leaders abide by the values defined in the Strategic Planning which gives commitment to improvement of faculty, staff, students and other stakeholders.	48.92	48.98	49.95	69.04	49.70	8.9
4 **(L)**	The senior leaders have been elected among the most active staff to run quality initiatives.	49.23	50.43	51.78	73.15	52.33	9.3
5 **(L)**	The university has the financial (allocated budget) and human (staff, etc) resources for quality programmes.	51.67	52.04	54.61	68.61	54.80	11.0
6 **(L)**	The university has measuring tools to evaluate faculty, staff, students and other stakeholders' performances.	51.93	52.78	53.11	71.76	52.97	11.8
7 **(L)**	The senior leaders consider the faculty, staff, students and other stakeholders' views in the evaluation.	52.92	53.34	54.08	72.09	54.44	8.8
	Total	50.84	51.67	52.73	71.05	51.88	10.9

Table 5.15 reveals that the extent and degree of Leadership in IUMS is just over the medium rank. Statement 5 achieved the highest mean of 54.80 which shows that the university has no serious problem in terms of financial and human resources for TQM programs. On the other hand, the statement 3 with the lowest mean of 49.70 revealed that the senior leaders don't strongly abide by the values defined in the Strategic Planning which gives commitment to TQM improvement. The overall mean of 51.88 indicated the respondents did not disagree with the statements in relation with the leadership towards the TQM program.

Discussion

A) Tabriz

As mentioned above the key findings regarding the leadership of TUMS can be summarised as:

- There is no serious problem in terms of financial and human resources for TQM programs.
- There is no indication of the senior leaders to implement TQM programs.

These results are based on the questionnaire findings and as mentioned all the statements in this category (with the exception of statements 5 and 6) are less than 50 (the middle of the four points on the Likert scale), which shows that applying the TQM program is not considered by the senior leaders. As the senior leaders are appointed by the government (in the case of university chancellors by the ministry of health and medical education), it seems that government considers the political issue in appointing the chancellors rather than their capability to run the universities, familiarity with the contemporary managerial methods, as well as the popularities among the faculty, staff, and students. So, they obviously support the government programs and plan for the next governmental election. The low scores of the leadership's items clearly reflect the above mentioned conclusions. Moreover, the interviews support these results; through the semi-structured interview with 9 respondents for question one (among the seven categories of the Baldrige model for TQM, which category (or categories) has been implemented in the university?) it is shown that the category one (leadership commitment) has scored 3 positive answers (3 respondents out of 9). Five of respondents stated that senior leaders are not aware of the important role of TQM implementation in the universities and added the without the leadership commitment, TQM program will not succeed. One of them continued that

> "*The university chancellor has said in a meeting that TQM is not the first priority and concern of the university. Our priority is to solve the people and university daily problems and issues*".

However, one of the interviewees mentioned that

> *"We can not separate these seven categories from each other and say which category (or categories) is implemented in the university"*.

He believed that if the TQM programs are successfully implemented in the university, all categories will have higher scores. He added that the all categories of the TQM model like the passengers of a bus and if it arrives at the destination, all passengers will arrive together.

B) Isfahan

As mentioned above the key findings regarding the leadership in IUMS can be summarised as:

- There is no serious problem in terms of financial and human resources for TQM programs
- There is a progressive trend of the managerial system at the University for TQM programs.

These results are based on the questionnaire findings and as mentioned all the statements in this category are around 50 (the middle of the four points on the Likert scale), which shows that applying the TQM program is at the early stage by the senior leaders. Moreover, the interviews support these results; through the semi-structured interview with 9 respondents for question one (among the seven categories of the Baldrige model for TQM, which category (or categories) has been implemented in the university?) it is shown that the category one (leadership commitment) has scored 4 positive answers (4 respondents out of 9). Five of respondents stated that senior leaders intend to implement the TQM programs but they need to have better understanding of TQM particularly the strategic planning values. Two of them continued that if university chancellors are selected among the eligible staff, the TQM programs can succeed in near future. However, one of the interviewees mentioned that

> *"The university should spend more times and allocate the budget to implement TQM successfully"*.

The findings mirror the TQM literature. Cauchick Miguel, (2001) emphasised that top management commitment to quality was the most important driving force that prompts TQM implementation. Hradesky (1995), regarding the allocation of adequate resources and time for quality management effort, emphasises that integrating the major organizations' activities under the TQM umbrella with appropriate devotion of both time and resources and the need for top management participation and performance should be adopted.

Moreover, the degree of physical participation of the senior leaders in implementing the TQM programs is considered as a critical element in the organizational success (Deming, 1986; Juran 1993, Hanaee et al., 2011). In other words, Visionary leadership is core to TQM and leadership is essential in order to create an active organisation.

5.6.1.1 Hypothesis of impact of leadership (top management) on other categories

As mentioned earlier, the researcher built his questionnaire on the seven categories of the Baldrige TQM model. These categories are Leadership (L), Strategic planning (SP), Students focus (S), Information and Analysis (IA), Faculty and Staff focus (FS), Educational and support process management (EM), and Organizational performance results (OR). In order to explore the impact of Leadership (first category) as an independent variable on other six categories, which among those categories three and five are considered and dependent variables (customer satisfaction), a quantitative approach involving multiple regression analysis has been applied to test this hypothesis.

Multiple regression analysis approach is a standard approach that is able to find out and collate the relationship between the dependent variables and the independent variables as well as among the independent variables. It was defined by Hair et al. (1998) as multiple regression analysis is a statistical technique that can be used to analyse the relationship between a single dependent variable and several independent variables and the objective of multiple regression analysis is to use the independent variables to predict the single dependent value selected by the researcher. The purpose behind employing multiple regression analysis is to identify how much of the variance in the dependent variable will be explained when several independent variables are theorized to influence it simultaneously. Some authors defined the independent and dependent variables as predictor and outcome respectively. For example, Field (2000) defined those as predictors and outcomes and clarified that "the correlation matrix is very helpful for reaching a rough idea of the relationships between predictors and the outcome, and for a preliminary look for multicollinearity". The first and sensible step towards discussing the results of the multiple regression analysis is to calculate the correlation coefficients between each of the predictor variables and the outcome, as well as those between the predictors themselves. This can be shown in a correlation matrix. Hence, In order to reach this correlation, the researcher employed Spearman's correlation coefficient to illustrate the correlation between the independent and dependent variables and to show the correlation between the independent variables themselves at TUMS and IUMS separately. So, a correlation matrix for Spearman's correlation coefficients between leadership category and other variables at both universities was created (Tables 5.16 and 5.17).

Table 5.16: Spearman's correlation results for leadership category in Tabriz

			L	SP	Student	IA	FS	EM	OR
Spearman's rho	L	Correlation Coefficient	1.000	.613(**)	.572(**)	.630(**)	.678(**)	.642(**)	.645(**)
		Sig. (1-tailed)	.	.000	.000	.000	.000	.000	.000
		N	74	74	74	74	74	74	74

** Correlation is significant at the 0.01 level (1-tailed).

Spearman's correlation can explain how each of the independent variables contributes to the dependent and independent variables. In this analysis, Spearman's correlation is used to assess the degree and strength of correlation between the independent variables and the dependent variable.

The Spearman's correlation of Leadership with Strategic planning (SP), Students focus (S), Information and Analysis (IA), Faculty and Staff focus (FS), Educational and support process management (EM), and Organizational performance results (OR) categories are 0.613, 0.572, 0.630, 0.678, 0.642, and 0.645 respectively. The correlation coefficient over 0.60 is defined as excellent correlation. In other words, the relationship is more than 60% that can be considered excellent correlation. The other point in this analysis is that the leadership category has the highest correlation with the FS (0.678 or about 70%). This implies that with improving the leadership, the FS category will improve (with 70% confidence or probability) which accordingly will have an impact to other categories. So, overall the leadership was highly correlated with other categories and hence by improving this category there will be a positive impact on other categories.

Table 5.17: Spearman's correlation results for leadership category in Isfahan

			L	SP	Student	IA	FS	EM	OR
Spearman's rho	L	Correlation Coefficient	1.000	.612(**)	.537(**)	.560(**)	.638(**)	.425(**)	.545(**)
		Sig. (1-tailed)	.	.000	.000	.000	.000	.000	.000
		N	75	75	75	75	75	75	75

** Correlation is significant at the 0.01 level (1-tailed).

In the case of Isfahan, the Spearman's correlation of Leadership with Strategic planning (SP), Students focus (S), Information and Analysis (IA), Faculty and Staff focus (FS), Educational and support process management (EM), and Organizational performance results (OR) categories are 0.612, 0.537, 0.560, 0.638, 0.425, and 0.545 respectively. The main point in

this analysis is that the leadership category has the highest correlation with the FS and SP which are more than 60%. This implies that with improving the leadership, the FS as well as SP categories will improve considerably which accordingly will have an impact to other categories. So, overall the leadership was highly correlated with these two categories and hence by improving this category there will be a positive impact on FS and SP.

5.6.2 Strategic planning

This category has six questions and examines the university strategic planning including vision, mission, values, goals and objectives. Also it examines the senior leaders' commitment to the strategic planning programmes as well as their participation in and supporting the decisions of the strategic planning committees. Through this category, the financial and human resources level to implement the strategic plans will be identified.
The value of SP has been measured by a group of questions (six questions) that is built on four points of the Likert scale (1= disagree, 2= neither agree nor disagree, 3= mostly agree, 4= completely agree) and converting the scores as fractions of 100. The participants were asked to answer at which point they would mark to agree with or disagree with the given statements. The mean score for this category was found to be 44.88 and 48.08 for TUMS and IUMS respectively. Meanwhile the lowest and highest scores were 0.00 and 70.83 respectively as shown in Table 5.18 and Histograms SP1, SP1 (appendixes 1 and 16). All 149 respondents answered the questions of this category (choice 0 was not ticked).
Table 5.18: The Mean score of Strategic planning category in TUMS and IUMS

		TUMS	IUMS
N	Valid	74	75
	Missing	0	0
Mean		44.8761	48.0771
Std. Deviation		12.85729	14.46532
Minimum		1.00	0.00
Maximum		70.83	70.83

The face to face semi-structured interviews reported that 44% of the participants mentioned that the SP is implemented at the university which support the results obtained from the questionnaire.

Like the Leadership category the respondents are divided into four main groups and each group had different views on this category. A comparison was carried to find out mean score of each group separately and the results were shown in Tables 5.19, 5.20 and Diagrams SP1, SP1 (Appendixes 2 and 17).

Table 5.19: Mean scores of four groups of respondents for SP in TUMS

Group	N	Mean	Std. Deviation	Minimum	Maximum
Faculty	25	46.0000	11.87561	29.17	70.83
Staff	19	41.8860	8.38798	25.00	58.33
Student	23	41.8478	14.56862	1.00	70.83
Manager	7	58.9286	12.59882	41.67	70.83
Total	74	44.8761	12.85729	1.00	70.83

According to the results obtained from the respondents in Tabriz, the faculties gave a mean score of 46.00. This value for the staff and student groups were 41.89 and 41.85 respectively. Again, the manager group gave the highest score (58.93) for this category as expected.

Table 5.20: Mean scores of four groups of respondents for SP in IUMS

Group	N	Mean	SD	Minimum	Maximum
Faculty	19	52.4160	14.05359	33.33	70.83
Staff	23	46.5972	18.22749	.00	70.83
student	24	47.9029	11.68321	19.00	70.83
Manager	9	52.7593	12.67026	37.50	70.83
Total	75	48.0771	14.46532	0.00	70.83

According to the results obtained from the respondents in Isfahan, the faculties gave a mean score of 52.42. This value for the staff, student and manager groups was 46.60, 47.90 and 52.76 respectively.

The results showed that manager and Faculty groups exceptionally gave the near and the highest scores for the strategic planning category and staff group together with student group gave the below 50% score which revealed that there is a difference in views of the groups of respondents on the situation of the university from TQM points of view.

The results clearly showed that manager group (particularly in TUMS) gave the highest score again for the strategic planning category and staff group together with student group gave the lowest score. Generally, the research findings revealed that there is a difference in views of four groups of respondents on the situation of the university from TQM points of view. This difference is remarkable when three groups are compared with the managers. Basically, as mentioned earlier, the reason for this difference is very obvious because, the managers are in the defending position and trying to support the existing managerial system which they

running it. They try to show the higher score in order to avoid any possible weakness. So, it seems that the mangers views are slightly away from the reality.

The Kruskal-Wallis test (independent group comparison test) was done for 4 main groups in both universities. If the P≤0.010, the difference is said to be significant. Therefore, the results obtained from TUMS showed that the difference of mean scores of the groups is significant (P=0.010) as shown in the Table 5.21. This significance of the difference between 4 groups implies that the views are groups are not ignorable and logic reason(s) should explain this difference as mentioned above.

Table 5.21: Kruskal Wallis test result of four different groups for strategic planning category in TUMS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1794.680	3	598.227	4.076	0.010
Within Groups	10272.935	70	146.756		
Total	12067.614	73			

Meanwhile, the results obtained from Isfahan indicated that the difference of mean scores of the groups is not significant (P=0.320) as shown in the Table 5.22.

Table 5.22: Kruskal Wallis test result of four different groups for strategic planning category in IUMS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	493.593	3	164.531	0.960	0.320
Within Groups	15361.827	71	216.364		
Total	15855.420	74			

Meanwhile, Using a four points of likert scale and converting the scores as fractions of 100, the Mean scores of seven questions (statements) for this category are summarised in Tables 5.23 and 5.24. The details were brought in Appendix 13 and 15.

Table 5.23: The Mean score of strategic planning (SP) category's statements in TUMS

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean % Total	Std. Dev.
8 **(SP)**	The university has a clear strategic plan (vision, mission, values, goals, objectives, etc).	47.69	42.33	41.39	59.23	44.49	10.23
9 **(SP)**	The senior leaders have commitment to the strategic planning programmes.	44.36	41.23	42.19	64.35	44.49	13.27
10 **(SP)**	The university has well-defined short term and long term goals with the related activities.	43.98	42.56	40.28	57.58	44.83	10.45
11 **(SP)**	The university has a monitoring system to evaluate and review the action plans.	46.11	44.17	41.98	59.02	43.18	12.76
12 **(SP)**	The university has enough financial and human resources to execute the action plans.	47.31	40.21	43.76	56.23	48.16	13.04
13 **(SP)**	The senior leaders participate in and support the decisions of strategic planning committees.	46.54	40.74	41.51	57.18	45.18	11.85
	Total	46.00	41.87	41.85	58.93	44.88	12.85

The table shows that the extent and degree of Strategic plan in TUMS is very low. None of statements show over 50 which indicate the lack of strategic plan in the university. Despite this, only statement 12 is closer to the middle which suggests that the university has no serious problem in terms of financial and human resources which is in line with the results obtained from the leadership category in this regard (statement 5). The overall mean of 44.88 indicated the respondents' disagreement to the statements in relation with the Strategic plan towards the TQM program in TUMS.

Table 5.24: The Mean score of strategic planning (SP) category's statements in IUMS

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean % Total	Std. Dev.
8 **(SP)**	The university has a clear strategic plan (vision, mission, values, goals, objectives, etc).	53.28	47.39	48.27	54.19	48.61	15.23
9 **(SP)**	The senior leaders have commitment to the strategic planning programmes.	52.75	45.57	47.56	53.81	47.41	13.27
10 **(SP)**	The university has well-defined short term and long term goals with the related activities.	49.68	44.67	44.92	50.03	45.48	15.45
11 **(SP)**	The university has a monitoring system to evaluate and review the action plans.	54.02	47.69	48.87	54.66	49.09	14.76
12 **(SP)**	The university has enough financial and human resources to execute the action plans.	54.06	50.08	52.22	51.59	52.03	14.04
13 **(SP)**	The senior leaders participate in and support the decisions of strategic planning committees.	50.71	44.21	45.55	52.29	46.08	13.85
	Total	52.42	46.60	47.90	52.76	48.08	14.46

The table shows that the extent and degree of Strategic plan in IUMS is also low which indicates the lack of strategic plan in the university. Only one of statements shows over 50 (Statement 12) suggesting that the university has no serious problem in terms of financial and human resources which is in line with the results obtained from the leadership category in this regard (statement 5). The overall mean of 48.08 indicated the respondents' disagreement to the statements in relation with the Strategic plan towards the TQM program in IUMS.

Discussion

A)Tabriz

The two key findings of the strategic plan category are as follows:

- There is no proper strategic plan at the university
- The financial and human resources issue is not the main problem to implement the TQM at the university.

The results obtained are based on the questionnaire and unfortunately, all statements in this category are less than 50 (the middle of the four points on the Likert scale). The interview results suggest that findings from the questionnaire are in reality. Like the leadership category, the interviewees were asked to determine which TQM category or categories is implemented in the university and only 3 respondents gave the positive answers for the strategic plan. Two of the interviewees (with the negative answers) explained that

> *"The senior managers are too busy with the daily issues and hence no time for strategic planning".*

However, it is worth mentioning that all interview participants mentioned the value and important role of strategic planning for successful implementation of TQM in the organizations.

B) Isfahan

The findings of the strategic plan category are exactly as same as obtained from Tabriz.
The results obtained are based on the questionnaire and unfortunately, all statements in this category (except the statement 12 with 52.03) are less than 50 (the middle of the four points on the Likert scale). The interview results suggest that findings from the questionnaire are in reality. Like the leadership category, the interviewees were asked to determine which TQM category or categories is implemented in the university and only 3 respondents gave the positive answers for the strategic plan. Two of the interviewees (with the negative answers) explained that

> "*Implementation of TQM actually starts with strategic planning and implementation is prepared through preliminary steps, which are absolutely dependent on right understanding of TQM".*

They continued, unfortunately, there is not a right understanding of TQM, strategic planning, missions, visions, etc among the managers and the staff. They also added, in some cases, the managers copied some strategic planning from the other universities, but in practice there no intention for the TQM implementation.

The TQM literature introduces the strategic plan as an important element for successful implementation of TQM. Ismail (2008) argued that organizations would be left behind if they fail to strategically plan in their organizations. He highlighted the importance of strategic plan to the success of educational organizations and added that TQM should evolve from the

organization's strategic plan and be based on stakeholder expectations. He concluded that overall TQM strategic plan takes the vision and values outlined in the organization's philosophy and turns these principles into long-term goals. Successful TQM strategies identify specific results which the organization wants to achieve.

5.6.2.1 Hypothesis of impact of Strategic planning on other categories

In order to show the impact of strategic planning on the other categories, a correlation matrix for Spearman's correlation coefficients between Strategic planning and other categories (variables) for TUMS and IUMS was created (Tables 5.25 and 5.26).

Table 5.25: Spearman's correlation results for impact of strategic planning on the other categories in TUMS

SP correlation with other categories		L	SP	Student	IA	FS	EM	OR
SP	Correlation Coefficient	.613(**)	1.000	.547(**)	.593(**)	.640(**)	.668(**)	.596(**)
	Sig. (1-tailed)	.000	.	.000	.000	.000	.000	.000
	N	74	74	74	74	74	74	74

** Correlation is significant at the 0.01 level (1-tailed).

The Spearman's correlation of Strategic planning (SP) with Leadership, Students focus (S), Information and Analysis (IA), Faculty and Staff focus (FS), Educational and support process management (EM), and Organizational performance results (OR) categories are 0.613, 0.547, 0.593, 0.640, 0.668, and 0.596 respectively. The correlation coefficient over 0.60 is defined as excellent correlation. In other words, the relationship is more than 60% that can be considered excellent correlation. The other point in this analysis is that the Strategic planning category has the highest correlation with the EM (0.668 or about 70%). This implies that with improving the strategic planning, the educational and support process management (EM) category will improve significantly. Also this analysis revealed that there is significant correlation between SP and leadership as well as faculty and staff satisfaction. So, by improving the SP, not only the educational management, but also the leadership and faculty/staff satisfaction will rise predominantly. This category has got the lowest correlation with the student satisfaction.

In the case of Isfahan, the Spearman's correlation of Strategic planning (SP) with Leadership, Students focus (S), Information and Analysis (IA), Faculty and Staff focus (FS), Educational and support process management (EM), and Organizational performance results (OR) categories are 0.612, 0.612, 0.689, 0.578, 0.604, and 0.569 respectively. The main point in this analysis is that the Strategic planning category has the highest correlation with the L (0.612), and student (0.612). This implies that with improving the strategic planning, the

leadership and student categories will improve significantly. So, by improving the SP, not only the leadership, but also the student satisfaction will rise predominantly.

Table 5.26: Spearman's correlation results for impact of strategic planning on the other categories in IUMS

SP correlation with other categories		L	SP	Student	IA	FS	EM	OR
SP	Correlation Coefficient	612(**)	1.000	.612(**)	.589(**)	.578(**)	.604 (**)	.569(**)
	Sig. (1-tailed)	.000	.	.000	.000	.000	.000	.000
	N	75	75	75	75	75	75	75

** Correlation is significant at the 0.01 level (1-tailed).

5.6.3 Student focus

The student focus category examines how the university determines requirements, expectations and preferences of its students. Also it examines how the university builds relationships with the students and meet their satisfaction. Student focus was measured through five statements. The researcher asked the respondents to state their agreement or disagreement with given statements concerning student focus in university on a four point Likert scale (1= disagree, 2= neither agree nor disagree, 3= mostly agree, 4= completely agree) and converting the scores as fractions of 100. The mean scores for this category for TUMS and IUMS were found to be 42.16 and 43.42 respectively. Meanwhile the lowest and highest scores were 5.00 and 70.00 respectively as illustrated in Table 5.27 and Histograms S1, S1 (appendix 3 and 18). All 149 respondents answered the questions of this category.

Table 5.27: The Mean scores of Student focus category in TUMS and IUMS

		TUMS	IUMS
N	Valid	74	75
	Missing	0	0
Mean		42.1622	43.4248
Std. Deviation		12.02398	13.43684
Minimum		25.00	5.00
Maximum		70.00	70.00

Four different respondents gave different scores for this category. A comparison was carried out to find out mean score of each group separately and the results were shown in Tables 5.28, 5.29 and Diagrams S2, S2 (Appendix 4 and 19).

Table 5.28: Mean scores of four groups of TUMS's respondents for student focus

Group	N	Mean	Std. Deviation	Minimum	Maximum
Faculty	25	41.6000	10.48014	25.00	70.00
Staff	19	39.4737	9.55899	25.00	55.00
Student	23	40.0000	13.39946	25.00	70.00
Manager	7	58.5714	5.56349	50.00	65.00
Total	74	42.1622	12.02398	25.00	70.00

According to the results obtained from the respondents in Tabriz, three groups (Faculty, staff, and student) gave very similar scores. The exact value for the faculty, staff, and student groups were 41.60, 39.47, and 40.00 respectively. Again, the manager group gave the highest score (58.57) for this category as expected.

Table 5.29: Mean scores of four groups of IUMS's respondents for student focus

Group	N	Mean	SD	Minimum	Maximum
Faculty	19	42.6471	12.38921	25.00	65.00
Staff	23	47.9762	14.56660	5.00	70.00
Student	24	40.8743	13.35392	14.00	65.00
Manager	9	51.2222	12.97861	30.00	65.00
Total	75	43.4248	13.43684	5.00	70.00

According to the results obtained from the respondents in Isfahan, two groups (Faculty, and student) gave very similar scores. The exact value for the faculty, and student groups were 42.65, and 40.87 respectively. Again, the manager group gave the highest score (51.22) for this category as expected. The staff group gave the 47.98 for this category.

The research findings revealed that there is a difference in views of three groups of respondents with the manager group on the student focus category. This difference is remarkable when three groups are compared with the managers. Basically, as mentioned earlier, the reason for this difference is very obvious because, the managers are in the position that don't want to miss student focus as one important categories in educational organizations. They try to show the higher score in order to avoid any possible weakness. So, it seems that the mangers views are slightly away from the reality.

The Kruskal-Wallis test (independent group comparison test) was done for 4 main groups at both universities. The results showed that the difference of mean scores of the groups is significant ($P \leq 0.01$) as shown in the Tables 5.30 and 5.31. The significance of the difference between 4 groups implies that the views are groups are not ignorable.

Table 5.30: Kruskal Wallis test result of four different groups of TUMS for student focus category

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2137.603	3	712.534	5.926	0.001
Within Groups	8416.451	70	120.235		
Total	10554.054	73			

Table 5.31: Kruskal Wallis test result of four different groups of IUMS for student focus category

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1077.393	3	359.131	2.967	0.012
Within Groups	12963.560	71	182.585		
Total	14040.952	74			

Using a four points of likert scale and converting the scores as fractions of 100, the Mean scores of five questions (statements) for this category are summarised in Tables 5.32 and 5.33. The details were brought in Appendix 13 and 15.

Table 5.32: The Mean score of Student (S) focus category's statements in TUMS

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean % Total	Std. Dev.
14 **(S)**	The university has a system to determine the students' key requirements, needs and the expectations.	40.80	37.22	38.98	57.18	40.88	11.92
15 **(S)**	The university uses a variety of methods to aggregate relevant information and feedback from students.	43.56	40.56	41.54	59.67	40.41	12.98
16 **(S)**	The university takes into account the students' view and uses them in making educational decisions and learning programs.	39.11	41.67	42.11	60.45	43.92	12.53
17 **(S)**	The university monitors student utilization of facilities, services, and complaints data for purposes of planning educational programs.	43.14	39.02	39.25	57.12	45.61	10.89
18 **(S)**	The university uses the students' views in the educational programs and services.	41.39	38.89	38.12	58.44	41.67	11.78
	Total	41.60	39.47	40.00	58.57	42.16	12.02

Tables 5.32 and 5.33 show that the extent and degree of Student focus in TUMS and IUMS is not acceptable. These low scores indicate the universities are not successful in determining the students' needs and requirements. Also all these low scores for the statements, suggest that the universities do not benefit from a method to collect feedbacks from students. It seems that students' views are neglected in educational decisions. The overall means of 42.16 and 43.42 indicated the respondents confirmed the above mentioned conclusions from the statements in relation with the Student focus and showed that there is a disagreement of the Student category.

Table 5.33: The Mean score of Student (S) focus category's statements by four different groups

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean % Total	Std. Dev.
14 **(S)**	The university has a system to determine the students' key requirements, needs and the expectations.	43.11	48.22	40.58	53.18	43.65	11.32
15 **(S)**	The university uses a variety of methods to aggregate relevant information and feedback from students.	44.03	47.56	44.24	50.67	44.41	14.28
16 **(S)**	The university takes into account the students' view and uses them in making educational decisions and learning programs.	41.25	49.67	38.17	52.15	42.62	11.93
17 **(S)**	The university monitors student utilization of facilities, services, and complaints data for purposes of planning educational programs.	44.24	50.02	42.25	49.13	45.41	14.59
18 **(S)**	The university uses the students' views in the educational programs and services.	40.62	44.45	39.10	50.95	41.08	12.78
	Total	42.65	47.98	40.87	51.22	43.42	13.44

Discussion

A)Tabriz

As mentioned above the key findings regarding the student focus are:

- There is no serious action for the students' needs and expectations.
- There is no serious indication to students' views.

In the questionnaire there was a scoring around 40 (less than the middle of the four points on the Likert scale) for the statements regarding the student focus. For a university with more than 6000 students, this situation is warning senior leaders to revise the dealing method with the students. This should require them to strength their relationship with the students**.** During the semi-structured interview process the most of respondents (5 out of 9) in response to question one (among the seven categories of the Baldrige model for TQM, which category (or categories) has been implemented in the university?) emphasised that student focus is not considered by the university. Although two respondents stated their agreement with student focus for the question one, they implicitly accepted that the students' views are not taken into account for educational programs and explained the educational system in the universities is highly organised and therefore, it would not possible to do any alterations. They added

> *"The ministry of health and medical education is responsible to aggregate the views and do any possible alterations".*

Also, through the asking question two (Has customer satisfaction been met/ achieved by the university top management?) which 6 respondents (out of 9) had negative answer, the findings of questionnaire was confirmed.

B) Isfahan

The results obtained from the Isfahan echoes (reflects) the main finding regarding the student focus from Tabriz. In the questionnaire there was a scoring around 43 (less than the middle of the four points on the Likert scale) for the statements regarding the student focus. For a university with more than 10000 students, this situation is warning senior leaders to revise the dealing method with the students**.** During the semi-structured interview process the majority of interviewees (6 out of 9) in response to question one (among the seven categories of the Baldrige model for TQM, which category (or categories) has been implemented in the university?) emphasised that student focus is not considered by the university. One of the interviewees said that

> *"If the university wants to raise the standard of the TQM to that of developed countries such as USA, UK, it should move toward the student satisfaction".*

Another respondent mentioned that the goal of TQM in higher education is to raise quality of education so it will be achieved through students' satisfaction. She added

"Students' satisfaction is a multi factorial issue and should be met at different aspects such as satisfaction in course quality, student services, and their participation in university decisions".

Two respondents confirmed the previous interviewee's views regarding the student satisfaction in other way and stated students' views are not taken into account for educational programs and explained the educational system in the universities is highly organised and therefore, it would not possible to do any alterations. Also, through the asking question two (Has customer satisfaction been met/ achieved by the university top management?) which 5 respondents (out of 9) had negative answer, which was in line with the findings of questionnaire.

The literature that is written in the TQM and higher education area considers customer satisfaction as the ultimate reason for TQM philosophy implementation (Deming, 1986). As students are considered one of the main customers in the universities, therefore, a satisfied student is an important factor for successful organizations (Alomaim et al., 2003). The student is at the centre of any educational system. The World Conference on Higher Education (UNESCO, 1998) concluded that higher education decision-makers should place students and their needs at the centre of their concerns, and consider them as major partners and responsible stakeholders in the renewal of higher education. The conference articulated that institutions should educate students to become well informed and deeply motivated. Moreover, Zhang et al. (2000) pointed out that customers' complaints should be treated as high priority to improve the customers' satisfactions. Moreover, they emphasised the role of customer satisfaction surveys as measurement tools to increase the customer satisfaction in the organisations. Sakthivel et al. (2005) discussed in details that students' satisfaction will be seen as students' assessments of the services provided by universities and colleges; student satisfaction surveys could serve two purposes in the years to come: first, as a more comprehensive tool for improving higher education and enhancing the student learning experience in general, and second, as a more managerial instrument for adjusting and adapting higher education institutions to a changing and tougher economic reality. They also mentioned that student learning, the ultimate measure of academic quality, would improve if students feel more secure about where they are headed and how the college is taking them there.

5.6.3.1 Hypothesis of impact of Student focus on other categories

In order to show the impact of student focus on the other categories, a correlation matrix for Spearman's correlation coefficients between student focus and other categories (variables) for both universities was created separately (Tables 5.34 and 5.35).

Table 5.34: Spearman's correlation results for impact of student focus on the other categories in TUMS

Student focus correlation with other categories		L	SP	Student	IA	FS	EM	OR
student	Correlation Coefficient	.572(**)	.547(**)	1.000	.617(**)	.610(**)	.547(**)	.407(**)
	Sig. (1-tailed)	.000	.000	.	.000	.000	.000	.000
	N	74	74	74	74	74	74	74

** Correlation is significant at the 0.01 level (1-tailed).

The Spearman's correlation of Student focus with L(leadership), Strategic planning (SP), Information and Analysis (IA), Faculty and Staff focus (FS), Educational and support process management (EM), and Organizational performance results (OR) categories are 0.572, 0.547, 0.617, 0.610, 0.547, and 0.407 respectively. The correlation coefficient over 0.60 is defined as excellent correlation. In other words, the relationship is more than 60% that can be considered excellent correlation. The results of this analysis showed that the Student focus category has the poorest correlation with the OR (0.407 or about 40%). This implies that the organizational results may be affected by some other factors which will be mentioned in this chapter. Despite the correlation of this category with L, SP, and EM is higher but can not be considered as very significant. Also this analysis revealed that there is significant correlation between student focus and IA as well as faculty and staff satisfaction. So, by improving the Student satisfaction, not only the university information system, but also the faculty/staff satisfaction will rise predominantly.

Table 5.35: Spearman's correlation results for impact of student focus on the other categories in IUMS

Student focus correlation with other categories		L	SP	Student	IA	FS	EM	OR
student	Correlation Coefficient	.537(**)	.612(**)	1.000	.702(**)	.629(**)	.532(**)	.623(**)
	Sig. (1-tailed)	.000	.000	.	.000	.000	.000	.000
	N	75	75	75	75	75	75	75

** Correlation is significant at the 0.01 level (1-tailed).

The Spearman's correlation of Student focus with L(leadership), Strategic planning (SP), Information and Analysis (IA), Faculty and Staff focus (FS), Educational and support process

management (EM), and Organizational performance results (OR) categories in Isfahan are 0.537, 0.612, 0.702, 0.629, 0.532, and 0.623 respectively. The analysis revealed that unlike Tabriz, there is significant correlation between student focus and IA, faculty and staff satisfaction, SP, as well as OR. So, by improving the Student satisfaction, not only the university information, and results system, but also strategic planning and the faculty/staff satisfaction will rise predominantly. Despite the correlation of this category with L, and EM is higher but can not be considered as very significant.

5.6.4 Information and Analysis

This category examines the university's performance measurement system and how it analyses performance data and information. The information and analysis category has seven statements, covering university functions such as faculty, staff, and student satisfaction, educational information delivery, and using of analytical techniques for improvement. The respondents were asked to state their agreement or disagreement with given statements concerning Information and Analysis in university through ticking the seven multi-choice questions on a four point Likert scale (1= disagree, 2= neither agree nor disagree, 3= mostly agree, 4= completely agree). The scores were then converted as fractions of 100 by the researcher. The mean scores for this category for TUMS and IUMS were found to be 45.03 and 46.37 respectively. Meanwhile the lowest and highest scores were 11.00 and 71.43 respectively as illustrated in Table 5.36 and Histograms IA1, IA1 (appendix 5 and 20). All 149 respondents answered the questions of this category.

Table 5.36: The Mean scores of IA category for TUMS and IUM

		TUMS	IUMS
N	Valid	74	75
	Missing	0	0
Mean		45.0290	46.3657
Std. Deviation		11.00895	11.96917
Minimum		25.00	11.00
Maximum		71.43	71.43

Like the above mentioned categories the respondents are divided into four main groups and each group had different views on this category. A comparison was carried to find out mean score of each group separately at both universities and the results were shown in Tables 5.37, 5.38 and Diagrams IA1, IA1 (Appendix 6 and 21).

Table 5.37: Mean scores of four groups of respondents for IA in TUMS

Group	N	Mean	Std. Deviation	Minimum	Maximum
Faculty	25	43.5714	10.95950	25.00	64.29
staff	19	41.7293	8.16606	32.14	57.14
Student	23	45.3416	11.05701	25.00	71.43
Manager	7	58.1633	10.04122	46.43	71.43
Total	74	45.0290	11.00895	25.00	71.43

According to the results obtained from the respondents in Tabriz, the staff gave the lowest score of 41.73. These values for the faculty and student groups were 43.57 and 45.34 respectively. The manager group once again gave the highest score (58.16) for this category.

Table 5.38: Mean scores of four groups of respondents for IA in IUMS

Group	N	Mean	SD	Minimum	Maximum
Faculty	19	45.7983	10.58217	25.00	64.29
staff	23	49.8631	14.11409	11.00	71.43
Student	24	43.2286	11.14438	20.00	67.86
Manager	9	53.0159	10.14423	35.71	67.86
Total	75	46.3657	11.96917	11.00	71.43

The results obtained from the respondents in Isfahan revealed that, the students gave the lowest score of 43.23. These values for the faculty and staff groups were 45.80 and 49.86 respectively. The manager group gave the highest score (53.02) for this category as expected. Meanwhile, the research findings showed that there is a difference in views of four groups of respondents on the situation of the University for the IA category from TQM points of view. This difference is remarkable when three groups are compared with the managers. Basically, as mentioned earlier, the reason for this difference is very obvious because, the managers are in the defending position and trying to support the existing managerial system which they running it.

The Kruskal-Wallis test (independent group comparison test) was done for 4 main groups. If the $P \leq 0.010$, the difference is said to be significant. The results showed that the difference of mean scores of the groups is significant ($P \leq 0.010$) as shown in the Tables 5.39 and 5.40. This significance of the difference between 4 groups implies that the views are groups are not ignorable.

Table 5.39: Kruskal Wallis test result of four different groups for IA category in TUMS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1469.793	3	489.931	4.649	0.005
Within Groups	7377.594	70	105.394		
Total	8847.387	73			

Table 5.40: Kruskal Wallis test result of four different groups for IA category in IUMS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	901.708	3	300.569	3.097	0.010
Within Groups	10177.469	71	143.345		
Total	11079.177	74			

Using a four points of likert scale and converting the scores as fractions of 100, the Mean scores of seven questions (statements) in TUMS and IUMS for this category are summarised in Tables 5.41 and 5.42. The details were brought in Appendix 13 and 15.

Table 5.41: The Mean score of Information and Analysis (IA) category's statements by four different groups in TUMS

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean %	Std. Dev.
19 **(IA)**	The university has a system to collect, analyse, align, and integrate data and information of student learning, and student satisfaction / dissatisfaction.	44.17	42.37	46.12	62.45	48.99	11.03
20 **(IA)**	The university has a system to collect and analyse data and information of faculty and staff's satisfaction and dissatisfaction.	42.26	43.67	43.17	59.60	42.36	10.86
21 **(IA)**	The university has a system to review organizational performance and capabilities.	42.67	40.23	42.67	57.23	40.28	10.53
22 **(IA)**	The university translates the reviewed finding into priority for innovation and improvement.	45.54	44.12	47.24	56.23	40.75	11.82
23 **(IA)**	The university has a system to distribute useful information and data to students.	42.28	40.09	46.78	58.11	42.57	10.32
24 **(IA)**	The university has a system to distribute useful information and data to faculty and staff.	40.96	39.54	46.11	56.25	49.31	11.45
25 **(IA)**	The university makes comparisons against comparable universities to improve strategic plans.	47.12	42.09	45.29	57.26	55.00	11.38
	Total	43.57	41.73	45.34	58.16	45.03	11.01

Tables 5.41 and 5.42 show the results concerning the availability of Information and analysis system in both universities, as stated by the respondents. It was measured through a group of 7 questions (statements) on a four-point Likert scale. All the respondents were asked to state to what extent they agreed or disagreed with the given statements regarding information and analysis systems in their university.

Table 41 reveals that statement 25 (The university makes comparisons against comparable universities to improve strategic plans) has the highest mean in this category. It ranked with a mean of55.00. The statements 19 (the university has a system to collect, analyse, align, and integrate data and information of student learning, and student satisfaction / dissatisfaction.) and 24 (the university has a system to distribute useful information and data to faculty and staff.) had means of 49.31 and 48.99 respectively which are very close to the middle of the four points on the Likert scale. Other 4 remaining statements had means around 40. Overall, a

mean of 45.03 is recorded, showing that there is not an agreement on the IA category in TUMS.

Table 5.42: The Mean score of Information and Analysis (IA) category's statements by four different groups in IUMS

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean % total	Std. Dev.
19 **(IA)**	The university has a system to collect, analyse, align, and integrate data and information of student learning, and student satisfaction / dissatisfaction.	46.23	50.47	44.20	57.08	48.09	12.03
20 **(IA)**	The university has a system to collect and analyse data and information of faculty and staff's satisfaction and dissatisfaction.	44.19	51.77	40.21	52.21	45.06	11.47
21 **(IA)**	The university has a system to review organizational performance and capabilities.	44.57	48.29	41.48	52.32	43.98	11.32
22 **(IA)**	The university translates the reviewed finding into priority for innovation and improvement.	47.34	52.29	45.19	51.13	48.45	12.62
23 **(IA)**	The university has a system to distribute useful information and data to students.	44.17	49.59	44.39	56.23	47.27	10.92
24 **(IA)**	The university has a system to distribute useful information and data to faculty and staff.	43.76	47.53	44.11	51.05	45.01	12.25
25 **(IA)**	The university makes comparisons against comparable universities to improve strategic plans.	50.33	49.09	43.02	51.13	46.75	12.08
	Total	45.80	49.86	43.23	53.02	46.37	11.97

In the case of Isfahan, table 42 reveals that statements 19 (The university has a system to collect, analyse, align, and integrate data and information of student learning, and student satisfaction / dissatisfaction) and 22 (The university translates the reviewed finding into priority for innovation and improvement) have the highest mean in this category. They are very close to the middle of the four points on the Likert scale. Other 5 remaining statements have been distributed between 43 and 47. Overall, similarly a mean of 46.37, showed that there is not an agreement on the IA category in Isfahan.

Discussion

A)Tabriz

Three key findings have emerged from the study following the comparisons the mean scores of 7 statements in TUMS.

●IA is considered as an important TQM factor in the university in terms of collecting and distribution of the data and analysis.

●The University has an interest in making comparisons against other universities for improving their performance.

●There is a serious problem regarding the distributing the useful data and information to the students.

The questionnaire results show that IA scored at an overall mean of 45.03. It should be noted that the use of IA system provides high quality data and information to employees in order to achieve high quality customer services within the university. Consequently, this system can improve the faculty, staff, and students' performance. Finally, the customer satisfaction will be met by the university. So, comparing the results obtained from the questionnaire, it can be concluded that the university has a serious relationship problem with the students and this situation should require the senior leaders to strength their relationship with the students which is in line with the results obtained from student focus category.

At the interview and by answering to question one, it has been found that 55% of the interviewees (5 out of 9) mentioned that an information system is implemented in the university and plays a major role in applying and adopting successful TQM programs. It leads to an increase in the level of quality services which, in turn, fulfils the customer needs and demands and achieves customer satisfaction. Meanwhile one interviewee (student) stated that

> *"The information and analysis system at our university is not considered as an important factor for us from the senior leaders' points of view. We are very keen to update and improve our competency through achieving the useful information and data".*

B) Isfahan

Three key findings have emerged from the study following the comparisons the mean scores of 7 statements in IUMS. Apart from finding 1 which similar to the Tabriz two other findings are somewhat different as follows:

- IA is considered as an important TQM factor in the university in terms of collecting and distribution of the data and analysis.

- The University has an interest in collecting data and information of student learning, and student satisfaction / dissatisfaction.

- There is a serious problem regarding reviewing organizational performance and capabilities.

The questionnaire results show that IA scored at an overall mean of 46.37. As mentioned in the case of Tabriz, IA system can improve the faculty, staff, and students' performance. Consequently, the customer satisfaction will be met by the university. Comparing the results obtained from the questionnaire, the findings indicated the university has a serious problem with reviewing organizational performance and capabilities and this situation should require the senior leaders to strength this weakness which is in line with high quality customer services within the university.

At the interview and by asking the interviewees to answer question one, it has been found that 55% of the interviewees (5 out of 9) mentioned that an information system is implemented in the university and plays a major role in applying and adopting successful TQM programs which was as same as Tabriz. It leads to an increase in the level of quality services which, in turn, fulfils the customer needs and demands and achieves customer satisfaction. Meanwhile two interviewees (staff) said

> *"The University doesn't make a serious effort to provide effective performance management systems for improving performance at staff levels".*

They also added that we expect the university to ensure the quality and availability of needed data and information for all employees particularly the staff.

In the TQM literature many researchers stated that information systems in the organisations must be considered as the key enabler of TQM implementation and they added that

information technology could be an enabler in the drive for TQM success and continuous improvement. They indicated that the use of information and analysis system in quality management can improve quality performance of the employees through the following methods: online information about the quality level; enhancing quality awareness; reduction quality costs; speedy processing of quality data (Mjema et al., 2005). Jha and Kumar (2008) believe that Information and analysis is the critical enabler of TQM emphasising that the key processes are regularly measured and quantified. There should be focus on benchmarking which provides a stimulus for improvement. The facts and information should be made available to all.

5.6.4.1 Hypothesis of impact of IA category on other categories

In order to show the impact of IA category on the other categories, a correlation matrix for Spearman's correlation coefficients between IA category and other categories (variables) for TUMS and IUMS was created separately (Tables 5.43 and 5.44).

Table 5.43: Spearman's correlation results for impact of IA category on the other categories in TUMS

IA category correlation with other categories		L	SP	Student	IA	FS	EM	OR
IA	Correlation Coefficient	.630(**)	.593(**)	.617(**)	1.000	.561(**)	.568(**)	.497(**)
	Sig. (1-tailed)	.000	.000	.000	.	.000	.000	.000
	N	74	74	74	74	74	74	74

** Correlation is significant at the 0.01 level (1-tailed).

In TUMS, Spearman's correlation of IA category with L(leadership), Strategic planning (SP), Student, Faculty and Staff focus (FS), Educational and support process management (EM), and Organizational performance results (OR) categories are 0.630, 0.593, 0.617, 0.561, 0.568, and 0.497 respectively. The relationship is more than 60% that can be considered excellent correlation. The results of this analysis showed that the IA category has the poorest correlation with the OR (0.497 or about 40%). This implies that the organizational results may be affected by some other factors which will be mentioned in this chapter. However, the correlation of this category with Leadership is the highest and very significant. So, it is expected that by enhancing this category, the leadership will be improved and consequently the university will benefit from TQM programmes. The correlations of IA category with other categories are in between.

Table 5.44: Spearman's correlation results for impact of IA category on the other categories in IUMS

IA category correlation with other categories		L	SP	Student	IA	FS	EM	OR
IA	Correlation Coefficient	.560(**)	.589(**)	.702(**)	1.000	.628(**)	.590(**)	.470(**)
	Sig. (1-tailed)	.000	.000	.000	.	.000	.000	.000
	N	75	75	75	75	75	75	75

** Correlation is significant at the 0.01 level (1-tailed).

In the case of Isfahan, the Spearman's correlation of IA category with L(leadership), Strategic planning (SP), Student, Faculty and Staff focus (FS), Educational and support process management (EM), and Organizational performance results (OR) categories are 0.560, 0.589, 0.702, 0.628, 0.590, and 0.470 respectively. Similarly, the results of this analysis showed that the IA category has the poorest correlation with the OR (0.470 or about 40%). This implies that the organizational results may be affected by some other factors. However, unlike the Tabriz, the correlation of this category with FS, and Student is the highest and very significant. So, it is expected that by enhancing this category, the students, faculty, and staff categories will be improved and consequently the university will benefit from their capabilities.

5.6.5 Faculty and Staff focus

This category has eight questions to examine how the university enables faculty and staff to develop and utilise their full potential, aligned with the university's objectives. Also, it examines if the university makes efforts to build and maintain a work environment a faculty and staff support climate conducive to performance excellence, full participation, and finally personal and organizational growth. The respondents were asked to state their agreement or disagreement with given statements concerning Faculty and Staff through ticking the eight multi-choice questions based on a four point Likert scale (1= disagree, 2= neither agree nor disagree, 3= mostly agree, 4= completely agree). The scores were then converted as fractions of 100 by the researcher. The mean scores for this category for TUMS and IUMS were found to be 48.73 and 52.22 respectively. Meanwhile the lowest and highest scores were 1.00 and 84.38 respectively as illustrated in Table 5.45 and Histograms FS1, FS1 (appendix 7 and 22). All 149 respondents answered the questions of this category.

Table 5.45: The Mean scores of FS category for TUMS and IUMS

		TUMS	IUMS
N	Valid	74	75
	Missing	0	0
Mean		48.7331	52.2233
Std. Deviation		13.60602	11.85498
Minimum		1.00	8.00
Maximum		84.38	84.38

Like the other mentioned categories, the respondents are divided into four main groups and each group had different views on this category. A comparison was carried to find out mean score of each group separately and the results were shown in Tables 5.46, 5.47 and Diagrams FS1, FS1 (Appendix 8 and 23).

Table 5.46: Mean scores of four groups of respondents for FS in TUMS

	N	Mean	Std. Deviation	Minimum	Maximum
Faculty	25	51.8750	10.90023	34.38	75.00
Staff	19	44.0789	11.59458	25.00	59.38
Student	23	44.1576	14.66676	.00	71.88
Manager	7	65.1786	8.91740	56.25	84.38
Total	74	48.7331	13.60602	.00	84.38

According to the results obtained from the respondents, the manager group as for previous categories gave the highest score of 65.18. This value for the faculty group was 51.88. The staff group and student group gave the below the middle, and the lowest score of 44.08 and 44.16 respectively.

Table 5.47: Mean scores of four groups of respondents for FS in IUMS

	N	Mean	SD	Minimum	Maximum
Faculty	19	51.5546	9.62108	37.50	71.88
Staff	23	55.3304	15.02160	8.00	84.38
Student	24	52.3350	9.70767	28.13	71.88
Manager	9	57.2381	8.80392	46.88	71.88
Total	75	52.2233	11.85498	8.00	84.38

According to the results obtained from the respondents in IUMS, all groups gave the above 50% (the middle of the four points on the Likert scale). The manager group gave the highest score of 57.24. This value for the faculty group was the lowest score of 51.55. The staff group and student group gave 55.33 and 52.33 respectively.

Meanwhile, the research findings showed that there is a difference in views of four groups of respondents on the situation of the University for the FS category. This difference is remarkable when three groups are compared with the managers. So far, the managers gave the highest score for all categories. The position of the managers in the university and their accountability to the government can explain this highest score. Meanwhile, they try to show the university in a desirable situation in order to avoid any possible weakness.

The Kruskal-Wallis test (independent group comparison test) was done for 4 main groups. If the $P \leq 0.010$, the difference is said to be significant. The results showed that the difference of mean scores of the groups at both universities is significant as shown in the Tables 5.48 and 5.49. This significance of the difference between 4 groups implies that the views of the groups should be taken into account for TQM purposes.

Table 5.48: Kruskal Wallis test result of four different groups for FS category in TUMS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3033.032	3	1011.011	6.752	0.000
Within Groups	10481.009	70	149.729		
Total	13514.041	73			

Table 5.49: Kruskal Wallis test result of four different groups for FS category in IUMS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	301.280	3	100.427	2.746	0.010
Within Groups	9552.763	71	134.546		
Total	9854.044	74			

Using a four points of Likert scale and converting the scores as fractions of 100, the Mean scores of eight questions (statements) for this category at TUMS and IUMS are summarised in Tables 5.50 and 5.51. The details were brought in Appendix 13 and 15.

Table 5.50: The Mean score of Faculty and Staff (FS) category's statements by four different groups in TUMS

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean %	Std. Dev.
26 **(FS)**	The university has clear processes and set of criteria to recruit, hire, and retain faculty and staff.	50.45	43.18	44.36	68.23	55.52	13.18
27 **(FS)**	The faculty and staff work processes are derived from the university's action plans.	49.88	42.78	41.27	63.12	48.15	12.98
28 **(FS)**	The university has a centre to evaluate faculty and staff education and teaching performance.	56.87	48.12	47.14	65.15	57.88	12.76
29 **(FS)**	The university develops education and training plans (e.g. continuous education) for individual faculty and staff.	59.11	52.78	53.11	67.68	57.99	13.93
30 **(FS)**	The university determines the reaction of faculty and staff to education and training programs.	48.02	39.89	40.77	63.17	48.31	13.58
31 **(FS)**	The university has programs and designs for creating and maintaining a safe, friendly, and healthy environment for individual faculty and staff.	49.11	43.11	42.56	61.15	45.18	12.79
32 **(FS)**	The university systematically transfers knowledge from departing or retiring faculty and staff.	48.65	42.45	41.19	66.19	42.19	13.88
33 **(FS)**	The university has an approach to assess faculty and staff satisfaction for diverse workforce and different categories and types of faculty and staff.	52.88	40.39	42.87	66.76	39.73	13.68
	Total	51.87	44.08	44.16	65.18	48.73	13.61

Table 5.50 shows the results concerning the Faculty and Staff focus in the university, as stated by the respondents. The researcher asked the respondents to state their agreement or disagreement with a group of 8 questions (statements) in their university on a four-point Likert scale.

The results vary between higher and lower than 50 (the middle of the four points on the Likert scale). Statements 28 (The university has a centre to evaluate faculty and staff education and teaching performance.) and 29 (The university develops education and training plans (e.g. continuous education) for individual faculty and staff.) were ranked with the highest means of 57.88 and 57.99 respectively. The third highest mean score (55.52)

belonged to statement 26 (The university has clear processes and set of criteria to recruit, hire, and retain faculty and staff.). Meanwhile, statement 33 (The University has an approach to assess faculty and staff satisfaction for diverse workforce and different categories and types of faculty and staff) ranked the lowest with a mean of 39.73. Other four remaining statements were ranked in between. Overall, a mean of 48.73 is recorded, showing that there is a somewhat agreement on the FS category in Tabriz.

Table 5.51: The Mean score of Faculty and Staff (FS) category's statements by four different groups in IUMS

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean % total	Std. Dev.
26 **(FS)**	The university has clear processes and set of criteria to recruit, hire, and retain faculty and staff.	50.13	53.93	51.85	56.01	51.13	11.58
27 **(FS)**	The faculty and staff work processes are derived from the university's action plans.	48.26	50.78	49.78	53.12	48.80	10.98
28 **(FS)**	The university has a centre to evaluate faculty and staff education and teaching performance.	57.61	62.12	55.63	63.09	56.12	9.86
29 **(FS)**	The university develops education and training plans (e.g. continuous education) for individual faculty and staff.	58.08	63.75	61.72	65.07	62.02	12.13
30 **(FS)**	The university determines the reaction of faculty and staff to education and training programs.	48.06	51.76	49.23	54.56	49.03	10.58
31 **(FS)**	The university has programs and designs for creating and maintaining a safe, friendly, and healthy environment for individual faculty and staff.	49.02	54.43	48.89	57.51	49.44	12.49
32 **(FS)**	The university systematically transfers knowledge from departing or retiring faculty and staff.	47.55	51.45	49.78	52.11	49.00	11.88
33 **(FS)**	The university has an approach to assess faculty and staff satisfaction for diverse workforce and different categories and types of faculty and staff.	53.79	54.39	51.75	56.42	52.26	11.62
	Total	51.55	55.33	52.33	57.24	52.22	11.85

The results obtained from Isfahan were mostly higher than 50 (the middle of the four points on the Likert scale). Similar to TUMS, statements 28 (The university has a centre to evaluate faculty and staff education and teaching performance.) and 29 (The university develops education and training plans (e.g. continuous education) for individual faculty and staff.)

ranked with the highest means of 56.12 and 62.02 respectively among all four groups of respondents. Again like Tabriz, the third highest mean score s belonged to statement 26 (The university has clear processes and set of criteria to recruit, hire, and retain faculty and staff.) and statement 33 (The University has an approach to assess faculty and staff satisfaction for diverse workforce and different categories and types of faculty and staff) with means 51.13 and 52.26 respectively. Meanwhile, other four remaining statements ranked lower than 50. Overall, a mean of 52.22 is recorded, showing that there is an agreement on the FS category at IUMS.

Discussion

A)Tabriz

The key finding for Faculty and Staff focus (FS) are now given.

- The findings show that the university develops education and training plans for the faculty and the staff, and successfully evaluate their education and teaching performance.
- The process and set of criteria to recruit, and retain faculty and staff is clear and successful.
- There is no indication of the university to assess, and meet faculty and staff satisfaction.

The questionnaire's findings revealed that faculty and staff training has been adopted by the university and successfully implemented. Also, providing the employees with the corresponding courses in order to improve their performance is the main concern of the university. So, the university tries to encourage them to participate in the educational courses. Meanwhile, the faculty and staff satisfaction is very low indicating that the faculty and staff related factors such as, identification of their requirements and needs, seeking their feedback via appropriate ways, and providing their satisfaction should be a necessity for the university in order to improve TQM programs.

Throughout the interview process 6 out of 9 participants mentioned the faculty and staff satisfaction is not successfully adopted and settled in the university. They added there is a lack of system to monitor faculty and staff recommendations and opinions. Meanwhile two interviewees appreciated the University for establishing modern work places and departments for providing their satisfactions. Also, through the asking question two (Has customer satisfaction been met/ achieved by the university top management?) which 6 respondents (out of 9) had negative answer, which was very close to the findings of questionnaire. 7 out of 9 respondents (77%) were happy about a centre called EDC (Educational and development

Centre) and mentioned that this centre successfully provides and develops training plans and continuously evaluate faculty performances. These findings from the interview support the questionnaire findings.

B) Isfahan

The key finding for Faculty and Staff focus (FS) are very close to the TUMS as follows:

- The findings show that the university develops education and training plans for the faculty and the staff, and successfully evaluate their education and teaching performance.
- The University has a centre to evaluate faculty and staff education and teaching performance.
- There is no indication of the university to guide the faculty and staff work processes to be in line with the strategic plan of the University.

The questionnaire's findings revealed that two universities are very similar in terms of education and training plans for the faculty and the staff, as well as benefitting from a centre to evaluate faculty and staff education and teaching performance. Also it is concluded that MSUs are serious in education and training of the faculties through a particular centres for this activity

Throughout the interview process 5out of 9 participants were satisfied for the educational and training facilities in the university. They added there is a lack of system to monitor faculty and staff recommendations and opinions. Meanwhile three respondents (two staff and one student) appreciated the University for establishing modern work places and departments for providing their satisfactions. Also, through the asking question two (Has customer satisfaction been met/ achieved by the university top management?) which 5 respondents (55%) had positive answer, the findings of questionnaire was endorsed.

8 out of 9 respondents (88%) appreciated the activity of a centre called EDC (Educational and development Centre) and mentioned that this centre successfully provides and develops educational plans. These findings from the interview support the questionnaire findings.

The literature that is written in the TQM area considers customer satisfaction as the ultimate reason for TQM philosophy implementation (Deming, 1986). Therefore, a satisfied faulty or staff is a critical factor for a successful implementation of TQM in an organization (Alomaim et al., 2003). Tan (2003) emphasised the need for adopting a customer satisfaction element in the organizations that applied TQM philosophy and they considered it as key element for fixing and resolving customers' problems and complaints. Moreover, he pointed out that

customers' complaints should be treated as high priority to improve the customers' satisfactions. He added that the focus on the results that an organization achieves is in relation to the satisfaction of its employees. As mentioned as first findings, training of the employee is very important for the organization. In the TQM literature, Tsang and Antony (2001) explained the importance of employee empowerment programmes; they added that trust is considered as a common element. Employees should be encouraged to control, manage and improve the processes that are within their responsibility. In addition, they emphasised the importance of implementing employees' suggestions and introducing them into the companies' strategies. Moreover, Dale (2003) identified the value of training employees at all levels in organisations and stressed that the organizations should support their employees with the right level and standard of education and training to ensure that they had a general awareness and understanding of quality management concepts. He added that "without training it is difficult to solve problems and, without education, behaviour and attitude change will not take place". Again Tsang and Antony (2001) indicated that employees must be recognised for their contribution and should feel that they are part of the organisation. Commitment, recognition and appreciation are necessary for employees to motivate themselves for more achievements.

5.6.5.1 Hypothesis of impact of FS category on other categories

As mentioned earlier, the correlation coefficient among different categories is very important and can explain the impact of one category on the other categories. So, In order to show the impact of FS category on the other categories, a correlation matrix for Spearman's correlation coefficients between FS and other categories (variables) for both universities were established (Tables 5.52 and 5.53).

Table 5.52: Spearman's correlation results for impact of FS category on the other categories in TUMS

FS category correlation with other categories		L	SP	Student	IA	FS	EM	OR
FS	Correlation Coefficient	.678(**)	.640(**)	.610(**)	.561(**)	1.000	.719(**)	.530(**)
	Sig. (1-tailed)	.000	.000	.000	.000	.	.000	.000
	N	74	74	74	74	74	74	74

** Correlation is significant at the 0.01 level (1-tailed).

The Spearman's correlation of FS category with L(leadership), Strategic planning (SP), Student, Information and Analysis (IA), Educational and support process management (EM), and Organizational performance results (OR) categories in Tabriz are 0.678, 0.640, 0.610, 0.561, 0.719, and 0.530 respectively. The relationship is more than 60% that can be considered excellent correlation. So, the relationship of this category with four categories of L, SP, Student, and EM is more than 60% that can be considered excellent correlation as well as the highest so far. It means that with improving this category and meeting the faculty and staff satisfaction, the magnificent improvement takes place at the university. Meanwhile, the results of this analysis showed that the FS category has the lowest correlation with the OR (0.530 or about 53%). However, the correlation of this category with Educational and support process management (EM) is the ever highest and very significant. The second highest correlation of this category is with Leadership.

Table 5.53: Spearman's correlation results for impact of FS category on the other categories in IUMS

FS category correlation with other categories		L	SP	Student	IA	FS	EM	OR
FS	Correlation Coefficient	.638(**)	.578(**)	.629(**)	.628(**)	1.000	.675(**)	.421(**)
	Sig. (1-tailed)	.000	.000	.000	.000	.	.000	.000
	N	75	75	75	75	75	75	75

** Correlation is significant at the 0.01 level (1-tailed).

In the case of Isfahan, the Spearman's correlation of FS category with L(leadership), Strategic planning (SP), Student, Information and Analysis (IA), Educational and support process management (EM), and Organizational performance results (OR) categories are 0.638, 0.578, 0.629, 0.628, 0.675, and 0.421 respectively. The relationship of this category with four categories of L, Student, IA, and EM is more than 60% that can be considered excellent correlation. It means that with improving this category and meeting the faculty and staff satisfaction, the magnificent improvement takes place at different aspects of the university. Meanwhile, the results of this analysis showed that the FS category has the lowest correlation with the OR (0.421 or about 40%) which is similar to the result obtained from TUMS. Similarly, the correlation of this category with Educational and support process management (EM) is the highest and very significant. By considering all results obtained from this analysis, it is expected that by enhancing this category, the every section of the university will benefit from TQM programmes.

5.6.6 Educational and support process management

This category has five statements to examine the university key aspects of process management, including learning-focused education design and delivery, and support services. The respondents were asked to state their agreement or disagreement with given statements about educational and support process management (EM) through ticking the five multi-choice questions based on a four point Likert scale (1= disagree, 2= neither agree nor disagree, 3= mostly agree, 4= completely agree). The scores were then converted as fractions of 100 by the researcher. The mean scores of this category for TUMS and IUMS were found to be 47.90 and 49.41 respectively. Meanwhile the lowest and highest scores were 1.50 and 75.00 respectively as illustrated in Table 5.54 and Histograms EM1 and EM1 (appendixes 9 and 25). All 149 respondents answered the questions of this category.

Table 5.54: The Mean scores of EM category for TUMS and IUMS

		TUMS	IUMS
N	Valid	74	75
	Missing	0	0
Mean		47.9054	49.4107
Std. Deviation		12.9806	15.0291
		7	8
Minimum		25.00	1.50
Maximum		75.00	75.00

Like the other mentioned categories, the respondents are divided into four main groups and each group had different views on this category. A comparison was carried to find out mean score of each group separately and the results were shown in Tables 5.55, 5.56 and Diagrams EM1, EM1 (Appendixes 10, and 25).

Table 5.55: Mean scores of four groups of respondents for EM in TUMS

Group	N	Mean	Std. Deviation	Minimum	Maximum
Faculty	25	50.4000	13.14344	25.00	75.00
Staff	19	46.5789	12.47805	25.00	70.00
Student	23	42.8261	12.77658	25.00	75.00
Manager	7	59.2857	3.45033	55.00	65.00
Total	74	47.9054	12.98067	25.00	75.00

The results obtained from the four respondent groups in Tabriz were different and showed that the student group gave the poorest score of 42.83. These values for staff group and the faculty group are 46.58 and 50.40 respectively. The manager group gave the highest score of

59.29 as gave the highest for previous categories.

Table 5.56: Mean scores of four groups of respondents for EM in IUMS

Group	N	Mean	SD	Minimum	Maximum
Faculty	19	52.9076	12.03650	30.00	75.00
Staff	23	53.3125	16.94588	1.50	75.00
Student	24	44.1549	15.28603	2.30	68.00
Manager	9	55.7937	7.69678	45.00	65.00
Total	75	49.4107	15.02918	1.50	75.00

Similarly, the results obtained from the four respondent groups of Isfahan were different and showed that the student group gave the poorest score of 44.15. These values for faculty group and the staff group are 52.91 and 53.31 respectively. Like Tabriz, the manager group gave the highest score of 55.79.

These differences are remarkable when three groups are compared with the managers. The position of the managers in the university and their accountability to the government can explain this highest score. Meanwhile, they try to show the university in a desirable situation in order to avoid any possible weakness.

The Kruskal-Wallis test (independent group comparison test) was done for 4 main groups. The results showed that the differences of mean scores of the groups are significant ($P \leq 0.010$) as shown in the Tables 5.57 and 5.58. The significance of the difference between 4 groups implies that the views of the groups are not ignorable.

Table 5.57: Kruskal Wallis test result of four different groups for EM category in TUMS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1688.973	3	562.991	3.714	0.010
Within Groups	10611.364	70	151.591		
Total	12300.338	73			

Table 5.58: Kruskal Wallis test result of four different groups for EM category in IUMS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1547.020	3	515.673	3.440	0.008
Within Groups	15004.607	71	211.332		
Total	16551.627	74			

Meanwhile, Using a four points of likert scale and converting the scores as fractions of 100, the Mean scores of seven questions (statements) for this category are summarised in Tables 5.59 and 5.60. The details were brought in Appendixes 13 and 15.

Table 5.59: The Mean score of Educational and support process Management (EM) category's statements in TUMS

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean %	Std. Dev.
34 **(EM)**	The university determines the key learning-centred processes that deliver educational programs and student services.	49.12	44.67	40.65	58.65	44.19	13.01
35 **(EM)**	The university has a system for improving learning-centred processes to maximize student success, to improve educational programs and student services.	48.65	43.45	39.76	58.44	48.09	12.54
36 **(EM)**	The university has a system to evaluate educational programs for improvement.	52.23	49.23	44.86	62.76	50.31	13.26
37 **(EM)**	The university uses student, faculty, staff and other stakeholder's input (as appropriate) in managing learning-centred processes.	48.45	45.04	41.56	60.78	44.04	12.42
38 **(EM)**	The university ensures that adequate budgetary and financial resources are available to support different educational processes and operations.	53.55	50.49	47.31	55.82	54.05	11.97
	Total	50.40	46.58	42.83	59.29	47.90	12.98

Table 5.59 shows the extent and degree of Educational and support process Management (EM) in TUMS. Statement 38 (The university ensures that adequate budgetary and financial resources are available to support different educational processes and operations) achieved the highest mean of 54.05 which shows that the university has no serious problem in terms of financial and budgeting resources for EM programs. Also, it indicates the measuring tools are available to evaluate the EM programs as statement 36 (The university has a system to evaluate educational programs for improvement) has a mean of 50.31. On the other hand, the statements 34 (The university determines the key learning-centred processes that deliver educational programs and student services) and 37 (The university uses student, faculty, staff and other stakeholder's input (as appropriate) in managing learning-centred processes) had the lowest mean of 44.19 and 44.04 respectively. The overall mean of 47.90 indicated that there is not an agreement on the statements in relation with the EM towards the TQM program in Tabriz.

Table 5.60: The Mean score of Educational and support process Management (EM) category's statements by four different groups in IUMS

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean % total	Std. Dev.
34 **(EM)**	The university determines the key learning-centred processes that deliver educational programs and student services.	52.62	51.66	43.72	53.65	47.15	16.01
35 **(EM)**	The university has a system for improving learning-centred processes to maximize student success, to improve educational programs and student services.	49.85	50.49	40.36	53.44	46.22	14.94
36 **(EM)**	The university has a system to evaluate educational programs for improvement.	54.23	56.19	45.58	57.16	51.54	15.86
37 **(EM)**	The university uses student, faculty, staff and other stakeholder's input (as appropriate) in managing learning-centred processes.	51.32	52.04	41.76	58.36	47.14	15.22
38 **(EM)**	The university ensures that adequate budgetary and financial resources are available to support different educational processes and operations.	56.55	56.18	49.31	56.32	55.02	14.77
	Total	52.91	53.31	44.15	55.79	49.41	15.03

Table 5.60 shows the extent and degree of Educational and support process Management (EM) in IUMS. Statement 38 (The university ensures that adequate budgetary and financial resources are available to support different educational processes and operations) achieved the highest mean of 55.02 as it was in the case of Tabriz which shows that the university has no serious problem in terms of financial and budgeting resources for EM programs. Also, it indicates the measuring tools are available to evaluate the EM programs as statement 36 (The university has a system to evaluate educational programs for improvement) has a mean of 51.54. On the other hand, the statements 35 (The university has a system for improving learning-centred processes to maximize student success, to improve educational programs and student services) had the lowest mean of 46.22. The overall mean of 49.41 indicated that there is not a disagreement (very close to 50) on the statements in relation with the EM towards the TQM program in Isfahan.

Discussion

A) Tabriz

As mentioned above the key findings regarding EM can be summarised as:

- There is no serious problem in terms of financial and budgeting resources for EM programs.
- The University has no adequate indication to implement and manage EM processes.

These results are based on the questionnaire findings and as mentioned the university has enough financial and budgeting resources for the EM programs. It seems that the main problem is that these resources are not well managed for EM purposes. Once again this requires the university to revise the managerial system in order to improve EM. Moreover, as mentioned earlier, faulty, staff, and students are the centre of the organization and hence, university decision-makers should place them at the centre of their concerns, and consider them as major and helpful partners in the improvement of the management at the university. Through the semi-structured interview with 9 respondents for question one (among the seven categories of the Baldrige model for TQM, which category (or categories) has been implemented in the university?) it was shown that this category has 4 positive answers (4 respondents out of 9). One of the respondents made an important point. He said

> *"The EM processes are not cost effective and senior leaders tend to improve EM programs but they don't know where and how to spend the allocated budget".*

B) Isfahan

The key findings regarding EM are very close to Tabriz and can be summarised as:

- There is no serious problem in terms of financial and budgeting resources for EM programs.
- The University has no adequate indication to implement and manage EM processes.
- Students are not satisfied at all with the EM

Apart from the first two findings that are as same as Tabriz, the important point in this category is that the students scored the lowest mean (44.15) comparing to other groups. Looking at the structure of this category's questions reveals that most questions are in relation with the students and therefore, their lower score seems to be more realistic.

Through the semi-structured interview with 9 respondents for question one (among the seven categories of the Baldrige model for TQM, which category (or categories) has been implemented in the university?) it was shown that this category has 5 positive answers (5 respondents out of 9).

Two interviewees explained that there is a good system for the evaluation for the educational programs in the university but, the problem is the feedback of the students, faculty and staff are not taken into consideration. They also added that for ages the evaluation system is implemented in the university without considering of where the system is going and also without any innovation and encouraging policy for improvement purposes.

In the TQM literature, researchers stated that educational management in the universities must be considered as the key enabler of TQM implementation. Sahney et al. (2004) mentioned that a process is defined as "a series of actions or operations conducing to an end" and explained that a process transforms measurable inputs into measurable outputs under a value-adding operation. They concluded that similarly, the educational process might be defined as a series of actions or operations leading to an educational end – learning, training activity. They added that process management applied in a university setting is highly important in order to achieve university aims. Khan (2002) mentioned that an educational institution should establish and maintain documented procedures for educational and support process management. The entire process, in which all students have to undergo, should include the following activities:

- Reception of students by the Institution.
- Training of students (according to his/her nomination) as per planned program.
- Examinations
- Evaluation of each student.

He also added that all the training / academic activities of the Institution should be planned in advance at the beginning of each year/course. The schedule of complete year for each department/course would be as follows:

- Phasing chart of each course.
- Requirement of additional faculty from other organizations/institutions.
- Requirement of equipment not held by the Institution.
- On the Job Training at different organizations/institutions.
- Allocation of classes/laboratories for all courses.

Finally, he concluded that each group / department is required to maintain the records for all activities for evaluation and quality improvement purposes.

5.6.6.1 Hypothesis of impact of EM category on other categories

The correlation coefficient among different categories is very important and can explain the impact of one category on the other categories. So, In order to show the impact of EM category on the other categories, a correlation matrix for Spearman's correlation coefficients between EM and other categories (variables) was created (Tables 5.61 and 5.62).

Table 5.61: Spearman's correlation results for impact of EM category on the other categories in TUMS

EM category correlation with other categories		L	SP	Student	IA	FS	EM	OR
EM	Correlation Coefficient	.642(**)	.668(**)	.547(**)	.568(**)	.719(**)	1.000	.567(**)
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.	.000
	N	74	74	74	74	74	74	74

** Correlation is significant at the 0.01 level (1-tailed).

The Spearman's correlation of EM category with L(leadership), Strategic planning (SP), Student, Information and Analysis (IA), Faculty and Staff (FS), and Organizational performance results (OR) categories are 0.642, 0.668, 0.547, 0.568, 0.719, and 0.567 respectively. The correlation coefficient over 0.60 is defined as excellent correlation. As anticipated from the Table 5.52 the correlation of this category with Faculty and Staff (FS) is the ever highest and very significant. The relationship of this category with three categories of Student, IA and OR is less than 60% that can be considered as not very significant correlation. It means that with improving this category and meeting the faculty and staff satisfaction, the magnificent improvement takes place at the university. However, the results of this analysis showed that the EM category has the significant correlation with L, SP, and FS. By considering all results obtained from this analysis, it is expected that by enhancing this category, three important categories of the university (L, SP, and FS) will improve predominantly and subsequently the every section of the university will benefit from TQM programmes.

Table 5.62: Spearman's correlation results for impact of EM category on the other categories in IUMS

EM category correlation with other categories		L	SP	Student	IA	FS	EM	OR
EM	Correlation Coefficient	.425(**)	.604(**)	.532(**)	.590(**)	.675(**)	1.000	.315(**)
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.	.003
	N	75	75	75	75	75	75	75

** Correlation is significant at the 0.01 level (1-tailed).

In the case of Isfahan, the Spearman's correlation of EM category with L(leadership), Strategic planning (SP), Student, Information and Analysis (IA), Faculty and Staff (FS), and Organizational performance results (OR) categories are 0.425, 0.604, 0.532, 0.590, 0.675, and 0.315 respectively. The correlation coefficient over 0.60 is defined as excellent correlation. Similar to the correlation obtained in the Tabriz, the correlation of this category with Faculty and Staff (FS) is the highest and very significant. Meanwhile, the relationship of this category with OR is the poorest (0.315) that can be considered as not very significant correlation. It is concluded that with improving this category and meeting the faculty and staff satisfaction, the magnificent improvement takes place at the university and subsequently the every section of the university will benefit from TQM programmes.

5.6.7 Organizational performance results

The organizational performance results category is the last category and has the largest number of statements (10 questions), covering most of the university functions and activities in terms of results (outputs). This category examines student performance, student focused results, budgetary and financial performance, faculty and staff results, and organizational effectiveness. The respondents were asked to state their agreement or disagreement with given statements about organizational performance results through ticking the ten multi-choice questions based on a four point Likert scale (1= disagree, 2= neither agree nor disagree, 3= mostly agree, 4= completely agree). The scores were then converted as fractions of 100 by the researcher. The mean scores for this category were found to be 42.94 and 46.73. Meanwhile the lowest and highest scores were 2.00 and 72.50 respectively as illustrated in Table 5.63 and Histograms OR1, and OR1 (appendix 11 and 26). All 149 respondents answered the questions of this category.

Table 5.63: The Mean score of OR category

		TUMS	IUMS
N	Valid	74	75
	Missing	0	0
Mean		42.9392	46.7352
Std. Deviation		11.0289	14.2882
		0	7
Minimum		20.00	2.00
Maximum		72.50	72.50

Like the other mentioned categories, the respondents are divided into four main groups and each group had different views on this category. A comparison was carried to find out mean score of each group separately and the results were shown in Tables 5.64, 5.65 and Diagrams OR1, OR1 (Appendixes 12 and 27).

Table 5.64: Mean scores of four groups of respondents for OR in TUMS

Group	N	Mean	Std. Deviation	Minimum	Maximum
Faculty	25	43.2000	10.54554	25.00	65.00
Staff	19	40.0000	7.77282	27.50	55.00
Student	23	41.0870	10.94475	20.00	72.50
Manager	7	56.0714	13.13846	35.00	72.50
Total	74	42.9392	11.02890	20.00	72.50

The results obtained from the four respondent groups were different and showed that the manager group gave the highest score of 56.07 as highest as for previous categories. Staff group gave the lowest score of 40.00. These values for student group and the faculty group are 41.09 and 43.20 respectively.

Table 5.65: Mean scores of four groups of respondents for OR in IUMS

Group	N	Mean	SD	Minimum	Maximum
Faculty	19	44.1176	10.15279	32.50	72.50
Staff	23	48.4970	15.99403	2.00	72.50
Student	24	46.4286	15.53879	2.86	70.00
Manager	9	55.3889	9.72040	40.00	70.00
Total	74	46.7352	14.28827	2.00	72.50

The results obtained from the four respondent groups were different and showed that the manager group gave the highest score of 55.39 as highest as for previous categories.

Meanwhile, faculty group gave the lowest score of 44.12. These values for student group and the Staff group are 46.43 and 48.50 respectively.

The difference is again remarkable when three groups are compared with the managers. Comparing the results obtained from all seven categories revealed that the managers gave the highest score for all categories. The position of the managers in the university and their accountability to the government can explain this highest score. Meanwhile, they try to show the university in a desirable situation in order to avoid any possible weakness. Comparing the results obtained from previous categories at both universities showed that although the managers gave the highest scores for all categories, but the score given for OR is lower than all other ones. This implies that the managers are not well aware of organizational results and also there is a lack of key measures relating to the faculty, staff, and student satisfaction. On the other hand, lack of key measures relating to the university's budgetary and financial performance is explained by this lower score of the OR given by the managers. Moreover, since the managerial system in MSUs requires the managers involve in the daily issues, so, they would not get chance to spend time for budgetary and financial performance, as well as faculty, staff and student performance results.

However, in order to illustrate the significance of the different views of the respondent groups, the Kruskal-Wallis test (independent group comparison test) was done for 4 respondent groups. . If the $P \leq 0.010$, the difference is said to be significant. The results showed that the differences of mean scores of the groups are significant as shown in the Tables 5.66 and 5.67. This significance of the difference between 4 groups implies that the views of the groups are not ignorable.

Table 5.66: Kruskal Wallis test result of four different groups for OR category in TUMS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1451.936	3	483.979	4.561	0.006
Within Groups	7427.540	70	106.108		
Total	8879.476	73			

Table 5.67: Kruskal Wallis test result of four different groups for OR category in IUMS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	805.642	3	268.547	2.654	0.010
Within Groups	14083.658	71	198.361		
Total	14889.301	74			

Using a four points of likert scale and converting the scores as fractions of 100, the Mean scores of ten questions (statements) for this category are summarised in Tables 5.68, and 5.69. The details were brought in Appendixes 13 and 15.

Table 5.68: The Mean score of Organizational performance Results (OR) category's statements for TUMS

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean %	Std. Dev.
39 **(OR)**	The key measures or indicators relating to student performance (e.g., passing rate) have met the targets set for the current year.	44.12	41.11	42.31	59.12	49.07	11.67
40 **(OR)**	The key measures or indicators relating to student performance have shown positive trends over last three years.	45.03	40.86	39.56	56.76	48.13	11.32
41 **(OR)**	The key measures or indicators relating to students' satisfaction and dissatisfaction have met the target set for current year..	44.56	42.16	40.67	53.78	41.15	10.89
42 **(OR)**	The key measures or indicators relating to students' satisfaction and dissatisfaction have shown positive trends over last three years.	45.02	41.76	42.88	54.08	43.22	11.56
43 **(OR)**	The key measures or indicators relating to faculty and staff satisfaction have met the targets set for current year.	40.23	38.23	39.02	58.19	43.14	10.78
44 **(OR)**	The key measures or indicators relating to faculty and staff satisfaction have shown positive trends over the last three years.	39.78	37.78	41.11	58.03	41.10	11.65
45 **(OR)**	The key measures or indicators relating to university performance have met the targets set for current year.	42.89	41.78	40.19	55.34	43.06	11.98
46 **(OR)**	The key measures or indicators relating to university performance have shown positive trends over the last three years.	43.29	38.87	39.44	54.56	41.18	10.76
47 **(OR)**	The key measures or indicators relating to university's budgetary and financial performance met the targets set for current year.	45.01	39.56	41.78	54.87	42.01	11.34
48 **(OR)**	The key measures or indicators relating to university's budgetary and financial performance have shown positive trends over the last three years.	42.07	37.88	43.95	55.95	43.37	11.12
	Total	43.20	40.00	41.09	56.07	42.94	11.03

Table 5.68 shows that the extent and degree of Organizational performance Results in TUMS is not acceptable. These low scores indicate the results of the university are not successful.

Meanwhile, statements 39 (The key measures or indicators relating to student performance (e.g., passing rate) have met the targets set for the current year.), and 40 (The key measures or indicators relating to student performance have shown positive trends over last three years.) regarding the students' performances had the highest scores of 49.07 and 48.13 respectively which are very close to the 50 (middle of the four points on Likert scale) and could be considered acceptable. All other statements regarding the faculty, staff, and student's satisfaction together with overall university performance are low and similar to each other. The overall mean of 42.94 indicated the respondents' disagreement to statements in relation with the organizational performance results towards the TQM program in Tabriz.

Table 5.69: The Mean score of Organizational performance Results (OR) category's statements by four different groups for IUMS

NO	Statement	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean % total	Std. Dev.
39 **(OR)**	The key measures or indicators relating to student performance (e.g., passing rate) have met the targets set for the current year.	45.14	50.34	47.51	59.12	48.57	14.62
40 **(OR)**	The key measures or indicators relating to student performance have shown positive trends over last three years.	46.07	48.92	44.86	56.36	46.64	14.36
(OR)	The key measures or indicators relating to students' satisfaction and dissatisfaction have met the target set for current year..	45.57	51.79	45.87	54.38	47.75	13.84
42 **(OR)**	The key measures or indicators relating to students' satisfaction and dissatisfaction have shown positive trends over last three years.	46.03	49.97	48.88	52.28	47.92	14.52
43 **(OR)**	The key measures or indicators relating to faculty and staff satisfaction have met the targets set for current year.	41.27	47.59	43.32	57.79	44.74	13.79
44 **(OR)**	The key measures or indicators relating to faculty and staff satisfaction have shown positive trends over the last three years.	39.86	43.99	46.41	59.03	43.70	14.62
45 **(OR)**	The key measures or indicators relating to university performance have met the targets set for current year.	43.85	51.83	45.39	54.74	47.36	15.04
46 **(OR)**	The key measures or indicators relating to university performance have shown positive trends over the last three years.	44.32	48.89	43.64	54.16	45.88	13.75
47 **(OR)**	The key measures or indicators relating to university's budgetary and financial performance met the targets set for current year.	46.04	47.73	49.49	54.47	47.81	14.35

48 **(OR)**	The key measures or indicators relating to university's budgetary and financial performance have shown positive trends over the last three years.	43.03	46.90	48.95	51.55	46.97	14.11
	Total	44.12	48.80	46.43	55.39	46.73	14.29

Table 5.69 shows that the extent and degree of Organizational performance Results in IUMS is also not acceptable. These low scores indicate the results of the university are not successful which is in line with Tabriz. Interestingly, statement 39 (The key measures or indicators relating to student performance (e.g., passing rate) have met the targets set for the current year.) had the highest scores of 48.57 which is very close to the 50 (middle of the four points on Likert scale) and could be considered acceptable. Meanwhile, all other statements regarding the faculty, staff, and student's satisfaction together with overall university performance are low and similar to each other. However, statement 44 (The key measures or indicators relating to faculty and staff satisfaction have shown positive trends over the last three years) had the lowest score of 43.70 which indicates the satisfaction trend of the faculty and staff was not successful.

The overall mean of 46.73 indicated the respondents' disagreement to statements in relation with the organizational performance results towards the TQM program in Isfahan.

Discussion

A) Tabriz

The key findings regarding the organizational performance results are:

- Students' performance has a sustained positive trend.
- Faculty, staff, and student's satisfaction has not a positive trend.

In the questionnaire there was a scoring around 40 (less than the middle of the four points on the Likert scale) for the statements regarding the employee's satisfaction. For a university with more than 6000 students, more than 10000 faculty, and staff this can be defined as a warning situation (status). As the success of TQM factors such as leadership, and strategic plan are reflected in the organizational performance results (see "hypothesis of impact of OR category on other categories" below), by analysis of those factors (with low mean scores), it was anticipated that, this category would have low mean score and the results obtained from the questionnaire confirmed this prediction. During the semi-structured interview with the respondents, 3 (out of 9) of them gave the positive response to question one (among the

seven categories of the Baldrige model for TQM, which category (or categories) has been implemented in the university?). However, 3 respondents explained that

> *"The vice-chancellor for the education does the student performance (passing rate, student attendance rate, achieving national prizes, etc) every year."*

One respondent (faculty) stated that basically there is no need to measure university performance. The position of the university in the region, type of individual appointed for high ranking posts, reflects this reality that why university performance or the satisfaction rate is low. Moreover, through the asking question two (Has customer satisfaction been met/ achieved by the university top management?) which 6 respondents (out of 9) had negative answer, and the findings of questionnaire in terms of faculty, staff, and student's satisfaction was confirmed. The researcher was keen to find out why the satisfaction rate is low. In the interview, one of the respondents stated that

> *"University results in all fields (financial, satisfaction, student performance, etc) are not announced annually and so can not be straightforwardly mentioned and evaluated by the faculty, staff, and students".*

B) Isfahan

The key findings regarding the organizational performance echo Tabriz findings as follows:

- Students' performance has sustained positive trends
- Faculty, staff, and student's satisfaction has not a positive trend

In the questionnaire there was a scoring around 44 (less than the middle of the four points on the Likert scale) for the statements regarding the employee's satisfaction. Now the question is, despite the very low score of this category in all aspects why students' performance has sustained positive trends as mentioned above as a key finding of this category. By reviewing the state *university entrance* examination system (known as the Konkur and is a standardized and centralized test used as a major mean to gain admission to higher education), which is very difficult phenomenon, it is concluded that very talented and high IQ students study at the universities and therefore their progress is somehow regardless of the managerial and educational system. It should be noted that the potential of the students with respect to *their* ability to benefit from private study are very high and in an appropriate system their progress will be highly significant and considerable.

During the semi-structured interview with the respondents, 3 (out of 9) of them gave the positive response to question one (among the seven categories of the Baldrige model for TQM, which category (or categories) has been implemented in the university?). However, 4 respondents expressed their satisfaction on the educational management for faculty and student performance. They clearly explained that there is a standard method of evaluating *teaching* effectiveness and is done every year. They added the similar method applied for students in different aspects (e.g. passing rate, student attendance rate, achieving national prizes). Moreover, through the asking question two (Has customer satisfaction been met/ achieved by the university top management?) which 5 respondents (out of 9) had negative answer, and the findings of questionnaire in terms of faculty, staff, and student's satisfaction was confirmed. However, in answer to the researcher question to explain why, it was concluded that the university suffers from an organised information system (in terms of financial, satisfaction, student performance, etc) which had been also achieved from Tabriz respondents.

In the literature review, the relationships between TQM practices and organizational performance have been addressed in several studies (Salaheldin, 2009; Sila, 2007). They indicated a positive association between TQM practices and improved performance. In other words, the results of those studies demonstrated the crucial role of TQM practices in enhancing the organizational performance. Moreover, Lawrence and McCollough (2001) mentioned the importance of the organizational results and suggested a system to accommodate the results of multiple stakeholders at short term, medium term, and long term. Katzenbach and khan (2010) in their book widely discussed that In order for an organization to implement TQM it is necessary for the organization to receive involvement from all their employees. Most successful organizations have realized that when they become involved in team building and employee motivation increases and organizational results are achieved. They concluded that organizational results achievement is in direct relation with commitment management, participation of all employees and particularly their satisfaction.

5.6.7.1 Hypothesis of impact of OR category on other categories

The correlation coefficient among different categories is very important and can explain the impact of one category on the other categories. So, In order to show the impact of OR category on the other categories, a correlation matrix for Spearman's correlation coefficients between OR and other categories (variables) was created (Tables 5.70 and 5.71).

Table 5.70: Spearman's correlation results for impact of OR category on the other categories in Tabriz

OR category correlation with other categories		L	SP	Student	IA	FS	EM	OR
OR	Correlation Coefficient	.645(**)	.596(**)	.407(**)	.497(**)	.530(**)	.567(**)	1
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.000	.
	N	74	74	74	74	74	74	74

** Correlation is significant at the 0.01 level (1-tailed).

For TUMS, The Spearman's correlation of OR category with L (leadership), Strategic planning (SP), Student, Information and Analysis (IA), Faculty and Staff (FS), and Educational and support process Management (EM) categories are 0.645, 0.596, 0.407, 0.497, 0.530, and 0.567 respectively. As the correlation coefficient over 0.60 is defined as excellent correlation, hence, the correlation of this category with Leadership (L) is highly significant. The relationship of this category with other five categories is less than 60%. Meanwhile the correlation of this category with strategic planning (SP) is very close to 0.60. Overall, the correlation results indicated that by improving this category, a considerable improvement takes place at the leadership and strategic planning respectively.

Table 5.71: Spearman's correlation results for impact of OR category on the other categories in Isfahan

OR category correlation with other categories		L	SP	Student	IA	FS	EM	OR
OR	Correlation Coefficient	.545(**)	.569(**)	.623(**)	.470(**)	.421(**)	.315(**)	1.000
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.003	.
	N	75	75	75	75	75	75	75

** Correlation is significant at the 0.01 level (1-tailed).

In the case of IUMS, the Spearman's correlation of OR category with L (leadership), Strategic planning (SP), Student, Information and Analysis (IA), Faculty and Staff (FS), and Educational and support process Management (EM) categories are 0.545, 0.569, 0.623, 0.470, 0.421, and 0.315 respectively. The correlation of this category with student category is highly significant. The relationship of this category with L and SP categories is very close to 0.60 and significant. Meanwhile the correlation of this category with EM is low. Overall, the correlation results indicated that by improving this category, a considerable improvement

takes place at student performance and satisfaction together with leadership and strategic planning of the university.

However, comparing the results obtained from different categories in Tabriz and Isfahan showed that Leadership category has a significant correlation with all other categories. The correlation of Faculty and Staff category with other categories is the second highest significant. So, it is concluded that without improving these two categories (L and FS), the improvement and successfully implementation of TQM at the university level would not be feasible. By looking deeply inside these two categories, it is deduced (understood) that for the Leadership category, senior leaders election and appointment system, considering the faculty, staff and students' views in the evaluation, commitment of the senior leaders to the values defined in the strategic planning, and providing the sufficient financial and human resource should be revised and improved.

For the FS category, training, and satisfaction is very essential. However, the university should create a safe, friendly environment for individual faculty and staff. Also the university should have a clear process for recruiting faculty and staff, evaluate their performance, develop training plans for the faculty and staff, and utilise the knowledge from retiring faculty and staff. The Spearman's correlation results for impact of all seven categories on each other in TUMS and IUMS were brought in the Appendixes 14 and 28 respectively.

5.6.8 Mean scores of seven categories

For clear and better comparison, the mean scores of each category of Baldrige model by four different respondent groups in TUMS and IUMS are summarised in Tables 5.72 and 5.73 respectively.

Table 5.72: Mean scores of seven categories by four different respondent groups in TUMS

Category	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean % total
Leadership	47.29	44.36	46.12	60.20	**47.34**
SP	46.00	41.87	41.85	58.93	**44.88**
Student	41.60	39.47	40.00	58.57	**42.16**
IA	43.57	41.73	45.34	58.16	**45.03**
FS	51.87	44.08	44.16	65.18	**48.73**
EM	50.40	46.58	42.83	59.29	**47.90**
OR	43.20	40.00	41.09	56.07	**42.94**

Table 5.73: Mean scores of seven categories by four different respondent groups in IUMS

Category	Mean % Faculty	Mean % Staff	Mean % Student	Mean % Manager	Mean % total
Leadership	50.84	51.67	52.73	71.05	**51.88**
SP	52.42	46.60	47.90	52.76	**48.08**
Student	42.65	47.98	40.87	51.22	**43.42**
IA	45.80	49.86	43.23	53.02	**46.37**
FS	51.55	55.33	52.33	57.24	**52.22**
EM	52.91	53.31	44.15	55.79	**49.41**
OR	44.12	48.80	46.43	55.39	**46.73**

However, Tables 5.72 and 5.73 clearly indicate that most of three main respondent groups including faculty, staff, and student (particularly in Tabriz) gave the scores lower than 50 indicating that from these main groups, the TQM programmes have not been successfully implemented at these universities and the satisfaction has not been met.

5.7 Interview findings from third question (last question)

After all questionnaires were collected, a primary and quick analysis was done on all seven categories. It was postulated if the respondents did not totally agree with the statements in relation with the TQM implementation, which factor(s) or barriers would be against successful TQM implementation. Determining the barriers will help the researcher to propose and recommend a convenient TQM plan for the MSUs. Therefore, the researcher conducted a semi-structured face-to-face interview with 18 respondents (each university 9 respondents) participated in the questionnaire stage. The main reason for selecting these interviewees is to have valid findings, since they answered the questionnaire's questions and are required to explain their Reponses. Moreover, they were well oriented for the interview because of pre-awareness of the research objective in the questionnaire stage. So, each interviewee was asked to answer third (last) question (**What are the main difficulties (barriers) that limit the TQM implementation at the university?**). The results of the interviews of TUMS and IUMS were shown in the Tables 5.74 and 5.75 respectively.

Table 5.74: The interview results for barriers of TQM implementation in TUMS

No	TQM barriers	Frequency	%
1	Lack of participative management.	7	78
2	Lack of intention (commitment) of managers to TQM	6	67
3	poor communication among the managers, departments, customers (faculty, staff, students)	6	67
4	Lack of management adequate duration (short term managers) for TQM programs	5	55
5	Lack of review and feedback by the managers for continued improvement	5	55
6	Managers are multi jobs	5	55
7	Financial problems of the staff and lack of interest in participating TQM training and programs (they have to work extra time)	5	55
8	lack of customer focus (satisfaction)	5	55
9	Non accountability of the mangers to the ministry in terms of TQM implementation	4	44
10	Lack of organizational culture in terms of team working	4	44
11	Other universities are not compared and benchmarked	4	44
12	Lack of transfer of TQM to all fields	3	33
13	Employees are not trained well in problem identification, problem solving and quality improvement skills	3	33
14	Administrative corruption	3	33
15	Inadequate financial and budgeting resources for TQM	2	22
16	Employees are resistant to change	2	22
17	Inability to change organizational cultures	2	22

Through the semi-structured interview in TUMS, it is shown that the respondents indicated that TQM obstacles vary in different factors. “Lack of participative management” was the most frequent (7 out of 9) factor in the interviewee’s answer. However, “Lack of intention (commitment) of managers to TQM” as well as “poor communication among the managers, departments, customers (faculty, staff, and students)” were scored as the second most frequent (6 out of 9). Meanwhile, “Inadequate financial and budgeting resources for TQM”, “Employees are resistant to change”, and “Inability to change organizational cultures” with a frequency of 22% (2 out of 9) were the least frequent factor in the interviewee’s answers.

Table 5.75: The interview results for barriers of TQM implementation in IUMS

No	TQM barriers	Frequency	%
1	Managers are multi jobs	7	78
2	Lack of intention (commitment) of managers to TQM	6	67
3	Lack of participative management.	6	67
4	Financial problems of the staff and lack of interest in participating TQM training and programs (they have to work extra time)	6	67
5	Lack of management adequate duration (short term managers) for TQM programs	6	55
6	Non accountability of the mangers to the ministry in terms of TQM implementation	6	67
7	poor communication among the managers, departments, customers (faculty, staff, students)	5	55
8	Lack of review and feedback by the managers for continued improvement	5	55
9	Other universities are not compared and benchmarked	5	55
10	Lack of organizational culture in terms of team working	4	44
11	Lack of time for TQM	4	44
12	Administrative corruption	4	44
13	lack of customer focus (satisfaction)	4	44
14	Lack of transfer of TQM to all fields	3	33
15	Employees are not trained well in problem identification, problem solving and quality improvement skills	3	33
16	Employees are resistant to change	3	33
17	Inadequate financial and budgeting resources for TQM	2	22
18	Inability to change organizational cultures	2	22

Similarly in the Isfahan, semi-structured interview results showed that the respondents indicated that TQM obstacles vary in different factors. “Managers are multi jobs” was the most frequent (7 out of 9) factor in the interviewee’s answer. However, “Lack of intention (commitment) of managers to TQM”, “Lack of participative management”, “Financial problems of the staff and lack of interest in participating TQM training and programs (they have to work extra time)”, “Lack of management adequate duration (short term managers) for TQM programs”, and “Non accountability of the mangers to the ministry in terms of TQM implementation” were scored as the second most frequent (6 out of 9). Meanwhile, “Inadequate financial and budgeting resources for TQM”, and “Inability to change organizational cultures” with a frequency of 22% (2 out of 9) were the least frequent factor in the interviewee’s answers.

Discussion
A) Tabriz

The high rates of the manager factor related questions once again reveal the key and important role of the leadership for the implementation of the TQM in the MSUs which was earlier concluded from the leadership category. Meanwhile, the low frequency for financial, resistance to change, and organizational factors indicate that by implementing a suitable TQM program, the employees likely do not show resistance to change and organizational culture will change smoothly towards the TQM. Moreover, it is to be noted that the financial and budgeting resources are not considered as barriers to TQM implementation. This result is in line with the results obtained through the questionnaire from the leadership category in this regard (statement 5) and strategic plan category (statement 12) which suggested that the university has no serious problem in terms of financial resources.

From this interview, it can be comprehended that the obstacles against successful TQM implementation are almost similar amongst organizations from different parts of the world. However, there are also differences in the said hindrances. Some researches stated that very little resource has been allocated for TQM implementation but at this research it was revealed that the financial and human resources are not the main concern. Moreover, the interview provided three new factors which impede successful implementation of TQM in TUMS. Theses factors are:

- Managers are multi jobs
- Financial problems of the staff and lack of interest in participating TQM training and programs (they have to work extra time), and
- Non accountability of the mangers to the ministry in terms of TQM implementation.

B) Isfahan

The results obtained from the Isfahan are very close to those of Tabriz in terms of high rate and low rate factors, being in line with results obtained from the questionnaire, similarity of the obstacles against successful TQM implementation in organizations from different parts of the world, as well as providing the new factors which impede successful implementation of TQM in TUMS. However, beside the three factors introduced in the TUMS, the fourth factor (Lack of time for TQM) was provided in the Isfahan interviews.

Regarding the first factor which has a high frequency (5 out of 9) it is to be noted that because of the nature of MSUs, most of the managers are clinicians and work at private or

university clinics. The general view (with some exception) is “first priority is clinic job and second one is management”. Moreover, it is believed that the clinical job is permanent but managerial task is temporary and then conclude that they need to look after the permanent job. So, there is no more time to devote for basic and important managerial issues such as TQM even if they intend to.
Regarding the second factor, it should be stated that as a fact, Staffs in the university usually work extra time in private or the university sectors. The range of the staff salary is low in which push them for the extra work.

Thirdly, it seems that if the ministry assesses the universities in terms of TQM implementation, the managers motivate themselves to participate in the TQM activities, try to change the organizational culture toward the TQM.
Finally, regarding the fourth factor, as mentioned earlier, Iran experienced the separation of medical sciences courses from non medical ones and established the new universities so called Medical Sciences Universities (MSUs) under supervision of ministry of Health and Medical Education in 1985. So, the senior managers of the university have responsibilities for either the education or health and treatment of the province. These wide ranges of the responsibilities limit them to allocate their times to many issues including TQM.

Although, the researcher, could not find the “administrative corruption” as a main obstacle to successful implementation of TQM among the published TQM articles but as a fact it is to be noted that corruption is a universal phenomenon not only in the developing countries but also in the developed countries. Meanwhile, in developing countries, corruption is considerably highlighted and destroys much needed trust in the governments’ bodies including ministries and universities. So, in the Iranian universities, as a developing country, this barrier should be taken very serious in order to improve and promote university’s faculty, staff and students trust in the senior leaders and consequently to participate in TQM programs.

It can be extrapolated that the remedies that have been used in overcoming the barriers can be considered as critical factors to successful implementation of TQM. For example any remedy to apply for” lack of participative management” will result in active participative management. So the “participative management” is envisioned as important and critical factor for the successful implementation of TQM in the university.

The literature review reflects main difficulties (barriers) that limit the TQM implementation. Bhat and Rajashekhar (2009) did a survey in relation to the most important TQM barriers in Indian organizations. They concluded that the main barriers were found to be lack of benchmarking and employee's resistance to change. They suggested that organizations should understand that benchmarking is a tool used to identify their strengths and weaknesses compared to the best in their class. They mentioned that employee resistance can be overcome by proper training and by involving the employees in the planning and implementation phases of TQM. Finally they stated that an inadequate resource was an obstacle for successful TQM implementation.

Sebastianelli and Tamimi (2003), in their study, found several factors working against TQM implementation. The major barriers cited by samples were:

- inadequate human resource development and management;
- lack of planning for quality
- lack of leadership for quality
- inadequate resources for TQM; and
- lack of customer focus

In the US, Salegna & Fazel (2000) surveyed the obstacles faced by TQM organizations. The results showed three major obstacles facing TQM organizations. These are insufficient of time, poor communication and lack of real employee empowerment. In addition, Masters (1996) found the following contributing factors leading to ineffective TQM implementation:

- Lack of management commitment
- Weak comprehension of quality management
- Inability to change organizational cultures
- Lack of accuracy in quality planning
- Absence of continuous training and education
- Insufficient resources.

Shaari (2010) in his very recent published paper explained some barriers to successfully TQM implementation. He discussed on some common barriers but his findings revealed that

three important factors working against TQM implementation in Malaysia. Theses factors are:

- Lack of employees‟ understanding on TQM concept and in definition.
- Lacking sense of unity and loyalty to the organization.
- Employees being the main factor for difficulties implementing.

Lakhe and Mohanty (1994) pointed out that many organisations in developing countries were facing difficulties with the following problems and, hence, their ability to adopt TQM was limited:

- lack of employee involvement and participation in quality improvement efforts
- lack of management commitment and motivation
- perception that quality is the optional extra and not a necessity for development
- traditional belief that "quality costs money"
- lack of communication and trust between suppliers, dealers, management and trade unions
- unorganised, indifferent customers
- lack of political support
- lack of established quality standards and inadequate test facilities
- obsolete technologies and
- low level of education.

In addition to the previous barriers, Iran and the neighbouring countries faced many obstacles and difficulties with TQM implementation. As Al-Zamany et al. *(*2002) said in their study, several organisations in the Middle East have not operated as commercial organisations because of the diverse forms of government intervention. Evidence has shown that there is poor knowledge of the key components which influence the process of TQM implementation and the way these components should be addressed and managed (Al-Marri et al., 2007). Dairokuno (2007) argued that not only in the developing countries but also in the developed countries, there have been strenuous efforts to eliminate corruption. It is important not only because corruption often times stifles efforts to achieve efficient economic development in developing countries, but also because it destroys much needed trust in the governments regardless of the level of development. He added that in recent years, the eradication of corruption has become an issue of top priority. Although Osuagwu (2002) in his article did

not name the corruption as TQM barrier but implicitly stated that the corruption is one of the main factors caused failed attempts at implementing a TQM strategy in Nigeria. In his opinion other main variables implicated in such failures are: an over-reliance on statistical methods; an under-reliance on statistical methods; the bureaucratisation of TQM efforts; the failure to recognise the relationship between TQM objectives and increased employee involvement and participation; failure to integrate major organisational functions into TQM activities, among others.

5.8 Statistical comparison of TUMS with IUMS

At this chapter, two universities were compared in terms of results under data analysis and discussion of each category as well as results obtained from the two hypotheses. In order to find out how close these two universities are to each other and also in order to achieve better finding and conclusion of the field works, the results obtained from Tabriz and Isfahan universities were statistically compared. This comparison also gives a better impression to the researcher that the fields chosen from two different parts of the country (from North West and Central) were the right samples and represent the whole MSUs.

5.8.1 Comparison of Mean scores of Baldrige seven categories of TUMS and IUMS

The mean scores of each university at the seven categories are summarised in Table 5.76.

Table 5.76: Means scores comparison of TUMS and IUMS in terms of Baldrige seven categories

	University	N	Mean	SD
L	**TUMS**	**74**	**47.0560**	**11.72437**
	IUMS	75	51.8819	13.17476
SP	**TUMS**	**74**	**45.4392**	**11.72784**
	IUMS	75	48.0771	14.46532
Student	**TUMS**	**74**	**42.2297**	**12.05416**
	IUMS	75	43.4248	13.43684
IA	**TUMS**	**74**	**44.9324**	**10.96425**
	IUMS	75	46.3657	11.96917
FS	**TUMS**	**74**	**49.4088**	**12.33491**
	IUMS	75	52.2233	11.85498
EM	**TUMS**	**74**	**48.2432**	**12.69863**
	IUMS	75	49.4107	15.02918
OR	**TUMS**	**74**	**43.0068**	**10.90102**
	IUMS	75	46.7352	14.28827

The mean scores of seven categories in two universities were compared using Mann Whitney U test. The Mann–Whitney U test (also called the Mann–Whitney–Wilcoxon test) is a non-parametric statistical hypothesis test for assessing whether two independent samples (in our case two universities) of observations have equally large values. It is one of the most well-known non-parametric significance tests. . If the P≤0.05, the difference is said to be significant.The results obtained indicated that there is no significant difference between TUMS and IUMS in this regard (P>05.0). The results of Mann Whitney U test is shown in Table 5.77.

Table 5.77: Mann Whitney U test results of TUMS and IUMS

	L	SP	Student	IA	FS	EM	OR
Mann–Whitney U	2094.500	2292.500	2562.000	2476.500	2325.000	2521.000	2212.500
Wilcoxon W	4869.500	5067.500	5337.000	5251.500	5100.000	5296.000	4987.500
Z	−2.592	−1.845	−.814	−1.139	−1.715	−.972	−2.145
Asymp. Sig. (2–tailed)	.060	.065	.415	.255	0.076	.331	.062

5.8.2 Comparison of the occupation of the respondents at TUMS and IUMS

A *comparison* was made of the occupational data on the respondents of two universities. Since the managers are selected among the faculties, so the occupation is divided into three groups of Faulty, Staff, and Student. The number and percentage of each occupational group are summarised in Table 5.78.

Table 5.78: comparison of respondents' occupation at TUMS and IUMS

			Occupation			
			Faculty	Staff	Student	Total
	TUMS	Count	32	19	23	74
		Percent	43.2%	25.7%	31.1%	100.0%
	IUMS	Count	28	23	24	75
		Percent	37.3%	30.7%	32.0%	100.0%
Total		Count	60	42	47	149
		Percent	40.3%	28.2%	31.5%	100.0%

As mentioned earlier the chi square test is used to test a distribution observed in the field against another distribution determined by a hypothesis. The hypothesis is that there is a difference between occupational data of two universities. The results were presented in the Table 5.79.

Table 5.79: Chi square test for occupational data of TUMS and IUMS

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.527(a)	2	.768
Likelihood Ratio	.527	2	.768
Linear-by-Linear Association	.088	1	.766
N of Valid Cases	149		

If the P≤0.05, the difference is said to be significant. The results obtained from the chi square test showed that there is no significant difference between two universities in terms of occupational data (P=0.76). The corresponding Bar Chart is shown in Figure 5.5.

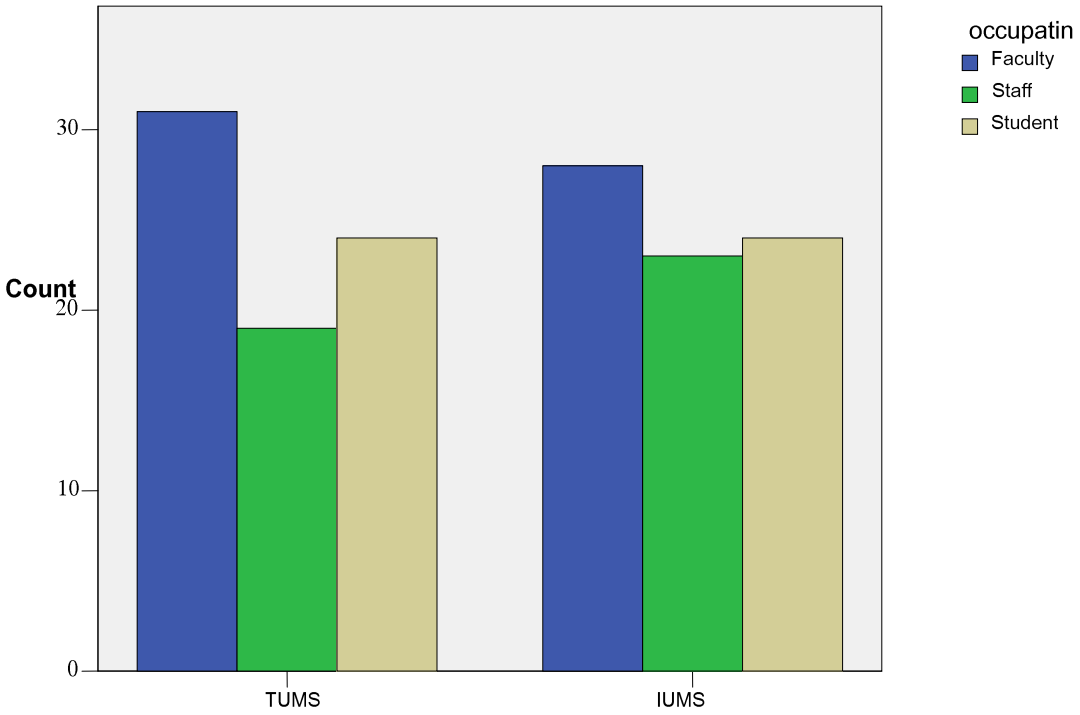


Figure 5.5: Bar Chart of different groups of respondents in term of occupation in TUMS and IUMS

5.8.3 Comparison of the age of the respondents at TUMS and IUMS

Similarly, using the above mentioned method the results showed that there is no significant difference between two universities in terms of age data (P=0.77). The results were presented in the Table 5.81. The number and percentage of each age group is as follows (Table 5.80):

Table 5.80: Comparison of respondents' age at TUMS and IUMS

			Age				
			20 -30	31 - 40	41 - 50	>=51	Total
	TUMS	Count	26	18	28	2	74
		Percent	35.1%	24.3%	37.8%	2.7%	100.0%
	IUMS	Count	27	22	23	3	75
		Percent	36.0%	29.3%	30.7%	4.0%	100.0%
Total		Count	53	40	51	5	149
		Percent	35.6%	26.8%	34.2%	3.4%	100.0%

Table 5.81: Chi square test for age data of TUMS and IUMS

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.102[a]	3	.776
Likelihood Ratio	1.105	3	.776
Linear-by-Linear Association	.132	1	.716
N of Valid Cases	149		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 2.48.

The corresponding Bar Chart clearly shows that the over 50 year old respondents are in minority (Figure 5.6).

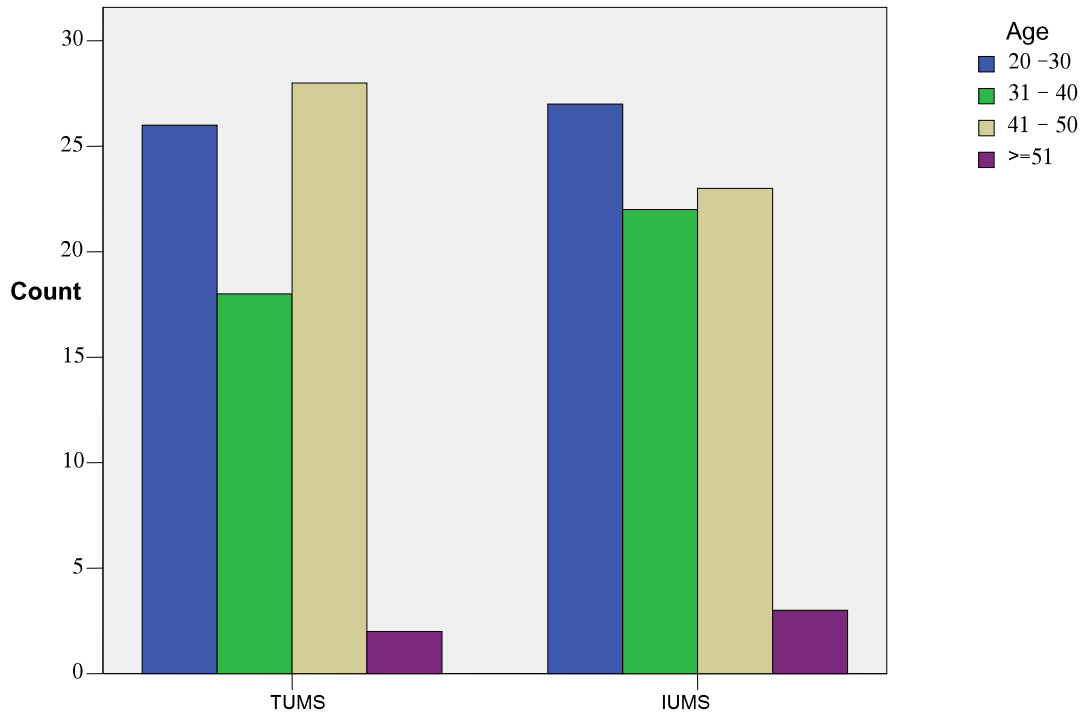


Figure 5.6: Bar Chart of different groups of respondents in term of age in TUMS and IUMS

5.8.4 Comparison of the gender of the respondents at TUMS and IUMS

The number and percentage of each gender group is summarised in Table 5.82.

Table 5.82: Comparison of respondents' gender at TUMS and IUMS

			Gender		
			Male	Female	Total
	TUMS	Count	41	33	74
		Percent	55.4%	44.6%	100.0%
	IUMS	Count	39	36	75
		Percent	52.0%	48.0%	100.0%
Total		Count	80	69	149
		Percent	53.7%	46.3%	100.0%

As the near 62% of TUMS whole population and near 58% IUMS whole population are males, so, it seems that the distribution of the questionnaires was carried out randomly reflects the whole population of the universities from gender points of view.
The results (using the same above mentioned method) is summarised in Table 5.83.

Table 5.83: Chi square test for gender data of TUMS and IUMS

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.174 [b]	1	.677
Continuity Correction[a]	.064	1	.801
Likelihood Ratio	.174	1	.677
Fisher's Exact Test			
Linear-by-Linear Association	.173	1	.678
N of Valid Cases	149		

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected co ıt is 34. 27.

If the P≤0.05, the difference is said to be significant. The results showed that there is no significant difference between two universities in terms of gender data (P=0.677). The Figure 5.7 shows the distribution of female and male in TUMS and IUMS.

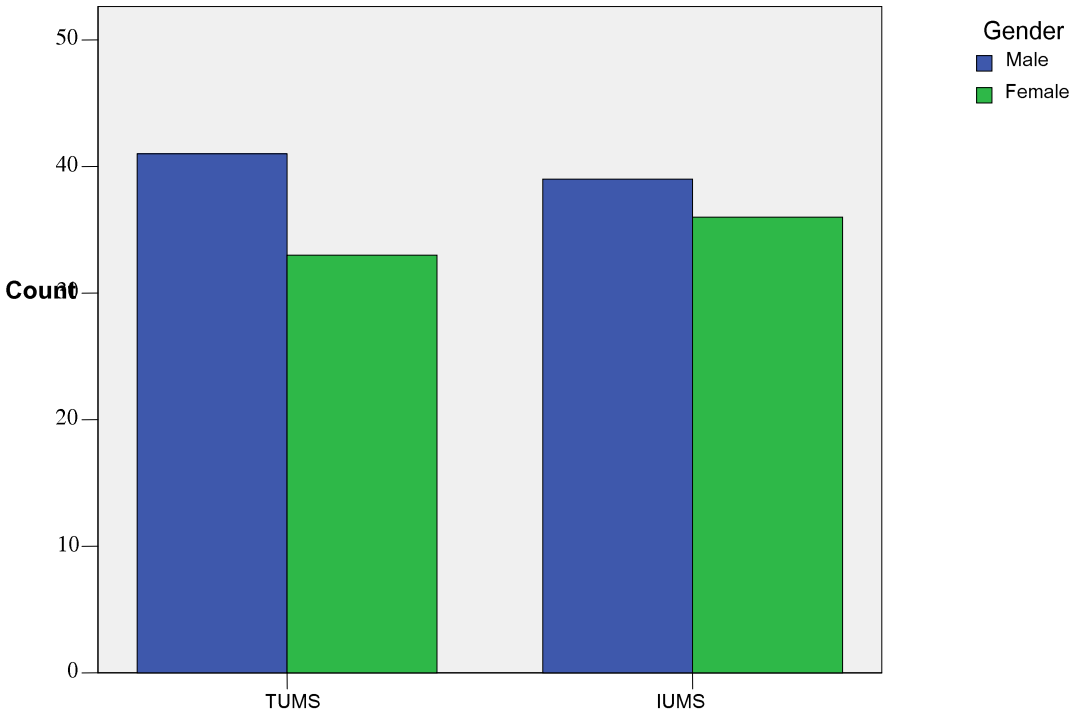


Figure 5.7: Bar Chart of different groups of respondents in term of gender in TUMS and IUMS

5.9 Summary

This chapter has presented and analysed the findings of the data collected by questionnaires and semi-structured interviews. The descriptive analysis of the data is the first statistical technique used to provide a summary of the respondents' characteristics in terms of occupation, age, gender, and number of participants using means, frequencies and standard deviation. Multiple regressions is another statistical analysis which was used to produce the adjusted SD, F and P values that were advantageous for testing the hypotheses. Spearman's correlation used to test the relationship between the Baldrige TQM categories. The Kruskal-Wallis test is the other statistical techniques used in the present study to show if there is a difference among the 4 main groups of respondents. The data obtained from the interviews was processed and analysed by using the thematic analysis approach in order to explain and support the results that emerged from the questionnaire followed by a discussion of the results of the findings analysis.

The study also aimed to achieve the research objectives and questions through the Baldrige seven educational categories. The educational categories are: leadership, strategic planning, students focus, Information and Analysis, faculty and staff focus, educational and support process management, and organizational performance results. The results revealed that:

1) Despite the fact that the current state of the TQM practice in the university in terms of seven Baldrige educational categories is lower, but it seems the university has started improving in some area. For example, Faculty and staff focus (FS), and educational and support process management (EM) with the means of very close to the middle indicate a hope for progress in the university.
2) Basically the university was not successful in implementation of the TQM programs
3) Four new TQM implementation impediments including a) managers are multi jobs b) financial problems of the staff and lack of interest in participating TQM training and programs, c) non accountability of the mangers to the ministry, and d) lack of time for TQM implementation were identified together with some word wide ones which are totally 18 barriers. It can be extrapolated that the remedies that have been used in overcoming the problems can be considered as critical factors to successful implementation of TQM.

4) In addition, there is an impact of seven categories on each one separately. Also, it is found that the government (the ministry) policy acts as an encouraging factor to implement TQM successfully through the assessing the senior leaders of the university.
5) Finally, this study showed that there is no difference in their levels of views on Baldrige TQM model by male and female respondents.

Chapter 6

Conclusions, Contributions and Recommendations

6.1 Introduction

This chapter provides an overview of this research. It gives a brief description of key findings and the discussion which emerged from chapter five. As a main aim of the research, investigation on TQM implementation in medical sciences universities of Iran is presented within this chapter. Also, this chapter presents the major contributions of the study and implications for research and practice. Then, some recommendations for TQM implementation in medical sciences universities of Iran are presented. Finally, the chapter outlines some reflections and limitations of the research.

6.2 Overview of the study

Total Quality Management (TQM) is a holistic philosophy because it comprises the entire organization. TQM is considered one of the most important approaches adopted by managers in recent decades to make their organizations more sustainable, competitive and profitable. The TQM in Higher Education (HE) started in the 1990s, as an individual movement in some universities in the USA and UK. Since then, the movement has gathered a lot of momentum and has begun to manifest itself globally. In 1998, education sector organizations first became eligible for application for the MBNQA which is administered through an active partnership between the government and the private sector in USA. This inclusion of the educational sector was in response to several national reports that indicated concern over the lack of progress in improving the quality of learning centres. It was not until 2001 that a university won the Baldrige Award. The clearly definition of quality in HE by the UNESCO states that quality in HE is a multidimensional concept, which should embrace all its functions and activities: teaching and academic programmes, research and scholarship, staffing, students, infrastructure and the academic environment.

Accompanying this, there has been a call for a total approach to quality improvement in universities. However, studies that have attempted to investigate TQM in HE organizations to demonstrate successful implementation are still significantly few particularly in developing countries.

This study adopts a total view and has reviewed a large volume of published studies relevant to TQM concerning many issues involved in the successful implementation. The initial approach identified from the literature was then explored in the field using the Baldrige education criteria as a framework, through an empirical investigation using a combination of questionnaire survey and interviews. The survey has attempted to assess the current implementation levels of TQM within MSUs using Baldrige seven categories. Through this type of investigation and following the focusing on barriers of TQM implementation in MSUs, the study proposed a generic model for TQM implementation in MSUs.

6.3 Conclusion (Key findings)

Based on the analyses as presented and discussed in chapter five, the following summary of the key findings and conclusions were derived. In order to make them clear, they are brought under the three objectives of the research.

6.3.1 Conclusion of objective one

The objective one of this study is **to assess the current state of TQM practices in the MSUs** which will be discussed in the following key points section as seven categories of the Baldrige model.

a. Leadership

Leadership and top management commitment to quality is the most important driving force that prompts TQM implementation. Integrating the major organizations' activities under the TQM umbrella with appropriate devotion of both time and resources and the need for top management participation and performance is a necessity. Moreover, the degree of physical participation of the senior leaders in implementing the TQM programs is considered as a critical element in the organizational success. In the sample study and generalization of the results obtained from this category, it provides the following significant conclusions.

- It seems that there is no serious problem in terms of financial and human resources for TQM programs.
- From customers points of view, that applying the TQM program should be considered properly by the senior leaders.
- There is a progressive trend (at early stages) of the managerial system at the Universities for TQM programs.

● The vast majority of general managers and TQM managers in universities are aware of the significant role that the commitment of top management could play in implementing TQM factors in their organizations.
● the leadership was highly correlated with other categories and hence by improving this category there will be a positive impact on other categories.
● Overall it seems that customers are not highly agree with the leadership towards the TQM program.

b. Strategic planning

Strategic plan is an important element for successful implementation of TQM at organizations. Strategic plan takes the vision and values outlined in the organization's philosophy and turns these principles into long-term goals. Successful TQM strategies identify specific results which the organization wants to achieve. Field study at Iranian universities revealed the following significant findings and conclusions:
● Participants are well aware of the value and important role of strategic planning for successful implementation of TQM in the universities.
● The financial and human resources issue can not be a main problem to implement the TQM at the MSUs.
● There is a significant correlation between SP and other categories particularly leadership as well as customer (faculty, staff, and student) satisfaction which implies that with improving this category, the whole university will benefit from TQM programs.
● The results and the analysis indicate the lack of strategic plan in the universities and showed the respondents' disagreement to the statements in relation with the Strategic plan towards the TQM program in MSUs.

c. Student focus

Students are customers as well as product of HE institutions. In the TQM and higher education customer satisfaction is considered as the ultimate reason for TQM philosophy implementation. A satisfied student is an important factor for successful organizations. The student is at the centre of any educational system. The higher education decision-makers should place students and their needs at the centre of their concerns, and consider them as major partners and responsible stakeholders in the renewal of higher education.

● One of the critical results of this study, which has emerged from the findings and discussions of this category, is the inappropriate organisational intention to student focus in MSUs.
● Student focus is not an isolated category and has a significant correlation with other categories particularly IA, faculty and staff satisfaction, and SP.
● Based on the results and analysis, if student focus is neglected, it will have a negative impact on the implementation of TQM in MSUs.

d. Information and Analysis

Information technology could be an enabler in the drive for TQM success and continuous improvement. The use of information and analysis system in quality management can also improve quality performance of the employees. The facts and information should be made available to all. Summarizing the keys findings shows that:

- IA is considered as an important TQM factor in the MSUs in terms of collecting and distribution of the data and analysis.

- The Universities have an interest in making comparisons against other universities for improving their performance.

- This category has a very significant correlation with Leadership and therefore, it is expected that by enhancing this category, the leadership will be improved and consequently the university will benefit from TQM programmes.

e. Faculty and Staff focus

Employees are main part of the organizations. They should be encouraged to control, manage and improve the processes that are within their responsibility. Implementing employees' suggestions and introducing them into the organizations' strategies has a positive impact on TQM implementation. Organizations should support their employees' training and education to ensure that they had a general awareness and understanding of quality management concepts. Without training it is difficult to solve problems and, without education, behaviour and attitude change will not take place.
The summary of the findings related to FS focus indicates that:

● Most universities provide education and training programs for the faculty and the staff with good priority and attention, and successfully evaluate their education and teaching performance. However, there is a lack of understanding of the value of empowering the employees' suggestions and engaging them in the universities' decision making.

● The Universities have a centre to evaluate faculty and staff education and teaching performance.

● Based on the results, there is a relative agreement on the FS category at MSUs.

● The correlation of this category with Educational and support process management (EM) is the ever highest and very significant. Meanwhile, there is no indication of the universities to guide the faculty and staff work processes to be in line with the strategic plan.

● Vast majority of Iranian universities are aware of the meaning and the value of FS satisfaction. But, it is concluded that this satisfaction exists in the universities with low consideration.

f. Educational and support process management

Process is series of actions or operations conducing to an end. Process transforms measurable inputs into measurable outputs under a value-adding operation. Process management applied in a university setting is highly important in order to achieve university aims.

The key findings regarding EM are:

● There is no serious problem in terms of financial and budgeting resources for EM programs.

● The analysis shows that the EM category has the significant correlation with most of the categories.

● The MSUs are more likely to have no adequate indication to implement and manage EM processes.

● The results indicate that there is not a disagreement on the statements in relation with the EM towards the TQM program in Iranian universities.

g. Organizational performance results

TQM practices have a crucial role in enhancing the organizational performance results. Organizational results achievement is in direct relation with commitment management, participation of all employees and particularly their satisfaction. The key findings regarding the organizational performance indicate that:

● Students' performance has sustained positive trends.

● Faculty, staff, and student's satisfaction has not a positive trend.

● The correlation results indicated that by improving this category, a considerable improvement takes place at student performance and satisfaction together with leadership and strategic planning of the university.

● The respondents' disagreement to statements in relation with the organizational performance results towards the TQM program in MSUs can be emerged from the survey.

6.3.2 Conclusion of objective two

The degree of progress of TQM implementation in the MSUs

One of the critical results of this study which has emerged is the degree of progress of TQM implementation in the MSUs. It can be concluded that TQM in MSUs in Iran are in the early stages and they need to increase and improve the managerial systems, diversity and quality of services, effectiveness competitiveness. The findings show that progressive steps (at early stage) of the managerial system at the Universities for TQM programs have been started and general managers as well as TQM managers in universities are well aware of the significant role of TQM factors in their organizations.

Moreover, most universities develop education and training plans in order to increase faculty and staff competency and performance. The results of this study indicate that this success is largely due to a highly organized and equipped educational development centre at most universities. It is concluded that progress of TQM implementation in MSUs in two categories of Leadership as well as Faculty and Staff is optimistic and in early stages but the universities have to take serious action towards improving these and other categories.

6.3.3 Conclusion of objective three

Barriers for a successful implementation of TQM at MSUs

There is clear evidence that there are a number of impediments and barriers which prevent implementation of TQM in MSUs in Iran. Among the 18 barriers found at this study (chapter five, Tables 74 and 75) it has been concluded that the most obstacles against successful TQM

implementation are almost similar amongst organizations from different parts of the world. However, lack of participative management, poor communication among the managers, departments, customers (faculty, staff, students), and lack of intention (commitment) of managers to TQM programs are considered to be the main impediments for TQM implementation in MSUs.

Moreover, the results indicate that four new factors impede successful implementation of TQM in MSUs. These factors are:

- Managers are multi jobs
- Financial problems of the staff and lack of interest in participating TQM training and programs (they have to work extra time)
- Non accountability of the mangers to the ministry in terms of TQM implementation and
- Lack of time for TQM implementation.

Although, the researcher, could not find the "administrative corruption" as a main obstacle to successful implementation of TQM, but as a fact it is to be noted that corruption is a universal phenomenon not only in the developing countries but also in the developed countries.. So, in the Iranian universities, as a developing country, this barrier should be taken very serious to improve and promote university's faculty, staff and students trust in order to participate effectively in TQM programs.

6.4 Presenting the proposed model

The model presented in this study will be more helpful to the top managements of HE institutions for providing the quality educational service to their customers as well as improvement in the delivery mechanisms not only for the technical institutions but also applicable to general and to the broadest area of higher learning in the academic field.

The proposed TQM model in HE for MSUs context has three elements: driving system, processing system and organizational results. Driving system is divided into two main drivers (1 and 2). Main driver 1 has three components: visionary and full time leadership, strategic plan, and quality centre. Main driver 2 consists of customer focus (faculty, staff and students). Processing system has five factors: information and analysis, faculty and staff training, all workforce participation, quality culture, and responsibility. Organizational results have four factors: student performance results, faculty and staff performance, financial and budgetary performance, and organizational effectiveness as brought in the questionnaire (Figure 6.1).

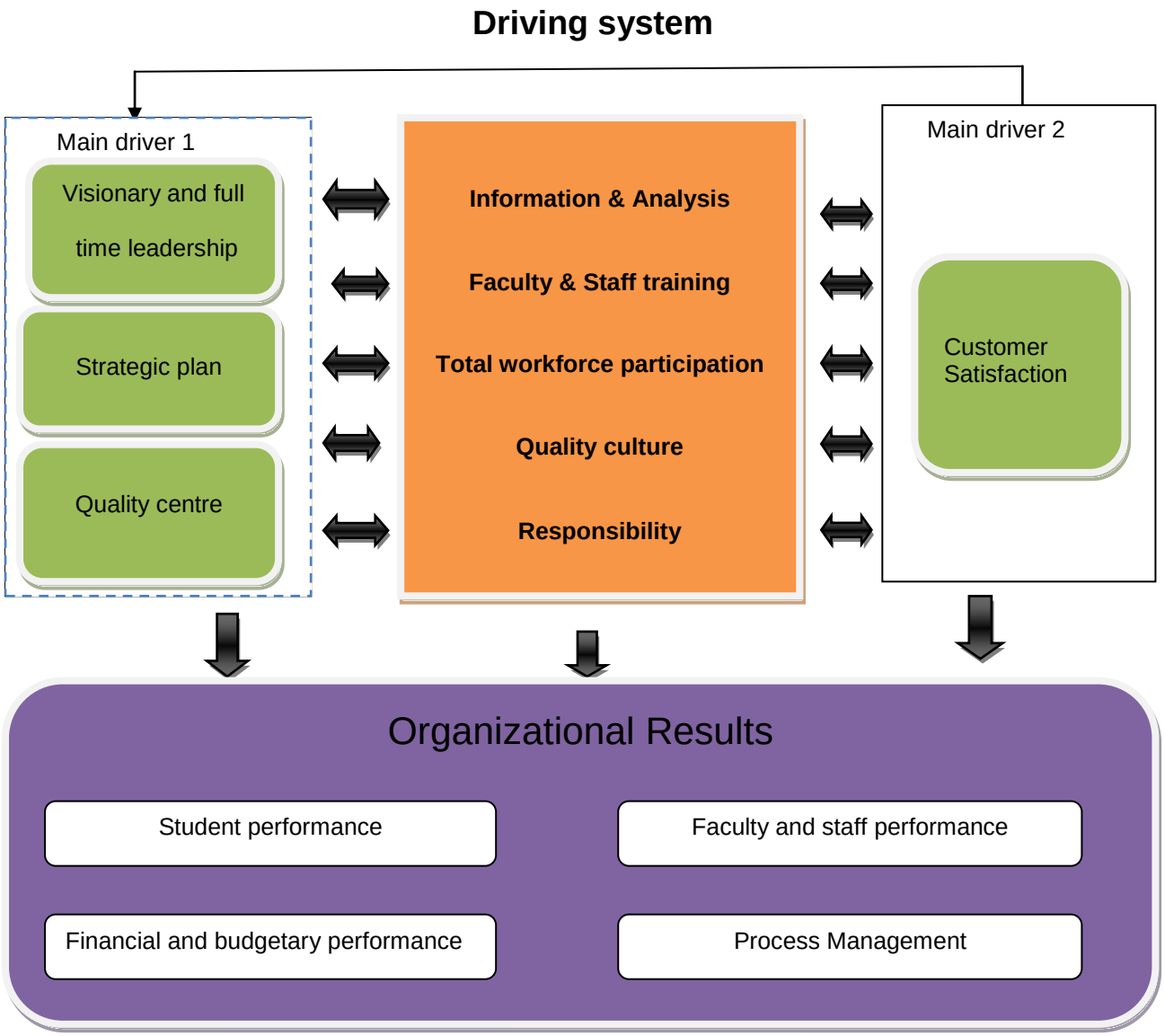


Figure 6.1: Proposed TQM implementation model

The assumption made in developing this model is that human and financial resources as well as the highly organised evaluation centres are the main advantage of TQM implementation within MSUs.

Basically, the assumption of the model is derived from the Baldrige model. In the Baldrige model Leadership (Category 1), Strategic Planning (Category 2), and Student, Stakeholder, and Market Focus (Category 3) represent the driving (leadership) triad. But in the proposed model, the Student, Stakeholder, and Market Focus (Category 3) factor of the driving system was replaced by Quality centre. The main reason for this replacement is that the results of the research indicated that vast majority of the respondents were happy about a centre called

EDC (Educational and development Centre) and mentioned that this centre successfully provides and develops training plans and continuously evaluate faculty performances (see discussions in page 194 and 195).

However, the findings that came from the data of this study revealed that there is an inappropriate organisational intention to customer focus and therefore, suggested the customer satisfaction as a new main driver (main driver 2) of the HE system which is integrated with the leadership (main driver 1). So, unlike the Baldrige model, the presented model benefits from two main drivers and provides a comprehensive basis for TQM implementation appropriate to MSUs.

Moreover, Faculty and Staff Focus (Category 5), Process Management (Category 6), and Results (Category 7) represent the results triad in the Baldrige model. In the HE organizations students along with the faculty and staff accomplish the work of the organization that yields the overall performance results. Therefore, in the presented model the student performance was added to the organizational results which does not exist in the Baldrige model. However, the results indicated that there is no serious problem in terms of financial recourses for TQM programs (see discussion in page 202) and they need to have a system to measure, compare, and evaluate the financial performance. Therefore unlike the Baldrige model, in the presented model financial and budgetary performance was added to the organizational results.

As it has been shown in the diagram, with effective main drivers, and successful process, the high quality of the organizational results will be achieved.

6.4.1 Driving system

Driving system is divided into two main derivers 1 and 2.

6.4.1.1 Main driver 1

Main driver 1 has three factors: Visionary and full time leadership, strategic plan, and quality centres.

Visionary and full time leadership: Understanding of the concept of TQM by visionary and also full time leadership is an important step before any stage of implementation particularly in developing countries. Visionary and full time leadership provides a continuous commitment by physically participation in quality committees, addressing organizational values, organizational learning, organizational directions, encouraging and motivating the employees, empowerment, and in general meeting the customer satisfaction.

Strategic plan: The university leadership has to design, maintain, and update the strategic plan including University goals, objectives, and action plans in order to strength university performance and competitiveness.

Quality centres: Vast majority of the MSUs have well organized educational development centres which are responsible for training, and evaluating of the university staff. They are very capable to create a quality centre within the same management level in order to support the TQM programs.

6.4.1.2 Main driver 2 (customer satisfaction)

The university should have approaches to determine short and long-term requirements, expectations, and preferences of its faculty, staff, and students as main customers and workforces. The university has to ensure support services and create an overall climate to learning, full participation, personal and institutional growth, and development for all faculty, staff, and students. By providing the above mentioned requirements, educational objectives and high performance will be achieved successfully.

6.4.2 Processing system

Processing system has four factors: Information & Analysis, Faculty & Staff training, Total workforce participation, and Quality culture.

Information & Analysis: The University should provide effective performance management system for measuring, analysing, and improving the faculty, staff, and students performances. For tracking overall organizational performance, and keeping a performance measurement system in line with the educational objectives, this factor can be considered a very important step towards the successful TQM implementation.

Faculty & Staff training: The University should support the employees' training and education to ensure that they had a general awareness and understanding of quality management concepts. Without training it is difficult to solve problems and, without education, behaviour and attitude change will not take place.

Total workforce participation: The important element of the successful TQM implementation is total participation. The university should realize that all work is performed through people. This includes senior mangers to employees as well as students. The university should make sure people are properly trained, capable, and actively participate in achieving organizational success. Management and employees work together to create an empowered environment.

Quality culture: Universities looking to implement TQM practices need to have an organizational culture that considers learning fundamental for the progress and development of the organization. Only with the proper organizational culture and environment, can TQM initiatives be successfully implemented. University senior leaders must have an explicit focus on the development and maintenance of their organizational culture.

6.4.3 Organizational results

Organizational has four important factors: Student performance, Faculty and staff performance, Financial and budgetary performance, and Organizational effectiveness.

Student performance: The University can use the students' performance in terms of student learning results. The results may include data indicating the performance at recent years. Demonstrating the improvements in students learning can be achieved through comparing them internally and externally.

Faculty and staff performance: The University should use faculty and staff –related results, including their performance, and satisfaction. By measuring these two important aspects and the appropriate feedback to them, the performance of the faculty and staff, and consequently the University will be raised.

Financial and budgetary performance: The University might use measures such as training and administration expenditure per, faculty, staff, and students. This is quite wide and can cover all levels of expenditure and might be different for any groups of faculty, staff, and students. Overall, the important thing in this regard is being a system to measure, compare, and evaluate the financial performance.

Process management: The University senior leaders should use the techniques of process management to develop the processes that are stable and capable of meeting customer expectations. They also need to improve the faculty, staff, and students' performances through providing the education climate, safe environment, responsiveness to its customers' needs and expectations, participating them in the university decisions, if they want to achieve the organizational effectiveness.

6.5 Personal learning

Prior to any implications and contributions of the present project to researchers and universities, the researcher picked up some important learning points that can shape the future of his vision from a management point of view. There are:

1) As mentioned earlier about the role of the researcher at the TUMS (see page 19), his background is natural sciences and therefore, he would rely on rigid evidence in order to prove or reject a hypothesis or a theory. What he learned through the present project is; in social sciences we need to be aware of the customer behaviour and reflection.
2) The researcher thoroughly learned that the TQM does bring problem solving techniques and continuous improvement opportunities in organizations by focusing on customer satisfaction.
3) The researcher fully understood how managers should manage and cooperate with the customers and how to make fruitful relationship with staff to run the organization successfully.
4) The researcher is now aware that "Management " needs to deal with issues like Management Commitment, Customer Satisfaction, Continuous Improvement, Process Management, Employee Involvement, etc that are aimed to manage the organization in a more holistic manner in the long term.
5) The researcher now knows that "team working" is not a dream, and this concept is regarded as one of the best solutions for resolving the problems the organization faces. The researcher appreciates that team working is a powerful management tool and is most effective when it is linked to the organizational strategy.
6) Finally the researcher learned that the TQM would be applicable in all organizations (small and big) as well as different countries (developed, developing etc).

6.6 Research Contributions

Since 1990s, the movement towards the application of TQM in Higher Education has gathered a lot of momentum and has begun to manifest itself globally. Some educational organizations got successful results, other did not. MSUs are attempting to improve TQM programs. This research provides a number of contributions to as an important first exploratory empirical study to target MSUs in Iran as follows:

- This research made an important contribution of higher education by investigation on TQM implementation model in Iranian MSUs (refer to 5.6 and 6.3.1)
- This research suggested a clear plan as a first study for putting the Baldrige model in practice at MSUs to attempt building a theory relating to TQM in Iranian universities (refer to 6.4).

● This study raises the awareness of the significance of TQM programmes as important, strategically and philosophically, which could help universities and all members of faculty, staff, and students to have a better understanding of how TQM could be effectively approached and implemented (refer to 6.3.2).

● This study integrates TQM in service and TQM in higher education.

● This research has further identified that effective Baldrige seven categories play a significant role in successful TQM implementation, an issue that is not well demonstrated in the literature. In the MSUs, this study is considered the first to investigate the role of these factors in the TQM practices in educational organizations (refer to 6.3.1).

● This study provided empirical evidence of the nature of the impact of the TQM categories on the universities' competitiveness, service quality, and effectiveness.

● Furthermore, this research revealed the current state of TQM practices in the MSUs and therefore provided a convenient context (bed) for improvement (refer to 6.3.2).

● Finally, This study identified the main barriers to successful TQM implementation for MSUs context (refer to 5.7 and 6.3.3).

6.7 Implication for Universities leadership

Successful implementation of TQM in the MSUs requires identifying the current situation in terms of YQM implementation, barriers against leading to success. TQM movement is a continuous process to excellence and therefore, the universities senior managers need to keep in account the personal and financial resources required for such a project.

Results and key findings of this research can be used, as a helpful and practical suggestions for the university senior managers that intending to improve their effectiveness and quality through the TQM programs. This research has provided the following implications:

● since managerial related barrier were identified as one of the most important factors against successful TQM implementation, so the senior leaders can deal with the barriers identified in this study to get better understanding the current situation and improve the performance of the universities (refer to 5.7 and 6.3.3).

● This study can encourage senior managers to write down the goals want to reach. They need just to look at each goal and by using the Baldrige model they can follow SMART goals as: Specific, Measurable, Attainable, Realistic, and Timely.

● It is important that the university managers pay more attention to communication with the departments, faculty, staff and students which enhances the internal and external performance of the university (refer to 5.6).

● Government (Ministry of Health and Medical education) should review its policy regarding the TQM and encourage the Universities to adopt and achieve quality, which increases the effectiveness, and competitiveness of the universities.

● As many universities in national as well as regional level struggle to improve their quality, the present research has provided useful guidelines for better understanding of current situation, apply the TQM model for success in the universities (refer to 6.3.1 and 6.4).

6.8 Implications for Researchers

There are some important results which have emerged from this study, can be considered as useful implications for researchers on improving the TQM implementation at organizations level in general and MSUs context in particular:

● As mentioned this is the first study for putting the Baldrige model in practice at MSUs to attempt building a theory relating to TQM in Iranian universities. Therefore, this study developed a model of TQM implementation applicable to HE institutions similar to Iranian universities as a developing country ones (refer to 6.4)

● The new barriers identified to successful TQM implementation for MSUs context may be applicable for further similar research in the HE context (refer to 5.7 and 6.3.3).

● To the best of the researcher's knowledge, the mix between quantitative and qualitative analysis not very usual in the majority of MSUs in relation to quality management. Quantitative analysis and using questionnaires is the most popular among the MSUs' researchers. The present research can encourage the researchers to utilise both quantitative and qualitative approaches in order to maximise the effectiveness and reliability of their work in HE institutions (refer to 5.7).

6.9 Recommendations for further research

● This study represents a snapshot of a limited population's perception at a particular time. Replication of this study at other universities and HE institutes as well as over a longer period can confirm the validity of the findings and also can lead to more findings (refer to 5.4)

● Another recommendation for further research would be focus on other barriers for successful implementation which might be neglected from the present study (refer to 5.7 and 6.3.3).

● Researchers, in the MSUs in particular, and in the developing countries in general, should study the role of leadership as an important TQM factor because of the cultural ground at such countries (refer to 5.6.1).

● There is a lack of understanding of the significance of external environmental influences in successful TQM implementation, such as the role of the government and economical/political situation of the society. Therefore, further attention should be paid to these roles.

● This study used the valid and reliable Baldrige framework at MSUs in Iran. It is suggested to benchmark MSUs against well experienced and world class universities in developed countries such as USA and UK.

● It was mentioned and concluded that TQM has an effect on organizations' performance, customer satisfaction, and the competitiveness (conclusions of objectives one and two as well as research contributions). Therefore, other TQM implementation consequences, such as increased levels of efficiency and productivity, improved employee morale and motivation, the elimination of defects, reductions in scrap and rework, reduced cost and excellence management, should be studied in order to integrate TQM into different management aspects and processes (refer to 6.3.1 and 6.3.2).

6.10 Research limitations

Whereas a number of key conclusions have been successfully drawn from this study, however it is important to recognise at this stage that for a number of practical reasons there were a number of limitations to the research. These limitations were as follows:

● The number of universities (two) investigated at this study is one of the main limitations. The data collection has been restricted to two geographical areas as well as one type of the university in Iran.
● There was a lack of literature on quality management in Iran particularly TQM in HE because little research has been conducted in this regard and TQM is considered a relatively new phenomena and concept.
● Although the research approach of observation is recognised as an effective data collection method, this approach was not used within this study.

● It was mentioned that the senior leaders are appointed by the government and the government seems to consider the political issue in appointing the chancellors rather than their capability etc (chapter five, 5.6.1 leadership) and also concluded that the senior managers of universities are not accountable to the ministry in terms of TQM implementation (chapter five Tables 5.74 and 5.75). But it has not been studied from the points view of government officials evaluating their policies in relation to TQM implementation.

● Interviews were conducted with the four main groups of respondents that mostly are in the university but the employees working in hospitals, medical centres are also an important source of information. It is admitted that interviewing these employees could add another scope to the study.

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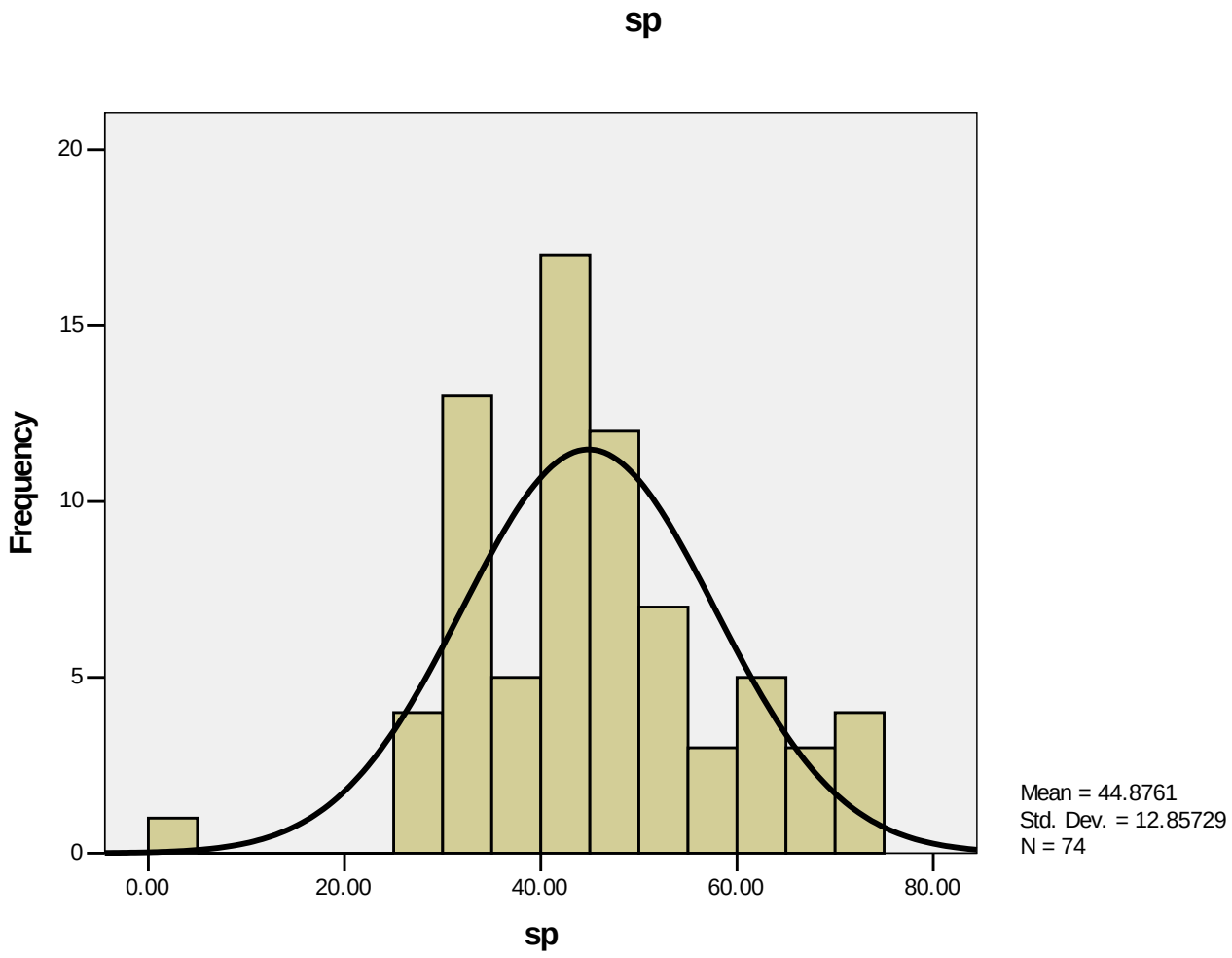
Appendices

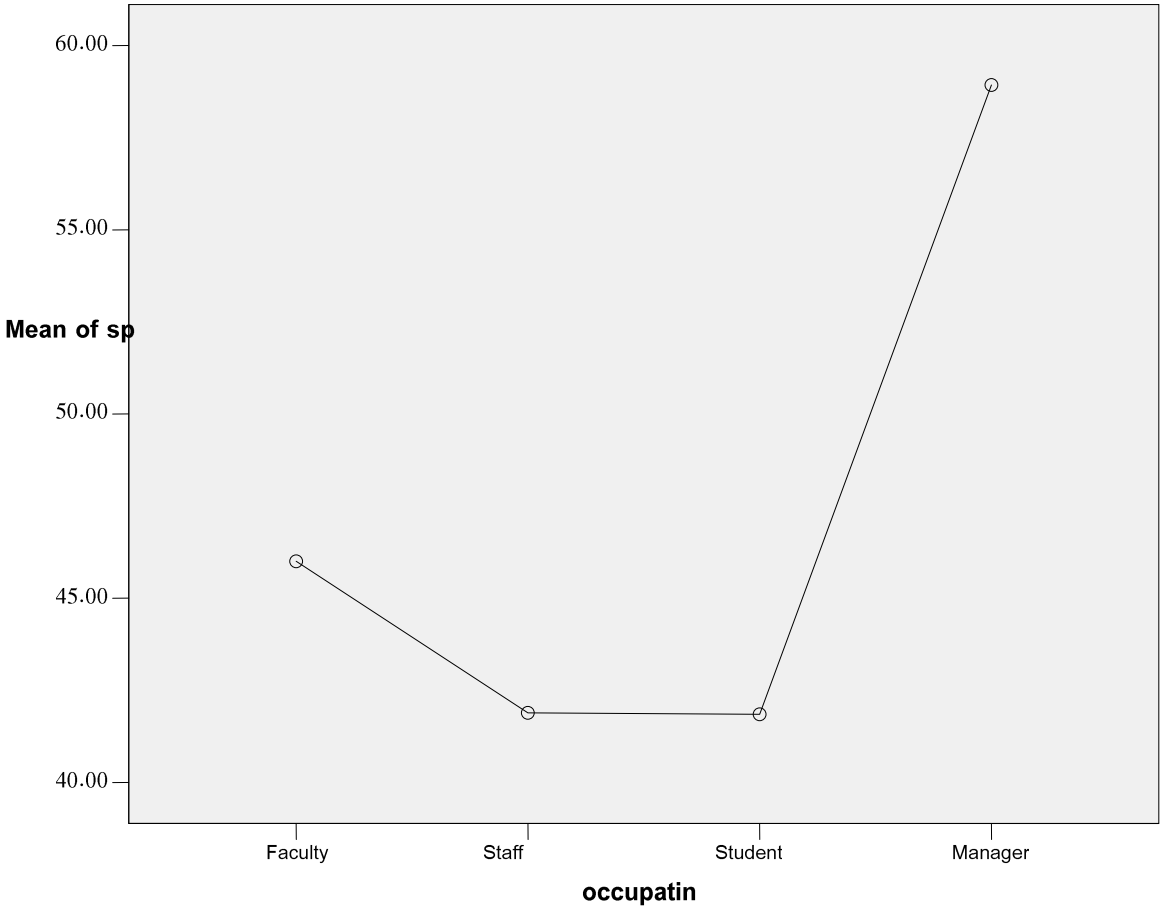
Appendix 1

Histogram SP1: Mean score of strategic planning category in Tabriz with standardised residuals



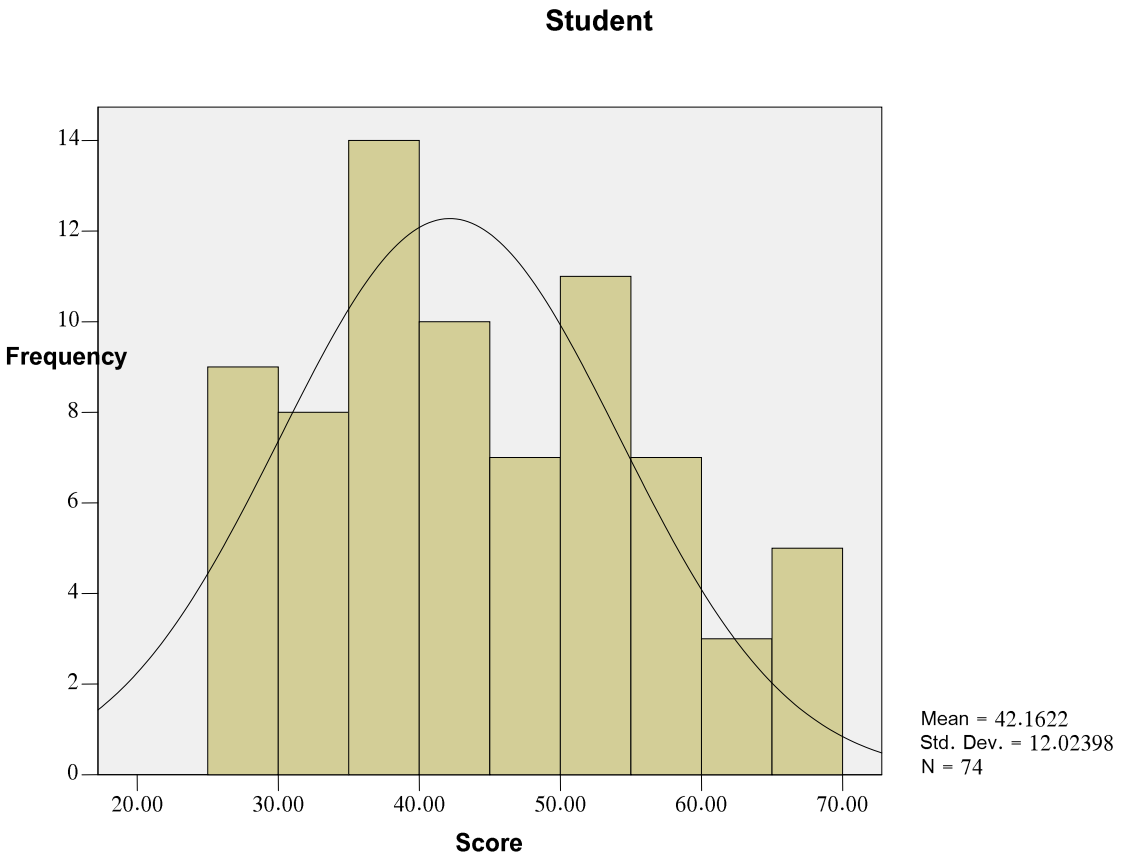
Appendix 2

Diagram SP1: Mean plot of four different groups of respondents for Strategic planning in Tabriz



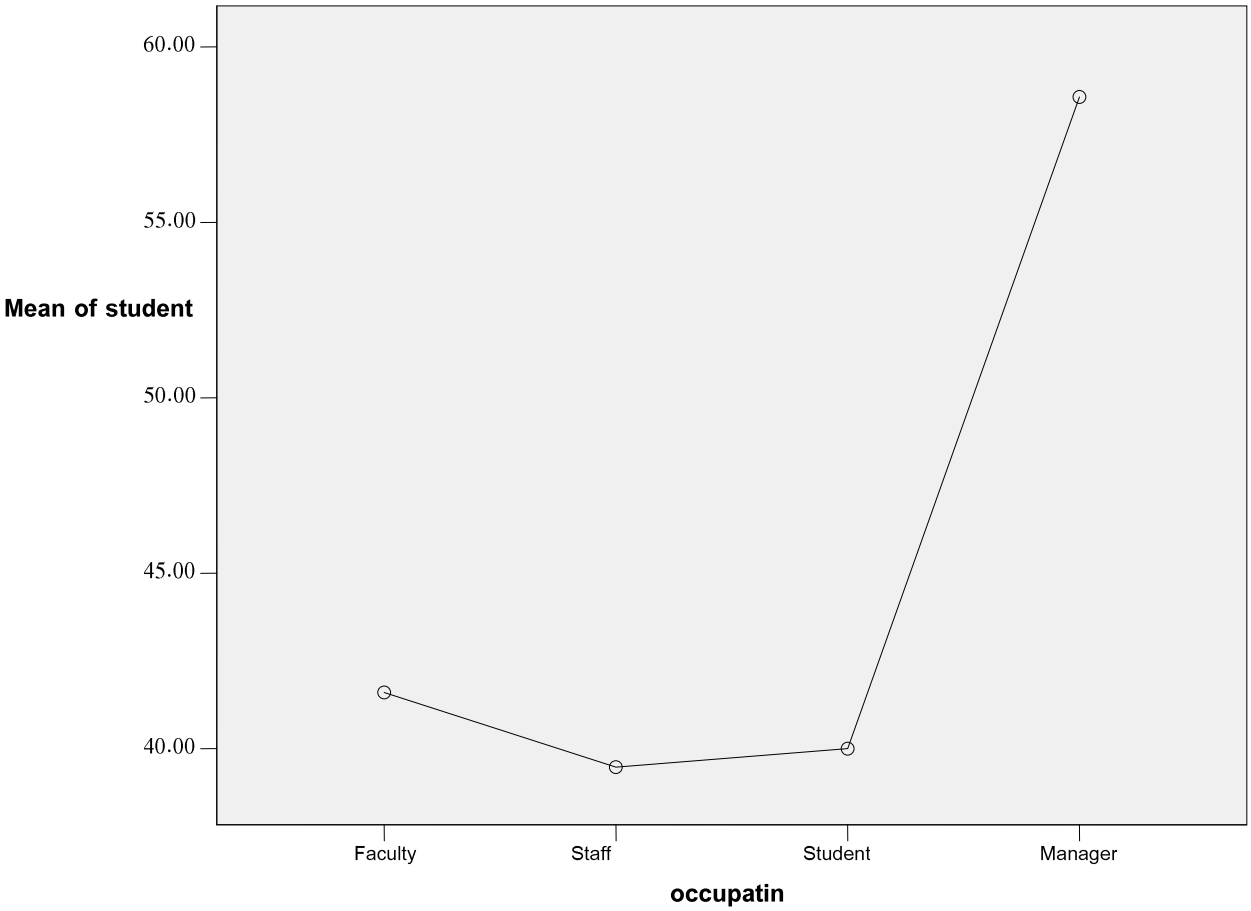
Appendix 3

Histogram S1: Mean score of student focus category in Tabriz with standardised residuals



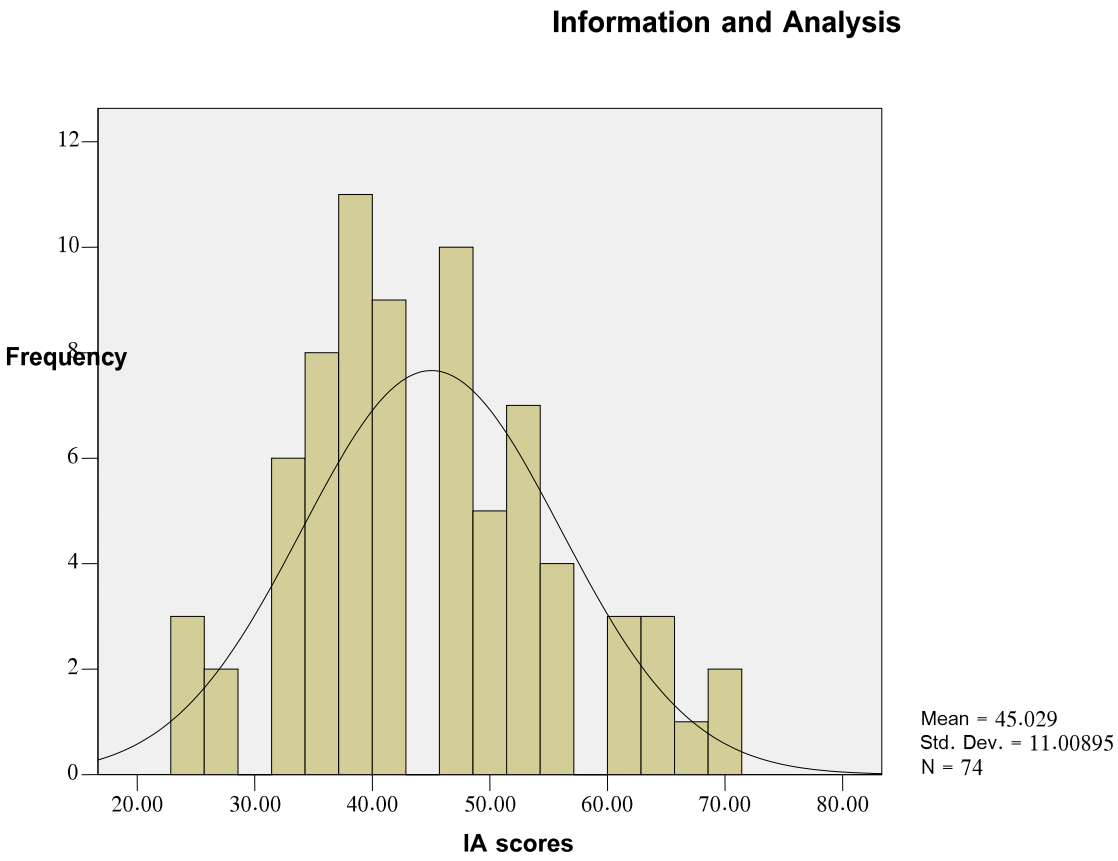
Appendix 4

Diagram S1: Mean plot of four different groups of respondents for student focus in Tabriz.



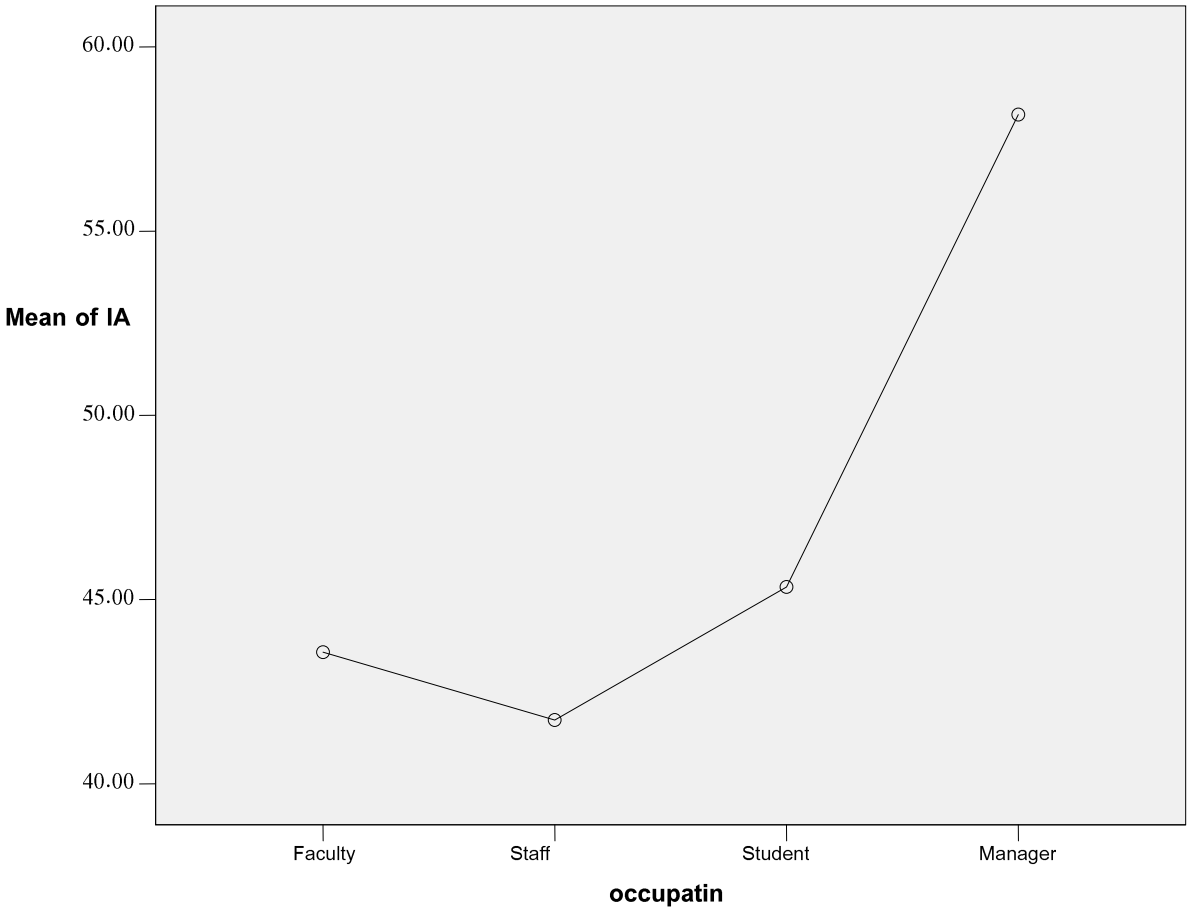
Appendix 5

Histogram IA1: Mean score of IA category in Tabriz with standardised residuals



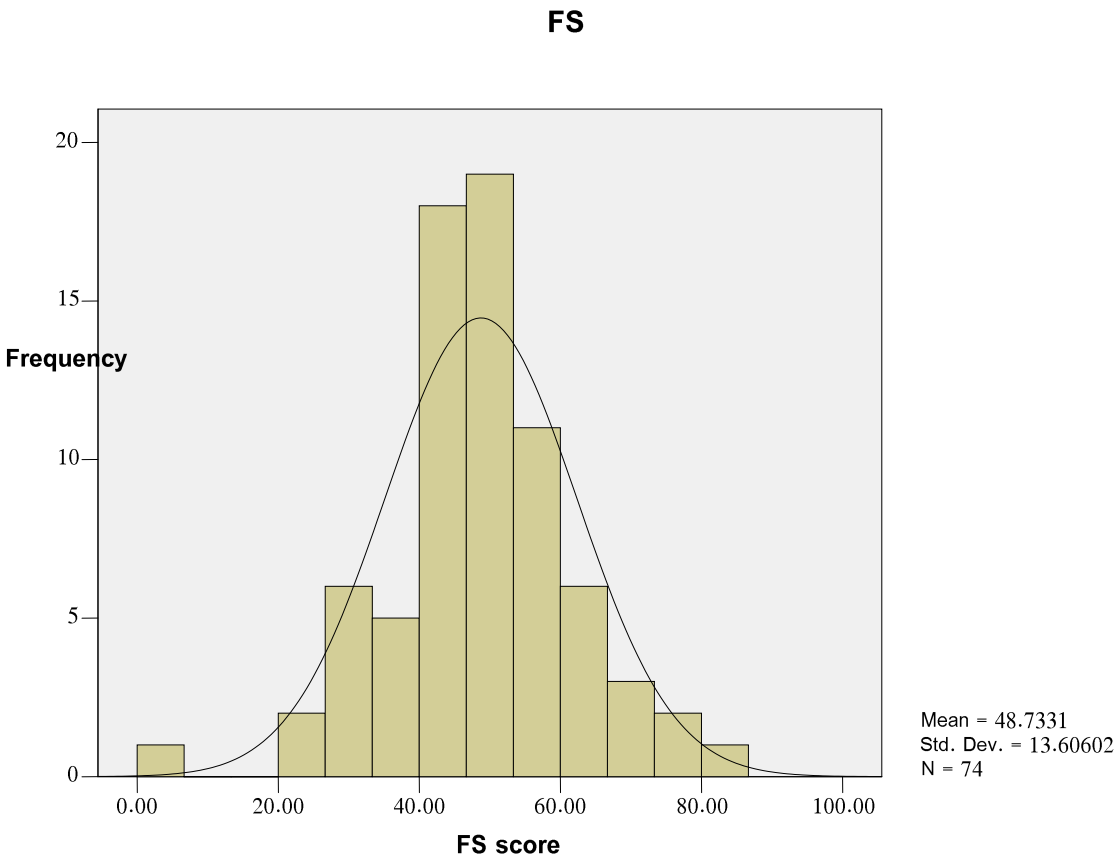
Appendix 6

Diagram IA1: Mean plot of four different groups of respondents for IA in Tabriz.



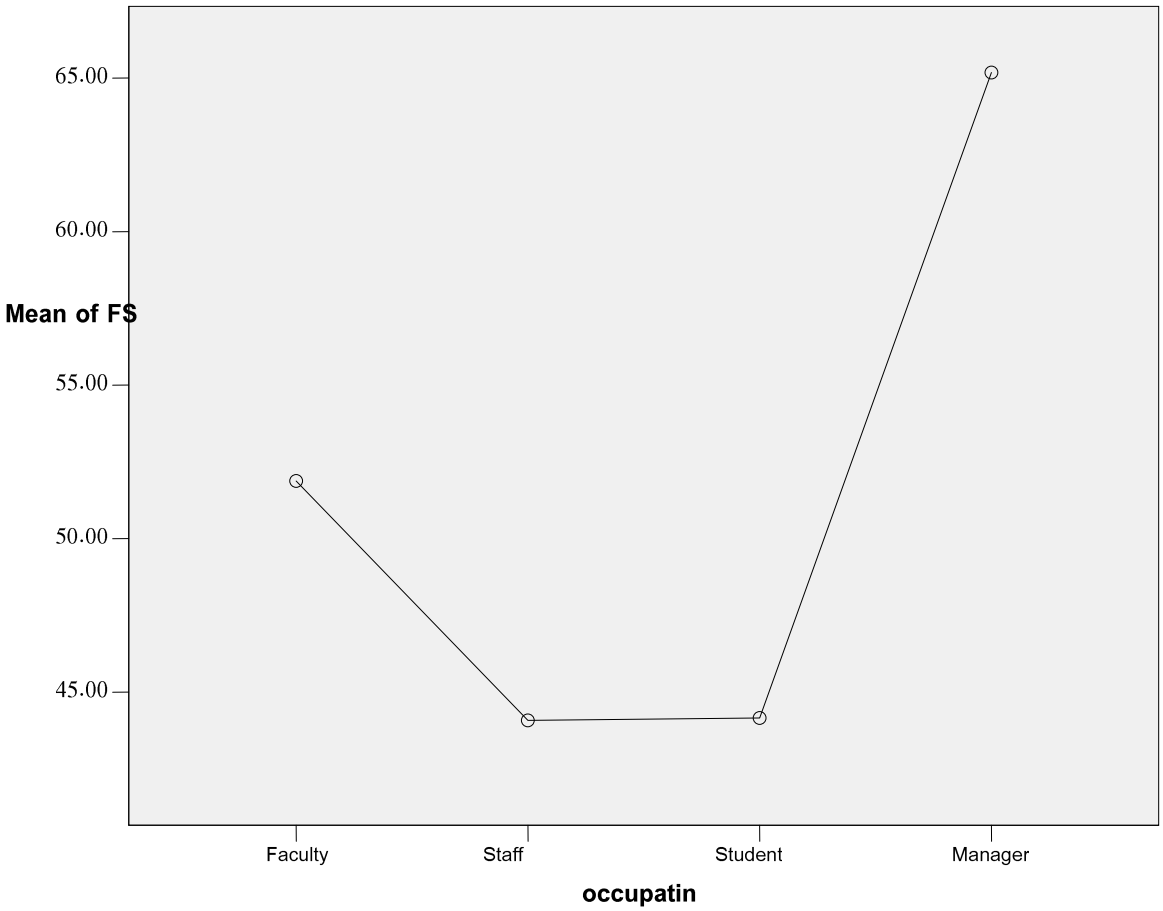
Appendix 7

Histogram FS1: Mean score of FS category in Tabriz with standardised residuals



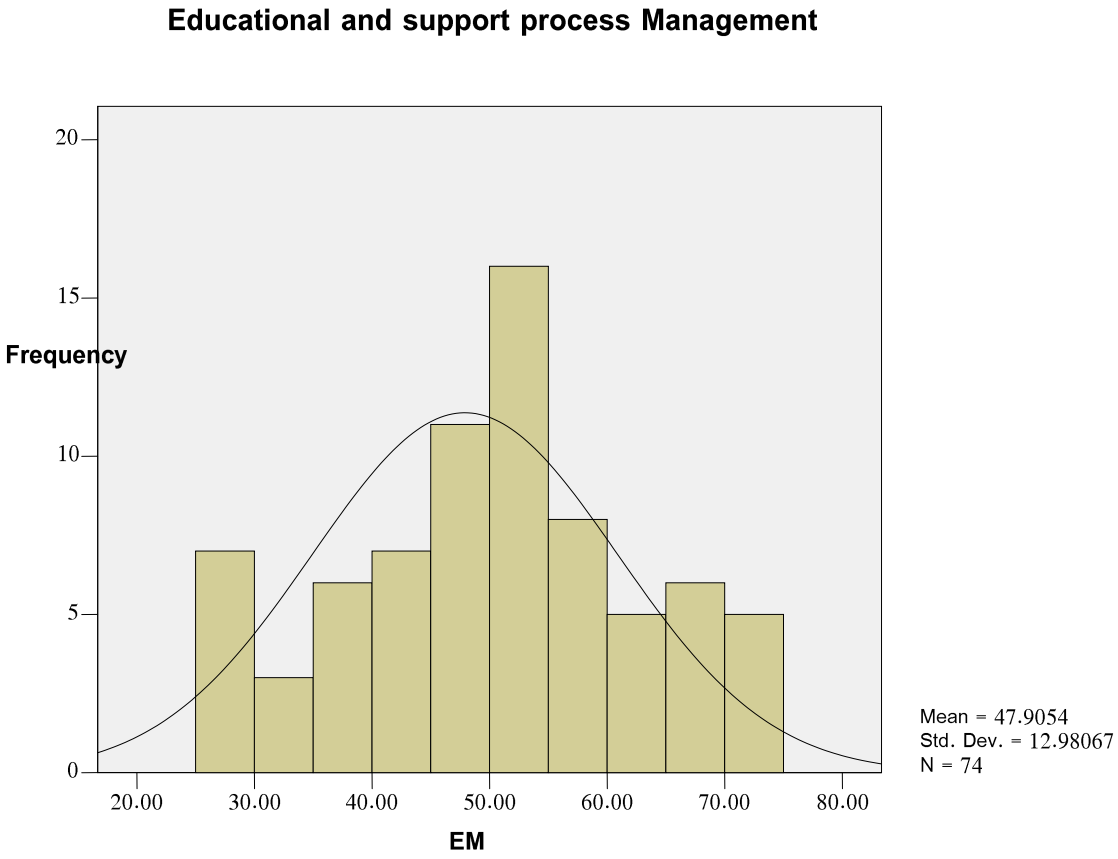
Appendix 8

Diagram FS1: Mean plot of four different groups of respondents for FS in Tabriz.



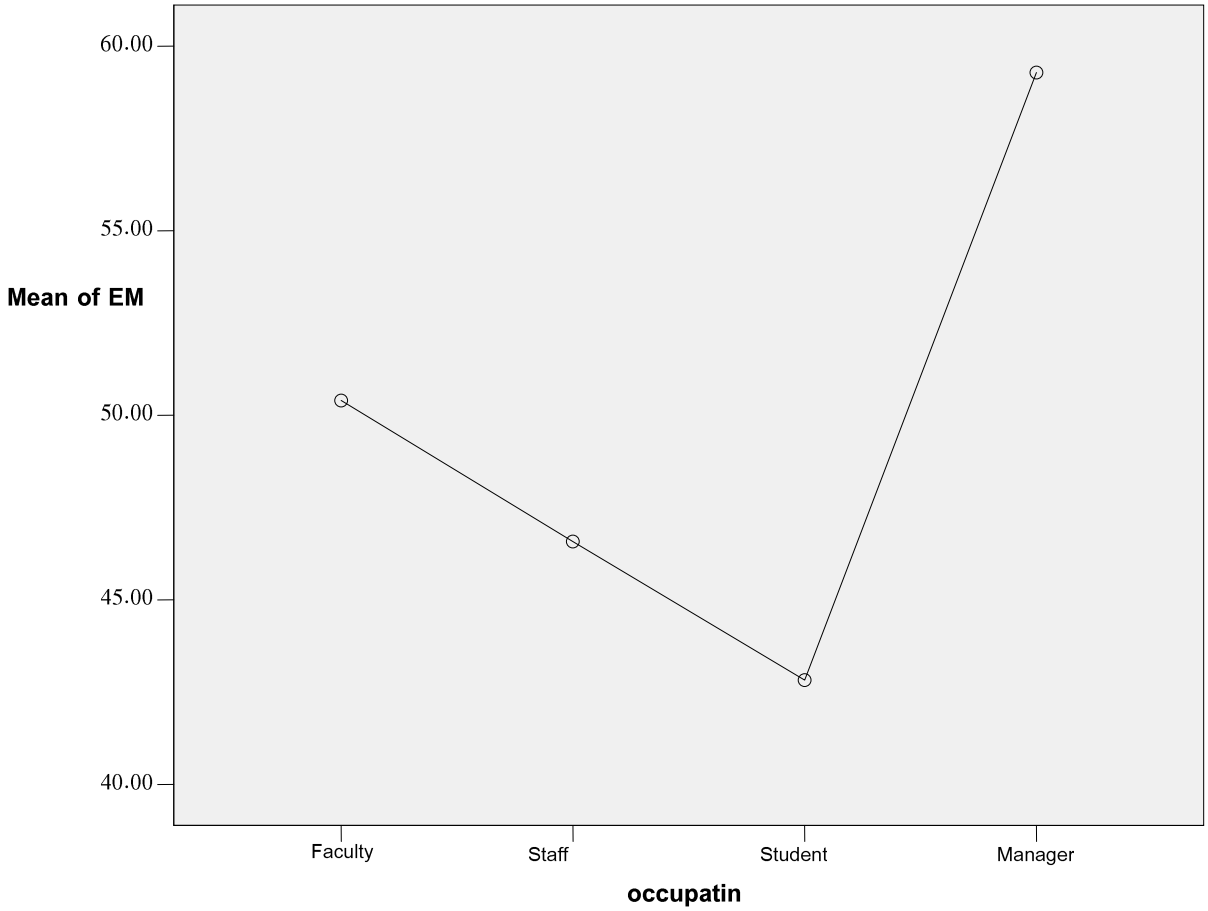
Appendix 9

Histogram EM1: Mean score of EM category in Tabriz with standardised residuals



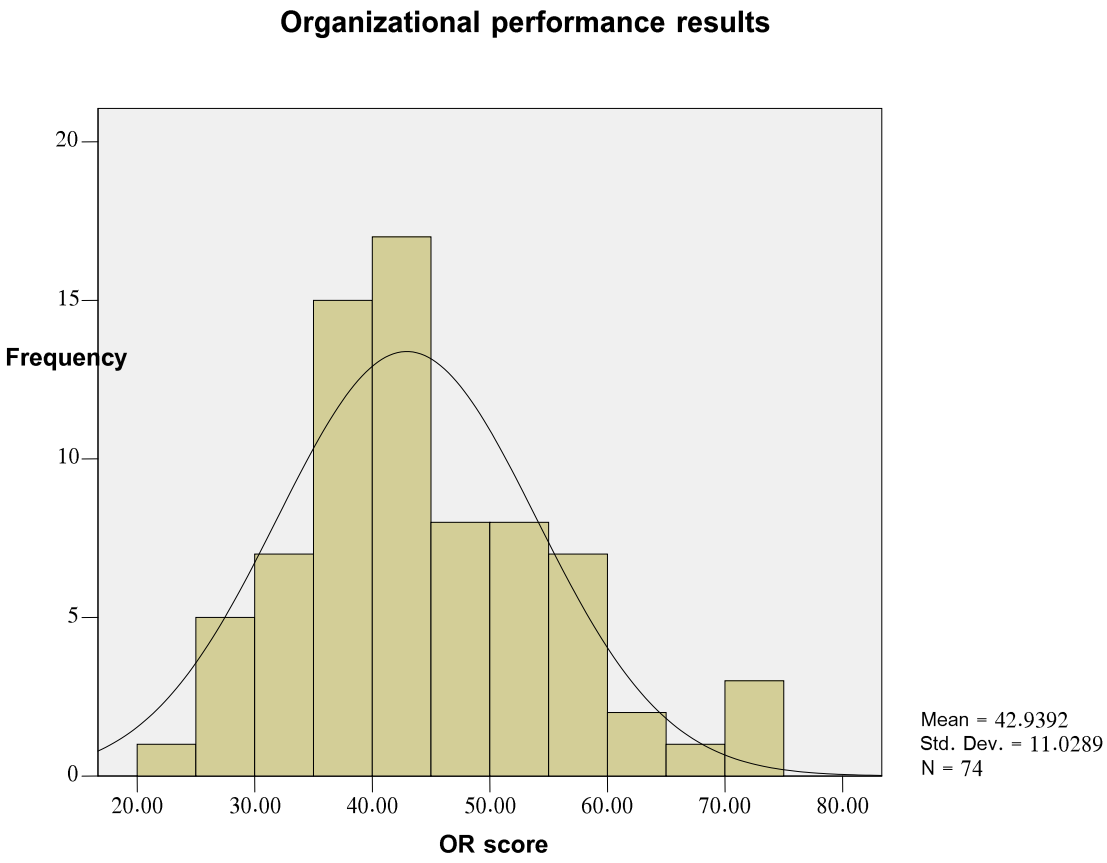
Appendix 10

Diagram EM1: Mean plot of four different groups of respondents for EM in Tabriz.



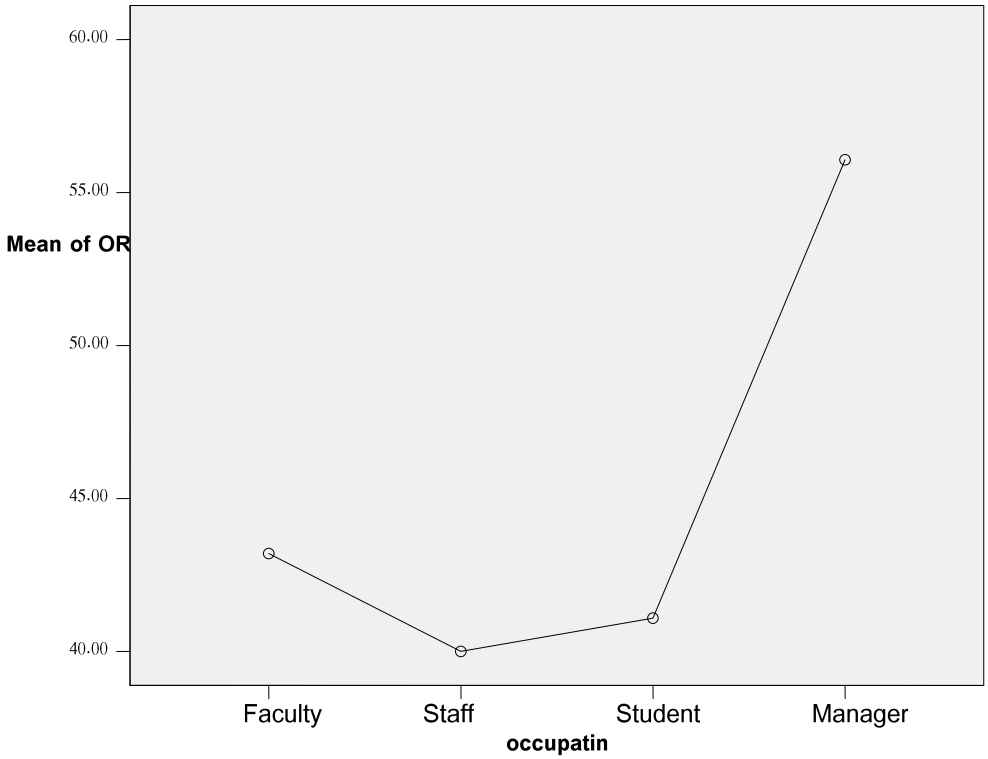
Appendix 11

Histogram OR1: Mean score of OR category in Tabriz with standardised residuals.



Appendix 12

Diagram OR: Mean plot of four different groups of respondents for OR in Tabriz.



Appendix 13

The mean scores of 48 questions of the questionnaire for seven categories in Tabriz.

Leadership (L)

L1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	25	33.8	33.8	35.1
	2	30	40.5	40.5	75.7
	3	18	24.3	24.3	100.0
	Total	74	100.0	100.0	

L2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	29	39.2	39.2	39.2
	2	29	39.2	39.2	78.4
	3	15	20.3	20.3	98.6
	4	1	1.4	1.4	100.0
	Total	74	100.0	100.0	

L3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	24	32.4	32.4	33.8
	2	38	51.4	51.4	85.1
	3	11	14.9	14.9	100.0
	Total	74	100.0	100.0	

L4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	21	28.4	28.4	28.4
	2	42	56.8	56.8	85.1
	3	10	13.5	13.5	98.6
	4	1	1.4	1.4	100.0
	Total	74	100.0	100.0	

L5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	20	27.0	27.0	28.4
	2	28	37.8	37.8	66.2
	3	23	31.1	31.1	97.3
	4	2	2.7	2.7	100.0
	Total	74	100.0	100.0	

L6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	23	31.1	31.1	31.1
	2	28	37.8	37.8	68.9
	3	19	25.7	25.7	94.6
	4	4	5.4	5.4	100.0
	Total	74	100.0	100.0	

L7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	29	39.2	39.2	39.2
	2	34	45.9	45.9	85.1
	3	11	14.9	14.9	100.0
	Total	74	100.0	100.0	

Strategic planning (SP)

SP8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	29	39.2	39.2	41.9
	2	27	36.5	36.5	78.4
	3	16	21.6	21.6	100.0
	Total	74	100.0	100.0	

SP9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	24	32.4	32.4	35.1
	2	38	51.4	51.4	86.5
	3	9	12.2	12.2	98.6
	4	1	1.4	1.4	100.0
	Total	74	100.0	100.0	

SP10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	26	35.1	35.1	37.8
	2	33	44.6	44.6	82.4
	3	12	16.2	16.2	98.6
	4	1	1.4	1.4	100.0
	Total	74	100.0	100.0	

SP11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	24	32.4	32.4	33.8
	2	42	56.8	56.8	90.5
	3	7	9.5	9.5	100.0
	Total	74	100.0	100.0	

SP12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	24	32.4	32.4	35.1
	2	29	39.2	39.2	74.3
	3	17	23.0	23.0	97.3
	4	2	2.7	2.7	100.0
	Total	74	100.0	100.0	

SP13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	25	33.8	33.8	36.5
	2	33	44.6	44.6	81.1
	3	14	18.9	18.9	100.0
	Total	74	100.0	100.0	

Students focus (S)

S14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	33	44.6	44.6	44.6
	2	35	47.3	47.3	91.9
	3	6	8.1	8.1	100.0
	Total	74	100.0	100.0	

S15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	35	47.3	47.3	48.6
	2	31	41.9	41.9	90.5
	3	7	9.5	9.5	100.0
	Total	74	100.0	100.0	

S16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	29	39.2	39.2	39.2
	2	34	45.9	45.9	85.1
	3	11	14.9	14.9	100.0
	Total	74	100.0	100.0	

S17

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	25	33.8	33.8	33.8
	2	37	50.0	50.0	83.8
	3	12	16.2	16.2	100.0
	Total	74	100.0	100.0	

S18

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	33	44.6	44.6	47.3
	2	30	40.5	40.5	87.8
	3	9	12.2	12.2	100.0
	Total	74	100.0	100.0	

Information and Analysis (IA)

IA19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	24	32.4	32.4	32.4
	2	29	39.2	39.2	71.6
	3	21	28.4	28.4	100.0
	Total	74	100.0	100.0	

IA20

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	29	39.2	39.2	41.9
	2	36	48.6	48.6	90.5
	3	7	9.5	9.5	100.0
	Total	74	100.0	100.0	

IA21

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	34	45.9	45.9	48.6
	2	32	43.2	43.2	91.9
	3	6	8.1	8.1	100.0
	Total	74	100.0	100.0	

IA22

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	32	43.2	43.2	44.6
	2	36	48.6	48.6	93.2
	3	5	6.8	6.8	100.0
	Total	74	100.0	100.0	

IA23

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	35	47.3	47.3	47.3
	2	26	35.1	35.1	82.4
	3	13	17.6	17.6	100.0
	Total	74	100.0	100.0	

IA24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	20	27.0	27.0	28.4
	2	36	48.6	48.6	77.0
	3	16	21.6	21.6	98.6
	4	1	1.4	1.4	100.0
	Total	74	100.0	100.0	

IA25

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	14	18.9	18.9	20.3
	2	33	44.6	44.6	64.9
	3	23	31.1	31.1	95.9
	4	3	4.1	4.1	100.0
	Total	74	100.0	100.0	

Faculty and Staff focus (FS)

FS26

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	16	21.6	21.6	23.0
	2	28	37.8	37.8	60.8
	3	25	33.8	33.8	94.6
	4	4	5.4	5.4	100.0
	Total	74	100.0	100.0	

FS27

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	3	4.1	4.1	4.1
	1	20	27.0	27.0	31.1
	2	34	45.9	45.9	77.0
	3	15	20.3	20.3	97.3
	4	2	2.7	2.7	100.0
	Total	74	100.0	100.0	

FS28

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	12	16.2	16.2	17.6
	2	33	44.6	44.6	62.2
	3	21	28.4	28.4	90.5
	4	7	9.5	9.5	100.0
	Total	74	100.0	100.0	

FS29

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	14	18.9	18.9	21.6
	2	26	35.1	35.1	56.8
	3	27	36.5	36.5	93.2
	4	5	6.8	6.8	100.0
	Total	74	100.0	100.0	

FS30

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	17	23.0	23.0	24.3
	2	41	55.4	55.4	79.7
	3	15	20.3	20.3	100.0
	Total	74	100.0	100.0	

FS31

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	25	33.8	33.8	36.5
	2	33	44.6	44.6	81.1
	3	14	18.9	18.9	100.0
	Total	74	100.0	100.0	

FS32

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	29	39.2	39.2	40.5
	2	34	45.9	45.9	86.5
	3	10	13.5	13.5	100.0
	Total	74	100.0	100.0	

FS33

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	3	4.1	4.1	4.1
	1	34	45.9	45.9	50.0
	2	35	47.3	47.3	97.3
	3	2	2.7	2.7	100.0
	Total	74	100.0	100.0	

Educational and Support process Management (EM)

EM34

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	23	31.1	31.1	33.8
	2	41	55.4	55.4	89.2
	3	8	10.8	10.8	100.0
	Total	74	100.0	100.0	

EM35

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	20	27.0	27.0	28.4
	2	38	51.4	51.4	79.7
	3	15	20.3	20.3	100.0
	Total	74	100.0	100.0	

EM36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	19	25.7	25.7	25.7
	2	36	48.6	48.6	74.3
	3	16	21.6	21.6	95.9
	4	3	4.1	4.1	100.0
	Total	74	100.0	100.0	

EM37

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	26	35.1	35.1	37.8
	2	36	48.6	48.6	86.5
	3	10	13.5	13.5	100.0
	Total	74	100.0	100.0	

EM38

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	15	20.3	20.3	20.3
	2	35	47.3	47.3	67.6
	3	21	28.4	28.4	95.9
	4	3	4.1	4.1	100.0
	Total	74	100.0	100.0	

Organizational performance Results (OR)

OR39

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	4	5.4	5.4	5.4
	1	16	21.6	21.6	27.0
	2	35	47.3	47.3	74.3
	3	19	25.7	25.7	100.0
	Total	74	100.0	100.0	

OR40

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	16	21.6	21.6	23.0
	2	45	60.8	60.8	83.8
	3	12	16.2	16.2	100.0
	Total	74	100.0	100.0	

OR41

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	3	4.1	4.1	4.1
	1	31	41.9	41.9	45.9
	2	33	44.6	44.6	90.5
	3	7	9.5	9.5	100.0
	Total	74	100.0	100.0	

OR42

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	3	4.1	4.1	4.1
	1	27	36.5	36.5	40.5
	2	32	43.2	43.2	83.8
	3	12	16.2	16.2	100.0
	Total	74	100.0	100.0	

OR43

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	26	35.1	35.1	37.8
	2	36	48.6	48.6	86.5
	3	10	13.5	13.5	100.0
	Total	74	100.0	100.0	

OR44

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	34	45.9	45.9	47.3
	2	31	41.9	41.9	89.2
	3	8	10.8	10.8	100.0
	Total	74	100.0	100.0	

OR45

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	28	37.8	37.8	40.5
	2	36	48.6	48.6	89.2
	3	8	10.8	10.8	100.0
	Total	74	100.0	100.0	

OR46

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.4	1.4	1.4
	1	33	44.6	44.6	45.9
	2	31	41.9	41.9	87.8
	3	9	12.2	12.2	100.0
	Total	74	100.0	100.0	

OR47

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	27	36.5	36.5	39.2
	2	41	55.4	55.4	94.6
	3	4	5.4	5.4	100.0
	Total	74	100.0	100.0	

OR48

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	3	4.1	4.1	4.1
	1	26	35.1	35.1	39.2
	2	35	47.3	47.3	86.5
	3	10	13.5	13.5	100.0
	Total	74	100.0	100.0	

Appendix 14

Spearman's correlation results for impact of all seven categories on each other in Tabriz.

			L	SP	Student	IA	FS	EM	OR
Spearman's rho	L	Correlation Coefficient	1.000	.613(**)	.572(**)	.630(**)	.678(**)	.642(**)	.645(**)
		Sig. (1-tailed)	.	.000	.000	.000	.000	.000	.000
		N	74	74	74	74	74	74	74
	SP	Correlation Coefficient	.613(**)	1.000	.547(**)	.593(**)	.640(**)	.668(**)	.596(**)
		Sig. (1-tailed)	.000	.	.000	.000	.000	.000	.000
		N	74	74	74	74	74	74	74
	Student	Correlation Coefficient	.572(**)	.547(**)	1.000	.617(**)	.610(**)	.547(**)	.407(**)
		Sig. (1-tailed)	.000	.000	.	.000	.000	.000	.000
		N	74	74	74	74	74	74	74
	IA	Correlation Coefficient	.630(**)	.593(**)	.617(**)	1.000	.561(**)	.568(**)	.497(**)
		Sig. (1-tailed)	.000	.000	.000	.	.000	.000	.000
		N	74	74	74	74	74	74	74
	FS	Correlation Coefficient	.678(**)	.640(**)	.610(**)	.561(**)	1.000	.719(**)	.530(**)
		Sig. (1-tailed)	.000	.000	.000	.000	.	.000	.000
		N	74	74	74	74	74	74	74
	EM	Correlation Coefficient	.642(**)	.668(**)	.547(**)	.568(**)	.719(**)	1.000	.567(**)
		Sig. (1-tailed)	.000	.000	.000	.000	.000	.	.000
		N	74	74	74	74	74	74	74
	OR	Correlation Coefficient	.645(**)	.596(**)	.407(**)	.497(**)	.530(**)	.567(**)	1.000
		Sig. (1-tailed)	.000	.000	.000	.000	.000	.000	.
		N	74	74	74	74	74	74	74

** Correlation is significant at the 0.01 level (1-tailed).

Appendix 15

The mean scores of 48 questions of the questionnaire for seven categories in Isfahan.

L1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	7	9.3	9.3	10.7
	2	35	46.7	46.7	57.3
	3	26	34.7	34.7	92.0
	4	6	8.0	8.0	100.0
	Total	75	100.0	100.0	

L2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	15	20.0	20.0	20.0
	2	28	37.3	37.3	57.3
	3	23	30.7	30.7	88.0
	4	9	12.0	12.0	100.0
	Total	75	100.0	100.0	

L3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	14	18.7	18.7	20.0
	2	36	48.0	48.0	68.0
	3	21	28.0	28.0	96.0
	4	3	4.0	4.0	100.0
	Total	75	100.0	100.0	

L4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	16	21.3	21.3	22.7
	2	27	36.0	36.0	58.7
	3	22	29.3	29.3	88.0
	4	9	12.0	12.0	100.0
	Total	75	100.0	100.0	

L5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	14	18.7	18.7	20.0
	2	41	54.7	54.7	74.7
	3	18	24.0	24.0	98.7
	4	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

L6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	16.0	16.0	16.0
	2	32	42.7	42.7	58.7
	3	29	38.7	38.7	97.3
	4	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

L7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	17	22.7	22.7	22.7
	2	43	57.3	57.3	80.0
	3	10	13.3	13.3	93.3
	4	5	6.7	6.7	100.0
	Total	75	100.0	100.0	

SP8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	30	40.0	40.0	40.0
	2	32	42.7	42.7	82.7
	3	8	10.7	10.7	93.3
	4	5	6.7	6.7	100.0
	Total	75	100.0	100.0	

SP9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	14	18.7	18.7	20.0
	2	30	40.0	40.0	60.0
	3	28	37.3	37.3	97.3
	4	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

SP10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	17	22.7	22.7	22.7
	2	25	33.3	33.3	56.0
	3	22	29.3	29.3	85.3
	4	11	14.7	14.7	100.0
	Total	75	100.0	100.0	

SP11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	15	20.0	20.0	20.0
	2	34	45.3	45.3	65.3
	3	20	26.7	26.7	92.0
	4	6	8.0	8.0	100.0
	Total	75	100.0	100.0	

SP12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	9	12.0	12.0	12.0
	2	38	50.7	50.7	62.7
	3	24	32.0	32.0	94.7
	4	4	5.3	5.3	100.0
	Total	75	100.0	100.0	

SP13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	13	17.3	17.3	18.7
	2	39	52.0	52.0	70.7
	3	19	25.3	25.3	96.0
	4	3	4.0	4.0	100.0
	Total	75	100.0	100.0	

S14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	14	18.7	18.7	20.0
	2	31	41.3	41.3	61.3
	3	26	34.7	34.7	96.0
	4	3	4.0	4.0	100.0
	Total	75	100.0	100.0	

S15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	19	25.3	25.3	26.7
	2	37	49.3	49.3	76.0
	3	17	22.7	22.7	98.7
	4	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

S16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	27	36.0	36.0	36.0
	2	37	49.3	49.3	85.3
	3	10	13.3	13.3	98.7
	4	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

S17

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	19	25.3	25.3	25.3
	2	32	42.7	42.7	68.0
	3	22	29.3	29.3	97.3
	4	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

S18

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	18	24.0	24.0	24.0
	2	39	52.0	52.0	76.0
	3	18	24.0	24.0	100.0
	Total	75	100.0	100.0	

IA19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	15	20.0	20.0	20.0
	2	30	40.0	40.0	60.0
	3	23	30.7	30.7	90.7
	4	7	9.3	9.3	100.0
	Total	75	100.0	100.0	

IA20

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	18	24.0	24.0	24.0
	2	31	41.3	41.3	65.3
	3	17	22.7	22.7	88.0
	4	9	12.0	12.0	100.0
	Total	75	100.0	100.0	

IA21

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	16	21.3	21.3	22.7
	2	48	64.0	64.0	86.7
	3	6	8.0	8.0	94.7
	4	4	5.3	5.3	100.0
	Total	75	100.0	100.0	

IA22

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	21.3	21.3	21.3
	2	33	44.0	44.0	65.3
	3	25	33.3	33.3	98.7
	4	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

IA23

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	14	18.7	18.7	18.7
	2	27	36.0	36.0	54.7
	3	28	37.3	37.3	92.0
	4	6	8.0	8.0	100.0
	Total	75	100.0	100.0	

IA24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	17.3	17.3	17.3
	2	27	36.0	36.0	53.3
	3	27	36.0	36.0	89.3
	4	8	10.7	10.7	100.0
	Total	75	100.0	100.0	

IA25

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	11	14.7	14.7	14.7
	2	33	44.0	44.0	58.7
	3	24	32.0	32.0	90.7
	4	7	9.3	9.3	100.0
	Total	75	100.0	100.0	

FS26

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	12	16.0	16.0	18.7
	2	28	37.3	37.3	56.0
	3	22	29.3	29.3	85.3
	4	11	14.7	14.7	100.0
	Total	75	100.0	100.0	

FS27

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	19	25.3	25.3	25.3
	2	40	53.3	53.3	78.7
	3	10	13.3	13.3	92.0
	4	6	8.0	8.0	100.0
	Total	75	100.0	100.0	

FS28

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	10.7	10.7	10.7
	2	27	36.0	36.0	46.7
	3	27	36.0	36.0	82.7
	4	13	17.3	17.3	100.0
	Total	75	100.0	100.0	

FS29

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	17.3	17.3	17.3
	2	29	38.7	38.7	56.0
	3	26	34.7	34.7	90.7
	4	7	9.3	9.3	100.0
	Total	75	100.0	100.0	

FS30

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	19	25.3	25.3	25.3
	2	30	40.0	40.0	65.3
	3	21	28.0	28.0	93.3
	4	5	6.7	6.7	100.0
	Total	75	100.0	100.0	

FS31

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	21.3	21.3	21.3
	2	29	38.7	38.7	60.0
	3	25	33.3	33.3	93.3
	4	5	6.7	6.7	100.0
	Total	75	100.0	100.0	

FS32

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	24	32.0	32.0	32.0
	2	32	42.7	42.7	74.7
	3	17	22.7	22.7	97.3
	4	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

FS33

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	24	32.0	32.0	32.0
	2	28	37.3	37.3	69.3
	3	18	24.0	24.0	93.3
	4	5	6.7	6.7	100.0
	Total	75	100.0	100.0	

EM34

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	10	13.3	13.3	13.3
	2	46	61.3	61.3	74.7
	3	15	20.0	20.0	94.7
	4	4	5.3	5.3	100.0
	Total	75	100.0	100.0	

EM35

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	17.3	17.3	17.3
	2	30	40.0	40.0	57.3
	3	28	37.3	37.3	94.7
	4	4	5.3	5.3	100.0
	Total	75	100.0	100.0	

EM36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	11	14.7	14.7	14.7
	2	38	50.7	50.7	65.3
	3	25	33.3	33.3	98.7
	4	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

EM37

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	23	30.7	30.7	30.7
	2	36	48.0	48.0	78.7
	3	14	18.7	18.7	97.3
	4	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

EM38

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	16.0	16.0	16.0
	2	43	57.3	57.3	73.3
	3	16	21.3	21.3	94.7
	4	4	5.3	5.3	100.0
	Total	75	100.0	100.0	

OR39

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	9	12.0	12.0	12.0
	2	48	64.0	64.0	76.0
	3	15	20.0	20.0	96.0
	4	3	4.0	4.0	100.0
	Total	75	100.0	100.0	

OR40

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	12	16.0	16.0	17.3
	2	34	45.3	45.3	62.7
	3	26	34.7	34.7	97.3
	4	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

OR41

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	16	21.3	21.3	24.0
	2	44	58.7	58.7	82.7
	3	12	16.0	16.0	98.7
	4	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

OR42

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	15	20.0	20.0	21.3
	2	32	42.7	42.7	64.0
	3	27	36.0	36.0	100.0
	Total	75	100.0	100.0	

OR43

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	16	21.3	21.3	22.7
	2	37	49.3	49.3	72.0
	3	16	21.3	21.3	93.3
	4	5	6.7	6.7	100.0
	Total	75	100.0	100.0	

OR44

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	16	21.3	21.3	22.7
	2	40	53.3	53.3	76.0
	3	15	20.0	20.0	96.0
	4	3	4.0	4.0	100.0
	Total	75	100.0	100.0	

OR45

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	18	24.0	24.0	26.7
	2	43	57.3	57.3	84.0
	3	11	14.7	14.7	98.7
	4	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

ORE46

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.3	1.3	1.3
	1	10	13.3	13.3	14.7
	2	47	62.7	62.7	77.3
	3	14	18.7	18.7	96.0
	4	3	4.0	4.0	100.0
	Total	75	100.0	100.0	

OR47

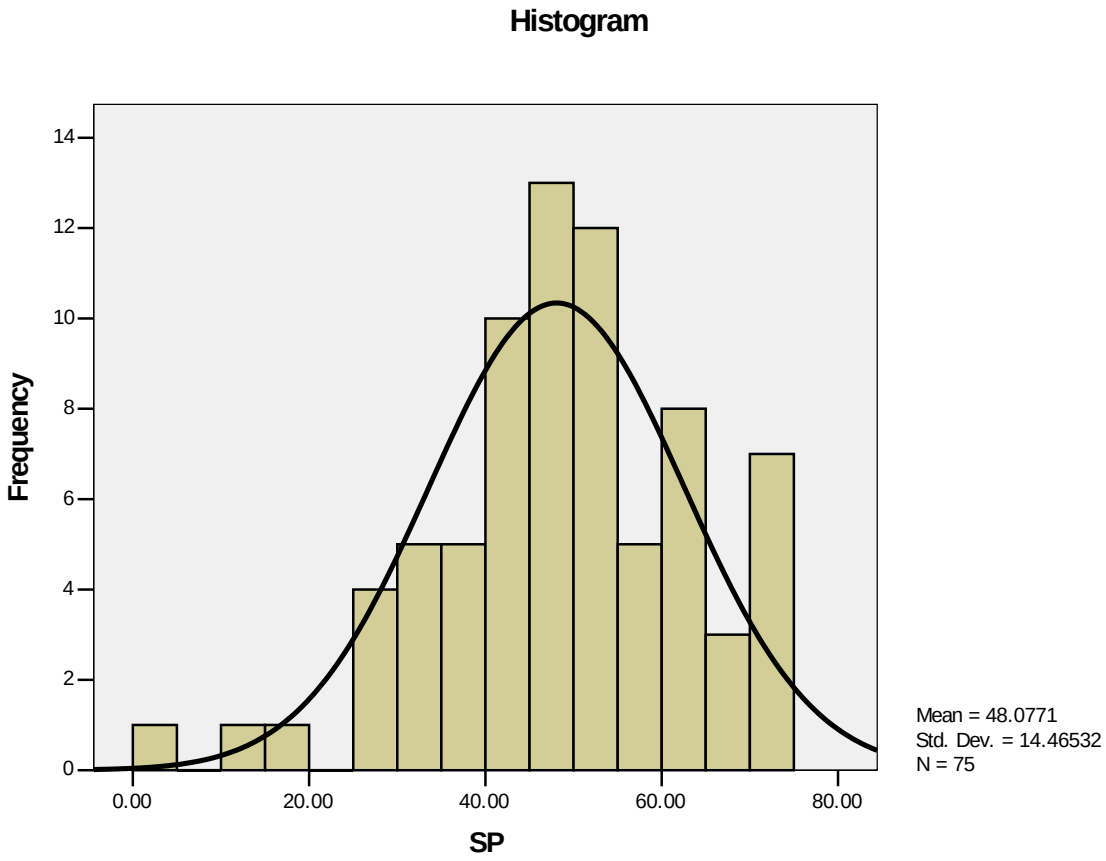
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	14	18.7	18.7	21.3
	2	44	58.7	58.7	80.0
	3	12	16.0	16.0	96.0
	4	3	4.0	4.0	100.0
	Total	75	100.0	100.0	

OR48

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.7	2.7	2.7
	1	14	18.7	18.7	21.3
	2	48	64.0	64.0	85.3
	3	9	12.0	12.0	97.3
	4	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

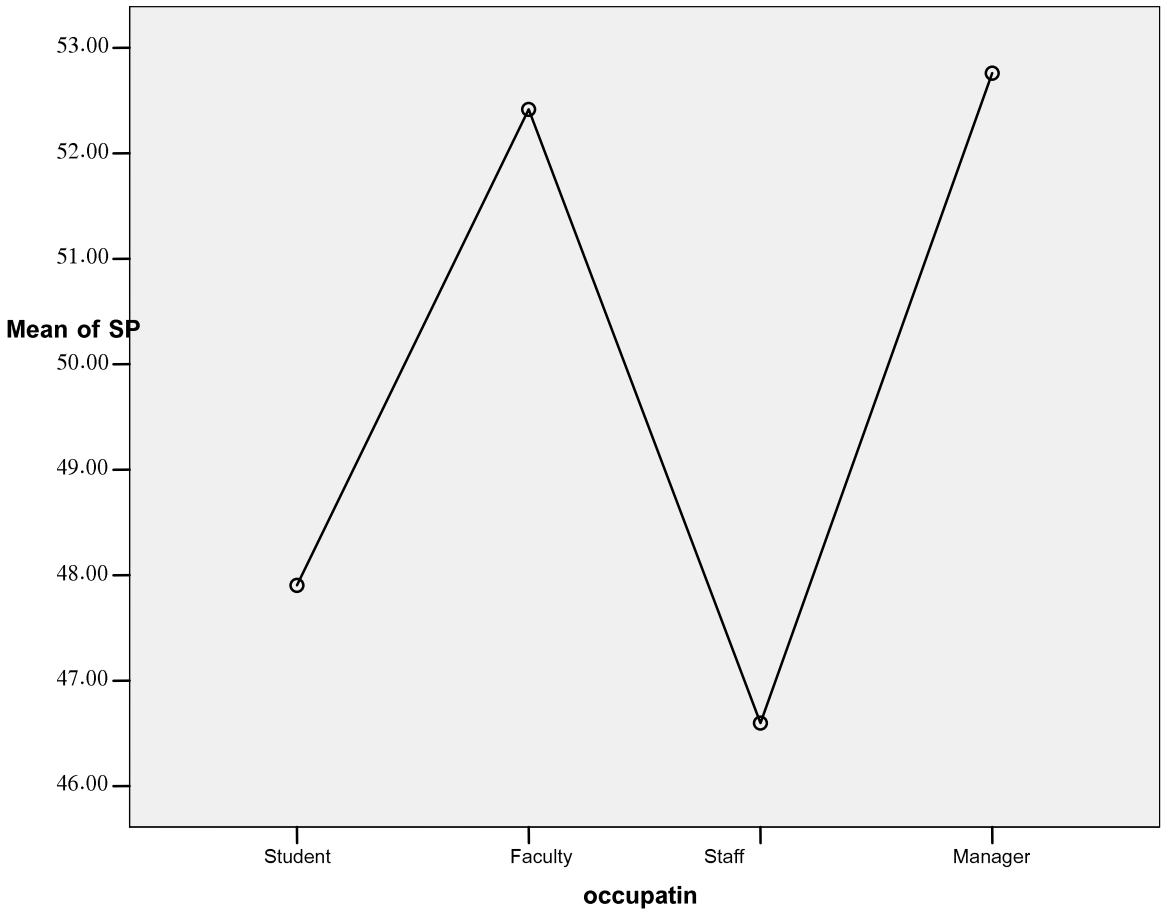
Appendix 16

Histogram SP1: Mean score of strategic planning category in Isfahan with standardised residuals



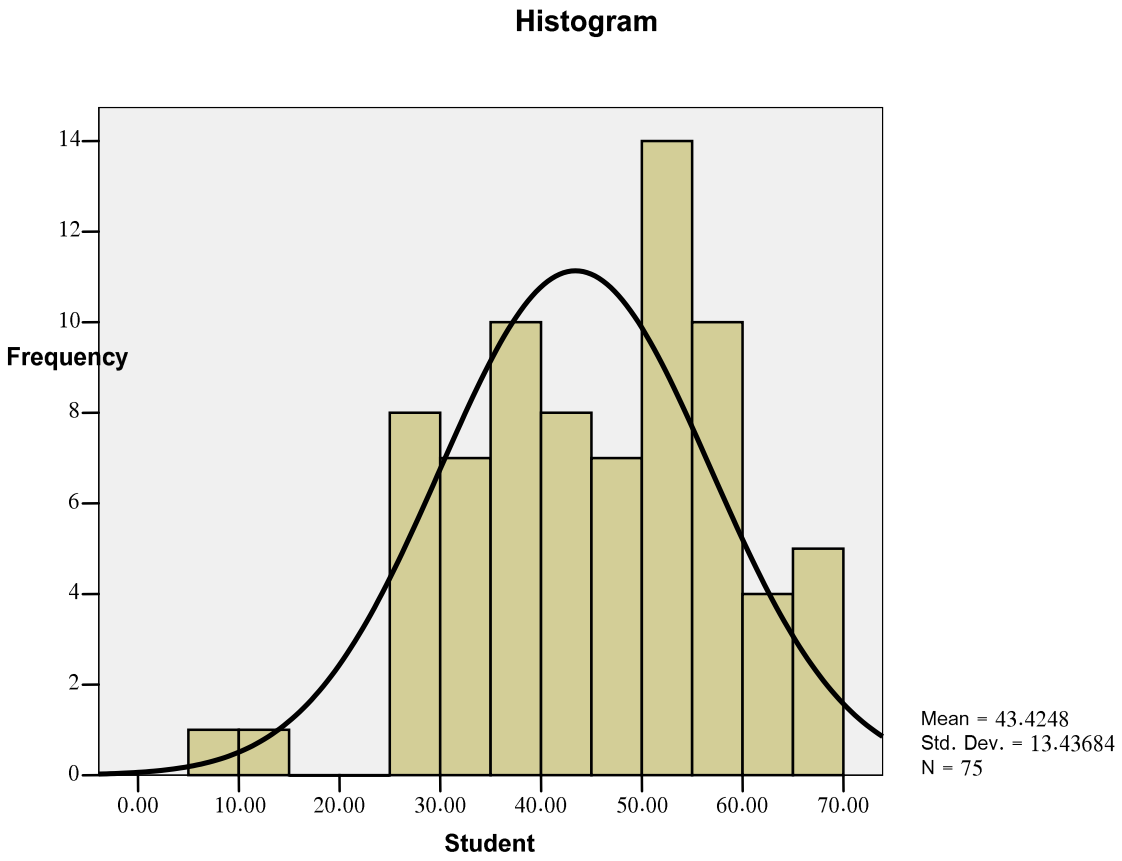
Appendix 17

Diagram SP1: Mean plot of four different groups of respondents for Strategic planning in Isfahan.



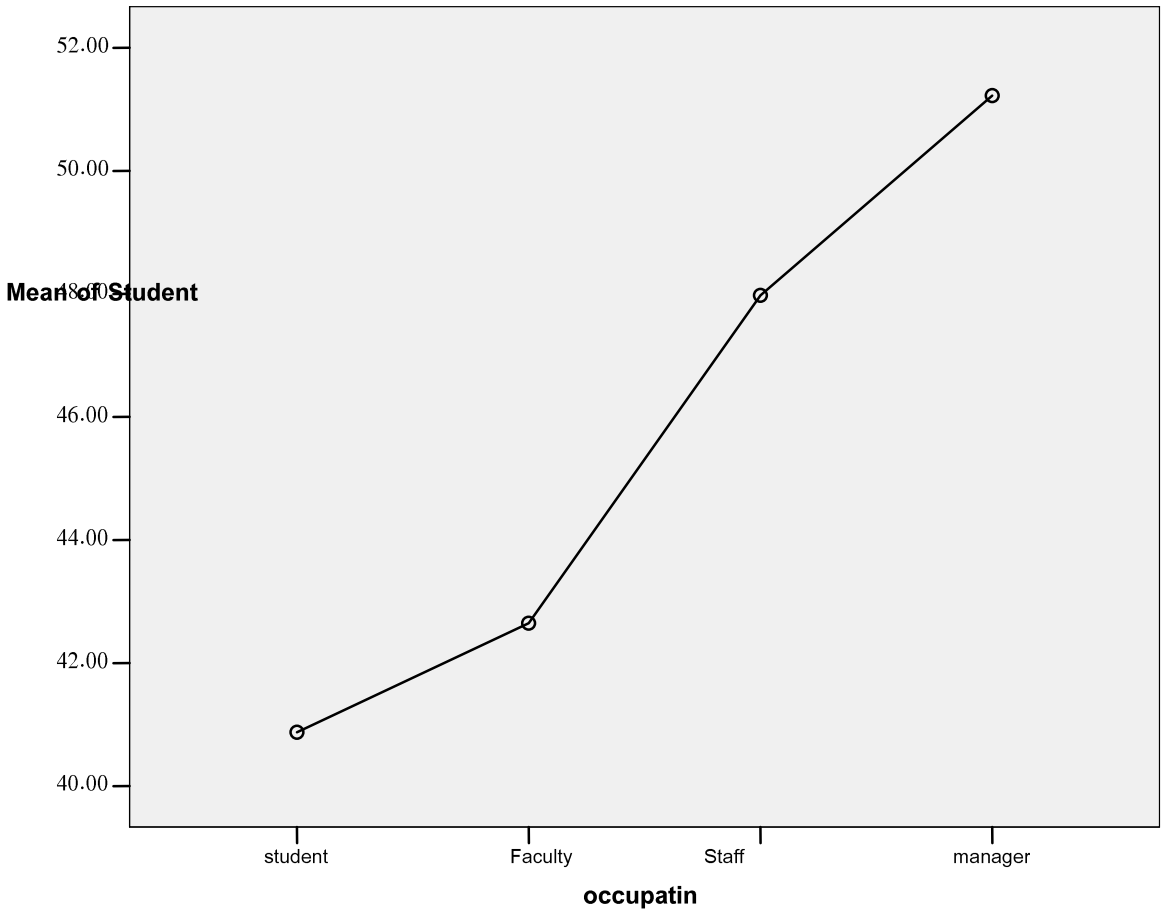
Appendix 18

Histogram S1: Mean score of student focus category in Isfahan with standardised residuals



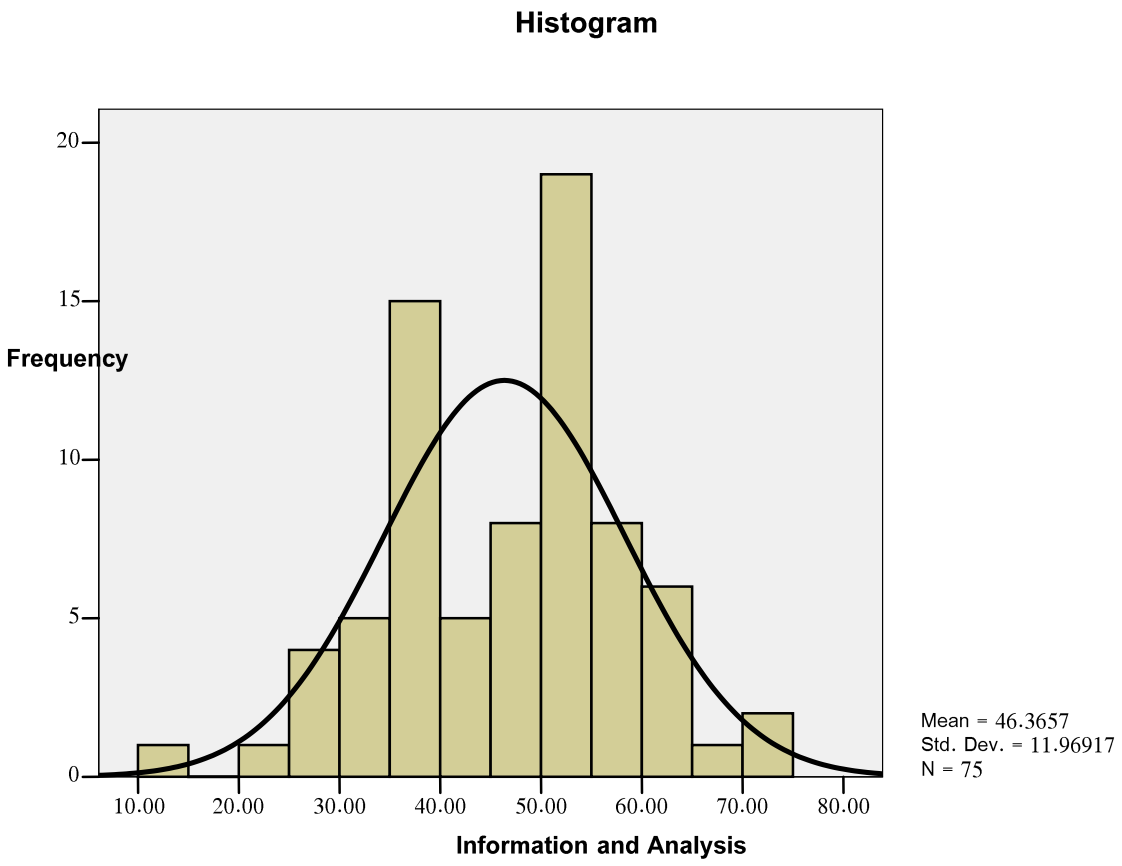
Appendix 19

Diagram S1: Mean plot of four different groups of respondents for student focus in Isfahan.



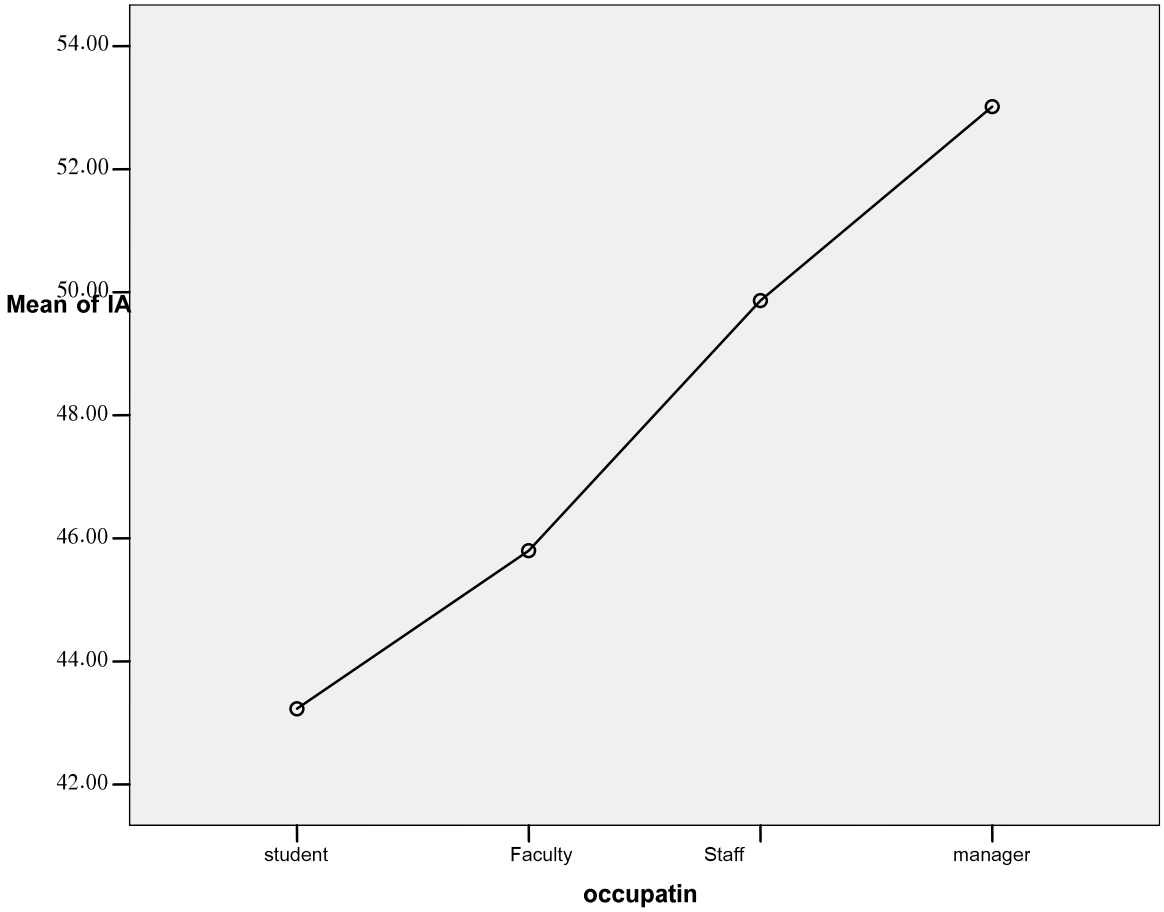
Appendix 20

Histogram IA1: Mean score of IA category in Isfahan with standardised residuals.



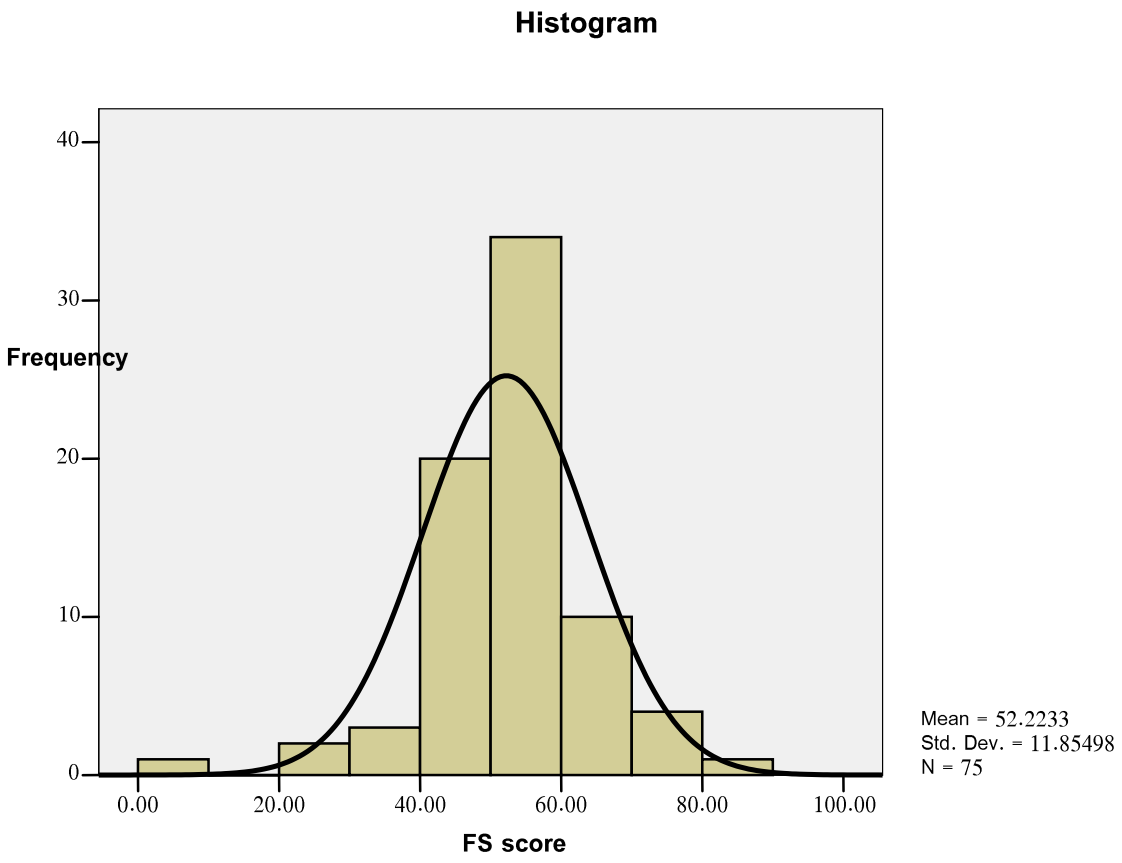
Appendix 21

Diagram IA1: Mean plot of four different groups of respondents for IA in Isfahan.



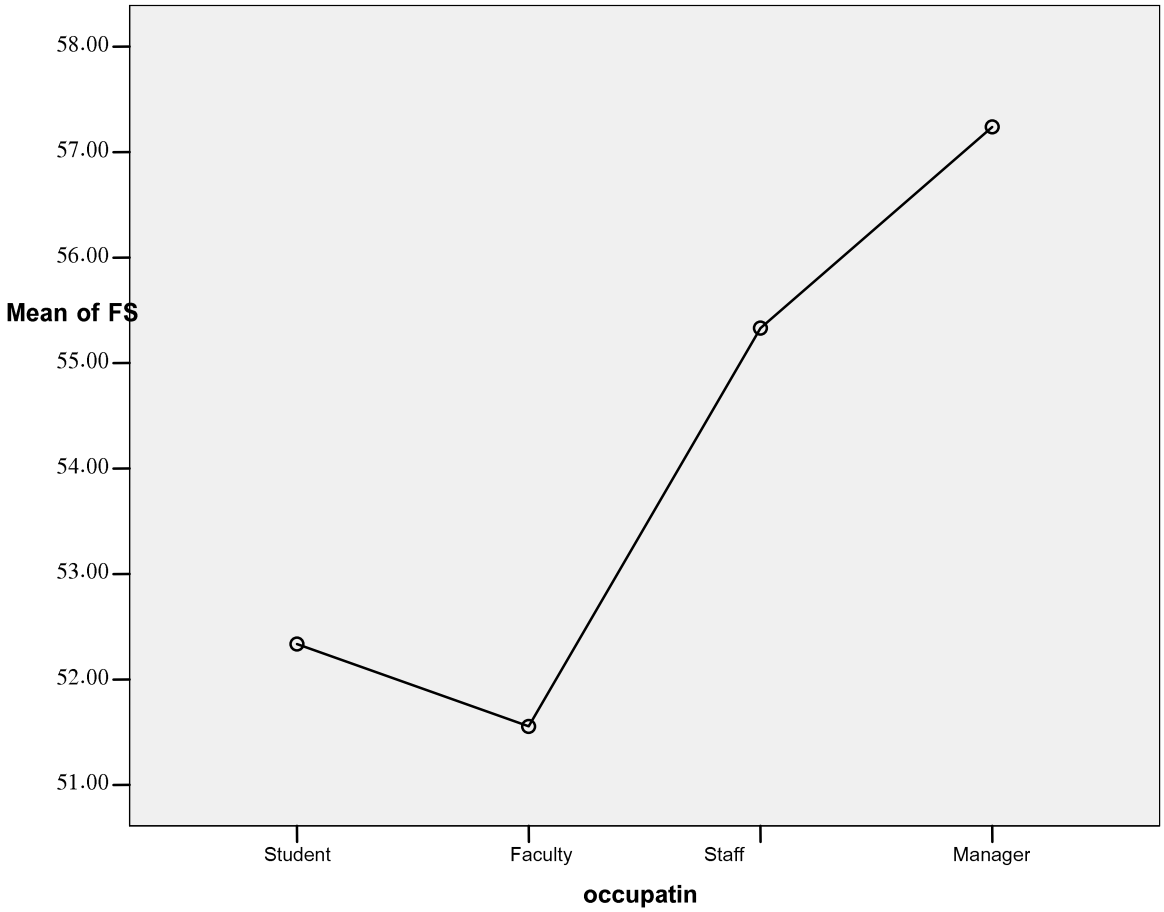
Appendix 22

Histogram FS1: Mean score of FS category in Isfahan with standardised residuals



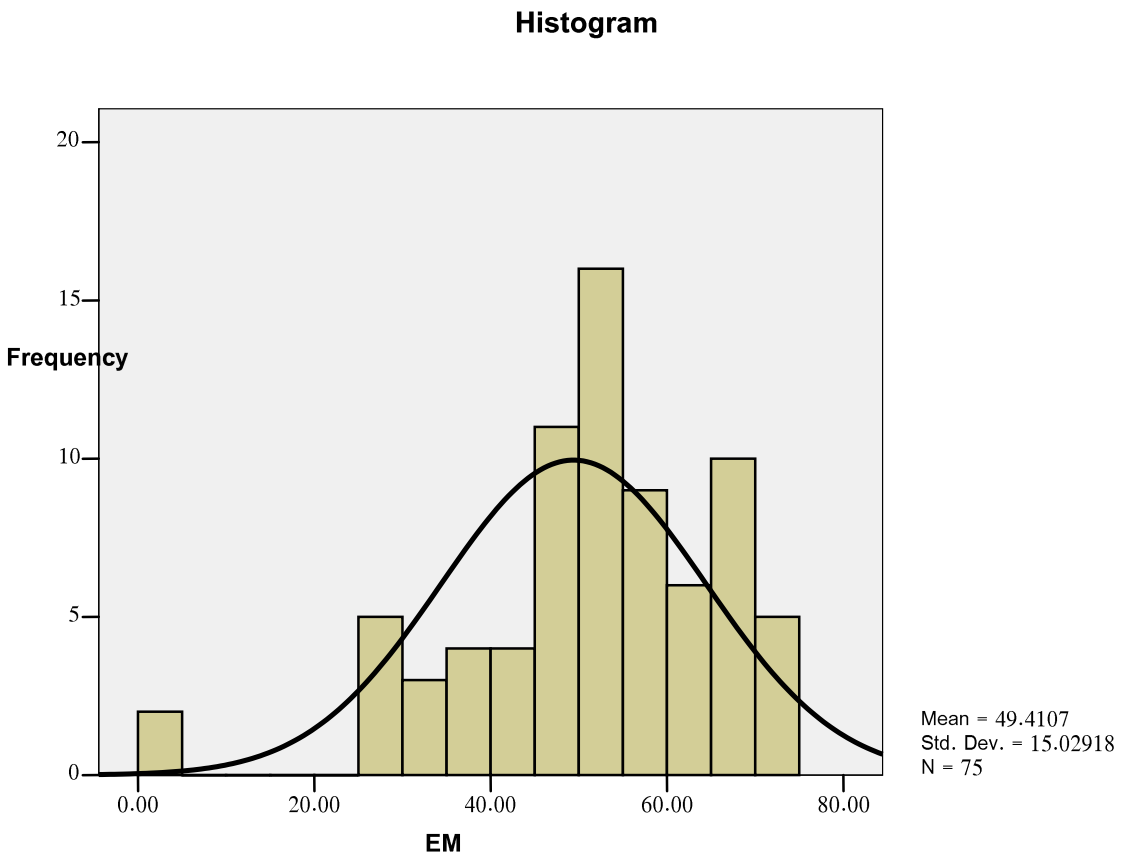
Appendix 23

Diagram FS1: Mean plot of four different groups of respondents for FS in Isfahan.



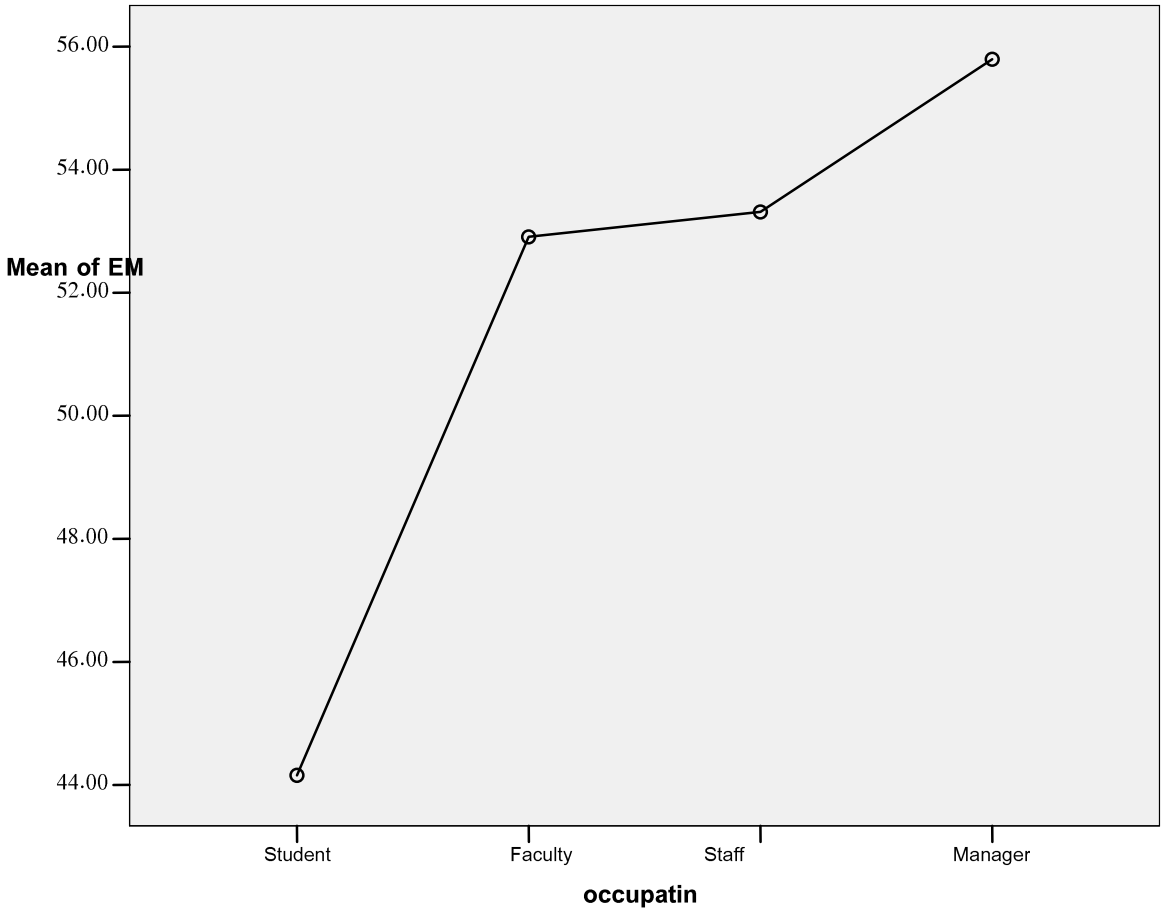
Appendix 24

Histogram EM1: Mean score of EM category in Isfahan with standardised residuals.



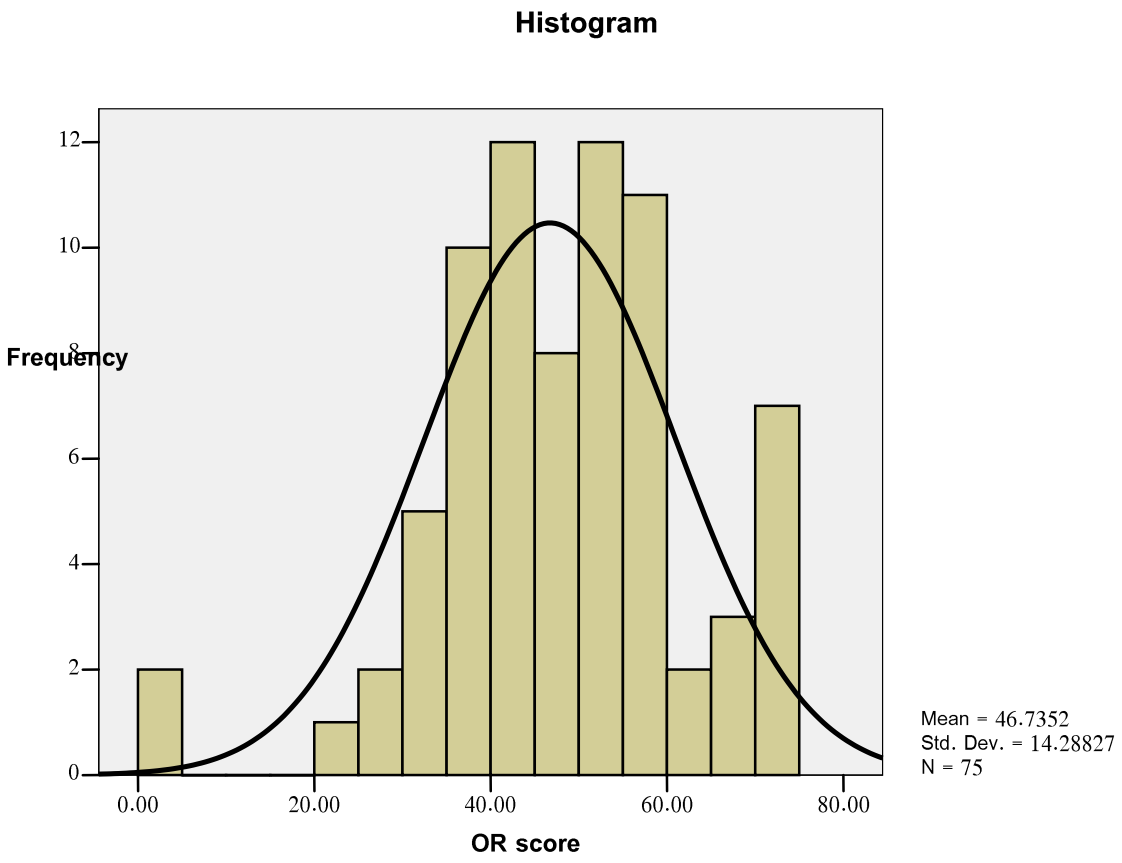
Appendix 25

Diagram EM1: Mean plot of four different groups of respondents for EM in Isfahan.



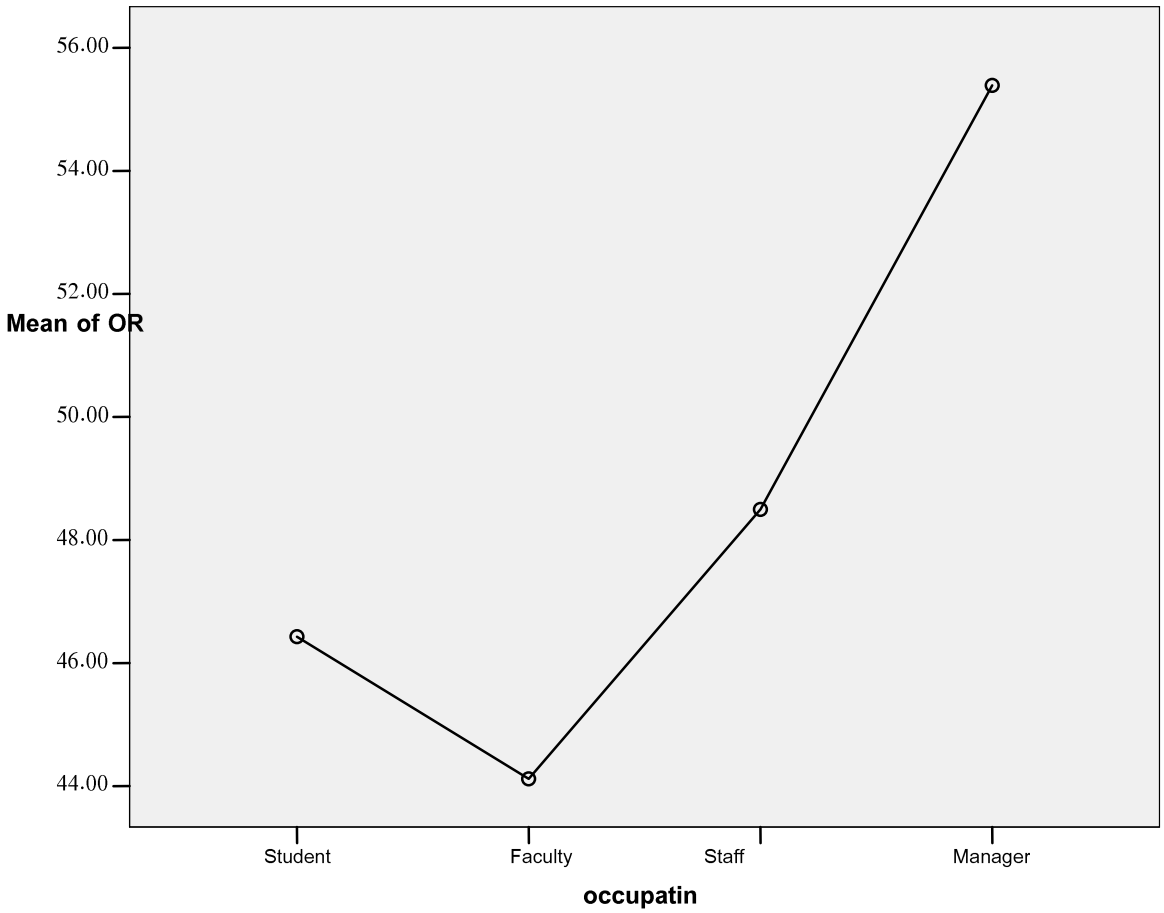
Appendix 26

Histogram OR1: Mean score of OR category in Isfahan with standardised residuals.



Appendix 27

Diagram OR: Mean plot of four different groups of respondents for OR in Isfahan.



Appendix 28: Questionnaire (Persian)

« بنام ا... »

پرسشنامه تحقيقاتي مديريت كيفيت در دانشگاههاي علوم پزشكي
تهيه شده توسط دكتر جلال حنائي
عضو هيأت علمي دانشگاه علوم پزشكي تبريز
فروردين 89 (نهائي)

نام خانوادگي (اختياري)	وضعيت شغلي : هيأت علمي□ ،كادر اداري□، دانشجو□
نام (اختياري)	سن : 20- 30 □ 31 - 40 □ 41 - 50 □ 51 به بالا □
جنس : مونث□ مذكر□	نام دانشكده يا حوزه معاونت .....

همكار گرامي :
سلام عليكم
قبل از پاسخگويي به سئوالات ، پيشاپيش از فرصتی كه براي تكميل پرسشنامه در اختيارمان قرار داديد تشكر مي كنم و يقين دارم كه پاسخ هاي شما به انجام موفقيت آميز اين پروژه كمك خواهدكرد . اين بررسي در راستاي تحقيقي است كه بنده از سال 1386 به منظور بررسي وضعيت موجود در دانشگاه از نظر مديريت كيفيت (برنامه هاي راهبردي و...) در دانشگاه Huddersfield انگلستان انجام داده ام و انشاءالله در انتها منجر به پيشنهاد مدلي براي توسعه كيفي و پيشرفت دانشگاه، خواهد شد. در اين بررسي، دانشگاه علوم پزشكي مطابق مدل بسيار مشهور و موفق Baldrige ارزيابي خواهد شد. لازم به ذكر است كه مدل Baldrige براي اولين بار در سال 1987 ميلادي توسط وزارت اقتصاد ايالات متحده آمريكا معرفي گرديد و هدف آن بهبود و ايجاد رقابت سالم بين كمپاني هاي بزرگ بود. با گذشت زمان معلوم گشت كه اين مدل مي تواند در مؤسسات آموزش عالي نيز موفق عمل نمايد. اين مدل در مجموع شامل 7 شاخص اساسي است كه آخرين فرم تصحيح شده آن مربوط به سال 2006 ميلادي مي باشد. لذا اين پرسشنامه در 7 بخش و در مجموع 48 سئوال توسط اينجانب طراحي شده است كه با صرف وقت حدود 15 دقيقه مي توان به كليه سئوالات پاسخ گفت. لطفاً با مطالعه دقيق پرسش ها روي گزينه مورد نظر علامت بزنيد. پاسخ هاي شما بسيار مهم وتعيين كننده بوده و كاملاً محفوظ خواهند ماند. در اين پرسشنامه عبارات زير با مفاهيم مورد نظر بكار گرفته شده است:
- **مديريت ارشد :** اعضاء هيأت رئيسه شامل رئيس دانشگاه ، معاونان وي و در مراكز آموزشي درماني (بيمارستان ها) شامل رئيس بيمارستان ، معاونان وي و مدير بيمارستان و در دانشكده ها شامل رئيس دانشكده و معاونان وي مي باشد.
- **ارباب رجوع :** شامل دانشجويان، اعضاء هيأت علمي ، كاركنان، كارفرمايان، وزارت خانه ها و ...
- **دانشجو :** دانشجويان دوره هاي كارداني، ليسانس، كارشناسي ارشد، Ph.D، دكتراي حرفه اي ، شبانه و روزانه.

در پاسخ گويي به سئوالات ، پنج گزينه در نظر گرفته شده كه مفهوم شماره هر گزينه به شرح زير است :
0 - بي ارتباط به شما بوده و اصلاً موردي ندارد كه پاسخ دهيد.
1- با جمله بيان شده اصلاً موافق نيستند و در دانشگاه كاربرد نداشته و به آن عمل نشده است.
2- اين جمله تاحدودي و در برخي بخش ها (شايد هم بصورت خودجوش) درست است ولي در همه بخش هاي دانشگاه اقدام نشده است. يا دانشگاه در مرحله بسيار مقدماتي و اوليه آن است.
3- اين جمله در اغلب موارد درست مي باشد و در بسياري از بخش ها اقدام شده است و اقدام هاي صورت گرفته در راستاي اهداف و طرح هاي دانشگاه مي باشد.
4- اين جمله صد در صد درست مي باشد و در همه بخش ها اقدام شده است و يك سيستم خلاّق و ادغام يافته (براساس واقعيت ها)دردانشگاه موجود مي باشد.

اول : مديريت ارشد

1- مديريت ارشد دانشگاه سيستم مديريتي را در دانشگاه ارتقاء مي دهند.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

2- مديريت ارشد دانشگاه فضاي سالمي را براي همه مشتريان (اعم از دانشجو، كاركنان و هيأت علمي ..) ايجاد كرده تا آنها برنامه هاي مديريت را خوب بياموزند، در آن مشاركت كنند و در نهايت آن را ارتقاء دهند.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

3- مديريت ارشد دانشگاه به ارزش هاي تعريف شده در برنامه راهبردي (SP)دانشگاه وفادار بوده كه اين امر منجر به بهبود وضع دانشجويان، كادر اداري و اعضاء هيأت علمي مي شود.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

4- مديران ارشد دانشگاه از ميان كارآمدترين افراد برگزيده شده اند.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

5- دانشگاه داراي بودجه اختصاصي و نيروي انساني مناسب براي اجراى برنامه هاي مديريت كيفيت است.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

6 - دانشگاه از امكانات و تجهيزات مناسب جهت ارزيابى(assessment)دانشجويان و ارزشيابي (evaluation) كادر اداري و اعضاء هيأت علمي استفاده مي نمايد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

7 - مديران ارشد در ارزشيابي ها به نظرات دانشجويان، كادر اداري و اعضاء هيأت علمي اهميت (بها) مي دهند.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

دوم : برنامه راهبردي (SP)

8 - دانشگاه داراي يك برنامه راهبردي روشن (شامل ديدگاه ، مأموريت، ارزش ها و ...) بوده كه ديدگاههاي دانشجويان، كادر اداري و اعضاء هيأت علمي را لحاظ مي كند.

O 4 O 3 O 2 O 1 O 0

9 - مديران ارشد خود را به اجراي برنامه راهبردي دانشگاه متعهد مي دانند.

O 4 O 3 O 2 O 1 O 0

10- دانشگاه داراي اهداف روشن كوتاه مدت و دراز مدت مي باشد.

O 4 O 3 O 2 O 1 O 0

11- دانشگاه داراي يك سيستم ارزشيابی بوده كه برنامه هاي اجرا شده را مورد ارزشيابي مجدد قرار مي دهند.

O 4 O 3 O 2 O 1 O 0

12- دانشگاه داراي بودجه مالي و نيروي انساني متعهد و كافي براي اجراي طرح هاي عملياتي (action plans)مي باشد.

O 4 O 3 O 2 O 1 O 0

13- مديران ارشد در كميته هاي برنامه راهبردي شركت نموده و از تصميمات آن حمايت مي كنند.

O 4 O 3 O 2 O 1 O 0

سوم : دانشجويان و مشتريان (ارباب رجوع)

14- دانشگاه سيستمي دارد كه قادر است درخواست هاي اساسي، نيازها و انتظارات دانشجويان و ساير مشتريان را مشخص نمايد.

O 4 O 3 O 2 O 1 O 0

15- دانشگاه از روش هاي مختلف به منظور جمع آوري اطلاعات ذي ربط و بازخوردهاي (feedback) دانشجويان و ساير مشتريان استفاده مي نمايد.

O 4 O 3 O 2 O 1 O 0

16 - دانشگاه به نظرات دانشجويان در تصميم گيري و برنامه هاي آموزشي اهميت داده و از آنها استفاده مي كند.

O 4 O 3 O 2 O 1 O 0

17 - دانشگاه در خصوص بهره مندي دانشجويان از امكانات مختلف و خدمات گوناگون و همچنين نارضايتي آنها از برخي امكانات، ارزيابي مناسب به عمل آورده و در جهت بهبود برنامه هاي آموزشي استفاده مي نمايد.

O 4 O 3 O 2 O 1 O 0

18 - دانشگاه از نظرات ساير مشتريان در برنامه هاي آموزشي و ارائه مطلوب خدمات استفاده مي كند.

O 4 O 3 O 2 O 1 O 0

چهارم : اطلاعات و تجزيه و تحليل آن

19 - دانشگاه داراي سيستمي جهت جمع آوري اطلاعات وداده هاي مربوط به يادگيري دانشجويان،رضايت مندي و عدم رضايت آنها و همچنين آناليز آنهاست.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

20 - در دانشگاه سيستمي جهت جمع آوري داده ها و آناليز آنها و همچنين اطلاعات مربوط به رضايت مندي و عدم رضايت مندي كاركنان و اعضاء هيأت علمي وجود دارد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

21 - دانشگاه سيستمي دارد كه ظرفيت ها و كارآئي سازماني را بررسي و مرور مي كند.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

22- دانشگاه يافته هاي حاصل ازبررسي و مرور اطلاعات را جهت نوآوري و بهبود برنامه هاي سازماني در اولويت اجرا قرار ميدهد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

23 - دانشگاه داراي سيستمي است كه اطلاعات و داده هاي مفيد (اعم از آموزشي، پژوهشي و...) را به دانشجويان منتقل مي سازد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

24 - دانشگاه داراي سيستمي است كه اطلاعات و داده هاي مفيد (اعم از آموزشي و پژوهشي و اجرائي و ..) را به كاركنان و اعضاء هيأت علمي منتقل مي سازد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

25- دانشگاه به منظور بهبود برنامه هاي راهبردي(SP) وضعيت خود را با ساير دانشگاههاي هم رده مورد مقايسه قرار مي دهد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

پنجم : توجه ويژه به كاركنان و اعضاء هيأت علمي

26 - دانشگاه فرآيند و شاخص هاي روشن جهت استخدام و به كارگيري كاركنان و اعضاء هيأت علمي دارد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

27 - فعاليت هاي كاركنان و اعضاء هيأت علمي از برنامه راهبردي (SP) نشأت گرفته است.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

28 - دانشگاه داراي نهادي (يا مركزي) به منظور ارزيابي فعاليت هاي آموزشي و اجرائي كاركنان و اعضاء هيأت علمي است.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

29- دانشگاه برنامه آموزشي مناسب (به عنوان مثال برنامه آموزش مداوم) براي افزايش كارآئي كاركنان و اعضاء هيأت علمي دارد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

30 - دانشگاه نظرات و ديدگاههاي كاركنان و اعضاء هيأت علمي در خصوص برنامه هاي آموزشي را مد نظر قرار مي دهد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

31 - دانشگاه در ايجاد و تداوم يك محيط سالم، صميمي و بهداشتي براي همه كاركنان و اعضاء هيأت علمي تلاش جدي دارد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

32 - دانشگاه بصورت منظم و سيستماتيك از دانش و تجارب كاركنان و اعضاء هيأت علمي بازنشسته بهره مي جويد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

33 - دانشگاه داراي سيستمي جهت تعيين و ارزيابي رضايت مندي همه كاركنان و اعضاء هيأت علمي در تمام سطوح می باشد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

ششم :مديريت آموزشي و پشتيباني

34 - دانشگاه فرآيندهاي مبتني بر يادگيري (Learning centrered) يا آموزش محور كه متضمن ارائه برنامه هاي آموزشي و خدمات دانشجويي است را مشخص مي كند.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

35 - دانشگاه داراي سيستم و رويه اي براي بهبود فرآيندهاي مبتني بر يادگيري (آموزش محور) به منظور افزايش موفقيت دانشجويان، اصلاح برنامه هاي آموزشي و همچنين خدمات دانشجويي است .

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

36 - دانشگاه از سيستمي براي ارزيابي برنامه هاي آموزشي به منظور بهبود آن برنامه ها برخوردار است.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

37 - دانشگاه از پيشنهادات و نظرات دانشجويان، كاركنان و اعضاء هيأت علمي در ارائه و بهبود فرآيندهاي مبتني بر يادگيري استفاده مي كند.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

38 - دانشگاه بودجه كافي و منابع مالي مناسب به منظور اجراء و پشتيباني برنامه ها و فرآيندهاي آموزشي را دارد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

هفتم : نتايج عملكرد سازماني

39 - شاخص های مرتبط با كارآئي دانشجويان (به عنوان مثال ميزان و درصد قبولي)با اهداف از پيش تعيين شده در سال جاري مطابقت دارد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

40 - شاخص و معيارهاي اساسي در ارتباط با كارآئي دانشجويان (به عنوان مثال درصد قبولي) روند رو به رشد را در سه سال اخير داشته است.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

41 – شاخص ها و معيارهاي اساسي در ارتباط با رضايت مندي دانشجويان با اهداف از پيش تعيين شده در سال جاري مطابقت دارد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0 0

42 – شاخص ها و معيارهاي اساسي در ارتباط با رضايت مندي دانشجويان روند رو به رشد را در سه سال اخير داشته است.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

43- شاخص ها و معيارهاي اساسي در ارتباط با رضايت مندي كاركنان و اعضاء هيأت علمي با اهداف از پيش تعيين شده در سال جاري مطابقت دارد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

44 – شاخص ها و معيارهاي اساسي در ارتباط با رضايت مندي كاركنان و اعضاء هيأت علمي روند رو به رشد را در سه سال اخير داشته است.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

45 – شاخص ها و معيارهاي اساسي در ارتباط با عملكرد دانشگاه (اعم از آموزشي، خدماتي و ...) با اهداف از پيش تعيين شده در سال جاري مطابقت دارد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

46 – شاخص ها و معيارهاي اساسي در ارتباط با عملكرد دانشگاه (اعم از آموزشي – خدماتي فرهنگي و...) روند رو به رشد را در سه سال اخير داشته است.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

47 – شاخص ها و معيارهاي اساسي در ارتباط با عملكرد بودجه اي و مالي دانشگاه با اهداف از پيش تعيين شده در سال جاري مطابقت دارد.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

48 – شاخص ها ومعيارهاي اساسي در ارتباط با عملكرد بودجه اي و مالي دانشگاه روند رو به رشد را در سه سال اخير داشته است.

○ 4 ○ 3 ○ 2 ○ 1 ○ 0

لطفاً هر گونه نقد ، نظر و پيشنهادي داريد مرقوم بفرمائيد:

با تشكر

دكتر

حنائي

فروردين

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Appendix 29: Quality Questionnaire

HOO

According to MBNQA model (with seven criteria), the research questionnaire with seven sections was designed to find out how the MSUs senior leaders address their responsibilities to the staff, students and community, enable the stakeholders to develop their strategic objectives, and evaluate the performance level based on information analysis. The rating scale defined for each item (question) is as follows:

PERFORMANCE RATING SCALE

The following performance rating scale will be used for the questionnaire.

0 = Not applicable

The question is not applicable to the respondent. The respondent does not have an opinion about this question.

1 = Unsatisfactory (Not at all)

The statement (practice or process) does not apply the university in any function or location.

2 = Slightly

The statement is only partially true in a few limited areas of the university but not for others. The practice or process is carried out in a incidental or ad hoc manner or the university is in the early stages of implementing a system for the practice or process mentioned.

3 = Mostly

The statement is mostly true for the university and is being implemented in most functions or locations. The approach is aligned with the university's plans or integrated with other related approaches in most areas.

4 = Completely

The statement is fully true for the university and is implemented in every function or location. There is a well-integrated, fact-based and innovative system in the university.

Dear respondent,

Hello. Before to answer the questions I would like to thank you in advance the time you are going to spend, and I am sure your response will help me to carry out the research successfully. This survey (the questionnaire) is along with the research I have started at Huddersfield University, UK to find out the current situation of the university in terms of Quality Management (e.g. Strategic planning and other key factors), and hopefully to suggest a model to improve the system. So, this survey examines the Tabriz University of Medical Sciences' Quality Management activities against the world wide quality award known as Malcolm Baldrige Quality model (Baldrige model). The Baldrige Award was launched by the US Department of commerce to enhance the quality as well as competitiveness among American companies in 1987. Over the years, it has been found that the Baldrige model can be applied for higher education sectors. The model includes seven major criteria modified and adopted in 2006. Therefore, the questionnaire has been designed in seven sections and overall 48 questions which takes about 10 minutes to complete. Please read it carefully, compete it to the best of your knowledge. Your response is extremely important to success of this study and will be treated as confidential. Throughout this questionnaire the following terms with the corresponding implications were used:

Senior leaders: Members of the university executive board (including the chancellor, the vice-chancellors etc).

Staff: Administrative staff and non academic staff.

Student: undergraduate, postgraduate, day courses, evening courses.

Faculty: Academic staff.

Stakeholders: Faculty, staff, students, alumni, professions, employers, ministries, companies, etc.

1. Leadership (senior management role)

1) The senior leaders improve the managerial system at the university.

0	1	2	3	4

2) The senior leaders create a safe atmosphere for all stakeholders to learn, participate and improve.

0	1	2	3	4

3) The senior leaders abide by the values defined in the Strategic Planning which gives commitment to improvement of faculty, staff, and students and other stakeholders.

0	1	2	3	4

4) The senior leaders have been elected among the most active staff to run quality initiatives.

0	1	2	3	4

5) The university has the financial (allocated budget) and human (staff, etc) resources for quality programmes.

0	1	2	3	4

6) The university has measuring tools to evaluate faculty, staff, students and other stakeholders' performances.

0	1	2	3	4

7) The senior leaders consider the faculty, staff, students and other stakeholders' views in the evaluation.

0	1	2	3	4

2. Strategic Planning

8) The university has a clear strategic plan (vision, mission, values, goals, objectives, etc).

0	1	2	3	4

9) The senior leaders have commitment to the strategic planning programmes.

0	1	2	3	4

10) The university has well-defined short term and long term goals with the related activities.

0	1	2	3	4

11) The university has a monitoring system to evaluate and review the action plans.

0	1	2	3	4

12) The university has enough financial and human resources to execute the action plans.

0	1	2	3	4

13) The senior leaders participate in and support the decisions of strategic planning committees.

0	1	2	3	4

3. Student focus

14) The university has a system to determine the students' key requirements, needs and the expectations.

0	1	2	3	4

15) The university uses a variety of methods to aggregate relevant information and feedback from students.

0	1	2	3	4

16) The university takes into account the students' view and uses them in making educational decisions and learning programs.

0	1	2	3	4

17) The university monitors student utilization of facilities, services, and complaints data for purposes of planning educational programs.

0	1	2	3	4

18) The university uses the students' views in the educational programs and services.

0	1	2	3	4

4. Information and Analysis

19) The university has a system to collect, analyse, align, and integrate data and information of student learning, and student satisfaction / dissatisfaction.

0	1	2	3	4

20) The university has a system to collect and analyse data and information of faculty and staff's satisfaction and dissatisfaction.

0	1	2	3	4

21) The university has a system to review organizational performance and capabilities.

0	1	2	3	4

22) The university translates the reviewed finding into priority for innovation and improvement.

0	1	2	3	4

23) The university has a system to distribute useful information and data to students.

0	1	2	3	4

24) The university has a system to distribute useful information and data to faculty and staff.

0	1	2	3	4

25) The university makes comparisons against comparable universities to improve strategic plans.

0	1	2	3	4

5. Faculty and Staff focus

26) The university has clear processes and set of criteria to recruit, hire, and retain faculty and staff.

0	1	2	3	4

27) The faculty and staff work processes are derived from the university's action plans.

0	1	2	3	4

28) The university has a centre to evaluate faculty and staff education and teaching performance.

0	1	2	3	4

29) The university develops education and training plans (e.g. continuous education) for individual faculty and staff.

0	1	2	3	4

30) The university determines the reaction of faculty and staff to education and training programs.

0	1	2	3	4

31) The university has programs and designs for creating and maintaining a safe, friendly, and healthy environment for individual faculty and staff.

0	1	2	3	4

32) The university systematically transfers knowledge from departing or retiring faculty and staff.

0	1	2	3	4

33) The university has an approach to assess faculty and staff satisfaction for diverse workforce and different categories and types of faculty and staff.

0	1	2	3	4

6. Educational and Support Process Management

34) The university determines the key learning-centred processes that deliver educational programs and student services.

0	1	2	3	4

35) The university has a system for improving learning-centred processes to maximize student success, to improve educational programs and student services.

0	1	2	3	4

36) The university has a system to evaluate educational programs for improvement.

0	1	2	3	4

37) The university uses student, faculty, staff and other stakeholder's input (as appropriate) in managing learning-centred processes.

0	1	2	3	4

38) The university ensures that adequate budgetary and financial resources are available to support different educational processes and operations.

0	1	2	3	4

7. Organizational performance results

39) The key measures or indicators relating to student performance (e.g., passing rate) have met the targets set for the current year.

0	1	2	3	4

40) The key measures or indicators relating to student performance have shown positive trends over last three years.

0	1	2	3	4

41) The key measures or indicators relating to students' satisfaction and dissatisfaction have met the target set for current year.

0	1	2	3	4

42) The key measures or indicators relating to students' satisfaction and dissatisfaction have shown positive trends over last three years.

0	1	2	3	4

43) The key measures or indicators relating to faculty and staff satisfaction have met the targets set for current year.

0	1	2	3	4

44) The key measures or indicators relating to faculty and staff satisfaction have shown positive trends over the last three years.

0	1	2	3	4

45) The key measures or indicators relating to university performance have met the targets set for current year.

0	1	2	3	4

46) The key measures or indicators relating to university performance have shown positive trends over the last three years.

0	1	2	3	4

47) The key measures or indicators relating to university's budgetary and financial performance met the targets set for current year.

0	1	2	3	4

48) The key measures or indicators relating to university's budgetary and financial performance have shown positive trends over the last three years.

0	1	2	3	4

Any comments or suggestions: