A STUDY OF TOTAL QUALITY MANAGEMENT IN THE UNIVERSITY OF JORDAN USING BALDRIGE EDUCATION CRITERIA AND EDUCATIONAL SERVICE QUALITY MODEL

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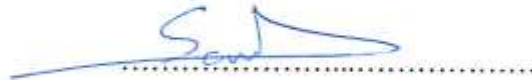**Examination Committee**   **Signature**

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Dedication

To my late father, who was not only a great father he was my friend and teacher as well. He taught me that no matter how life is tough sometimes we can face it by faith, hope and hardworking. He always believed in me and in my abilities and always standed beside me with his love, support and understanding. I will always remember him and I will never let anything stop me from being what I deserve to be.

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To every one who played a role in my life and was a source of inspiration

Eng. Manar Al- Hasan

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List of Abbreviations

A	Administration
ABET	Accreditation Board of Engineering and Technology
BEC	Baldrige Education Criteria
BF	Interpersonal Behavior of Faculty
CA	Current Assessment of the item
DIFF	Difficulty of implementation of the item
EFQM	European Foundation for Quality Management
ES	Educational Support and Process Management
ESQ	Educational Service Quality
EXT	Extent of implementation of the item
F	Facilities
FC	Faculty Communication
FE	Faculty Expertise
FS	Faculty and Staff Focus
IMP1	Impact of item on quality
IMP2	Impact of item on service quality
L	Leadership
LIM	Limitations
M	Measurement, analysis and knowledge management
MBNQA	Malcolm Baldrige National Quality Award
NIST	National Institute of Standards and Technology
SERVPERF	Service Performance instrument
SERVQUAL	Service Quality instrument
SF	Student , stakeholders and market Focus
SP	Strategic Planning
SQA	Singapore Quality Award
SS	Student Satisfaction
R	Results
TQM	Total Quality Management

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ABSTRACT

Total Quality Management (TQM) has been a prominent issue in all sectors especially in business and manufacturing world. Based on the satisfactory results in that fields many higher education institutions started slowly to adopt TQM models which have been modified to fit the educational environment such as Baldrige Education Criteria for Performance Excellence (BEC) and Educational Service Quality (ESQ) model. These models were used for measuring performance and assessing quality and TQM in higher education to achieve continuous improvement.

This study first aims to represent BEC as a valid and reliable model for measuring performance excellence in higher education, and relate its six dimensions with the seventh dimension which is performance results and its items. In addition to identify the obstacles that may impede the implementation of TQM in higher education. It also aims to measure student satisfaction with the quality of educational services, using ESQ model and links its

five dimensions with the sixth dimension which is overall student satisfaction with the quality of educational services and its items.

Two questionnaires were designed for the study; one for the teaching faculty members from different faculties in the University of Jordan and is based on BEC for Performance Excellence, while the other one is for students in their final year from the Faculty of Engineering and Technology in the University of Jordan and is based on ESQ instrument. Data were collected and analyzed and the validity and reliability of the two models were evaluated using SPSS.

The study confirmed the validity and reliability of BEC as a measure of performance excellence in higher education with leadership being the driver of Baldrige system. It also showed that Student, stakeholder and market focus is the most significant dimension effecting performance results dimension, student learning outcomes item and student satisfaction item. In addition, the study confirmed the validity and reliability of ESQ model as a measure of overall student satisfaction with educational service quality. And that interpersonal behavior of faculty has statistically the most significant effect on overall student satisfaction dimension, student satisfaction with the quality of education item and student satisfaction with the quality of teaching item.

CHAPTER ONE
INTRODUCTION

1. PREFACE

During the last few decades TQM has been at the top of most agendas. It has become more than a set of tools it became a philosophy that leads to radical changes in the ways people, companies and even societies are working together (Anyamele, 2004). TQM is a continuous improvement system that can be used by all types organizations (Siegel and Byrne, 1994). Although it was first implemented in business and manufacturing sectors, recent studies have confirmed its applicability in different environments including higher education.

TQM can be used as tools by which the demands of universities, students' need for better facilities in the institution, reduced government funding, decline of quality of graduates, decline in students' performance, spiraling tuition, and increased competition for outstanding students and faculty could be met (Anyamele, 2004). There are different models that embrace the philosophy of TQM which has been modified for the education environment, such BEC, the European Foundation for Quality Management (EFQM) Excellence Model, Deming Prize and Singapore Quality Award (SQA).

Since being an essential part of TQM, educational service quality has received a considerable attention in higher education. Educational service quality is defined as a student's overall evaluation of services received as apart of their educational experiences (Holdford and Reinders, 2001). It includes many activities inside and outside the classroom

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including administration, behavior of faculty, faculty communication, faculty expertise, and facilities. Student feedback can help educators to recognize the areas where need to improve, increase student satisfaction and compete with others (Holdford and Patkar, 2003).

2. PROBLEM DEFINITION

The growing emphasis on quality and the pressures resulting from, decrease of financial support, increase of student numbers and education costs, changing student's needs and expectations, more local and global competition, requires higher education to do more with less. This has lead many higher education institutions to search for and adopt TQM models that can help them in managing the quality of education like BEC and ESQ model. These models have been used to measure performance results and student and stakeholders satisfaction with the quality of educational services to achieve continuous improvement in higher education. This study is focus on studying BEC as a valid and reliable measure of performance excellence in higher education, relating its six dimensions with the seventh dimension which is performance results and its items and identify the obstacles that may impede the implementation of TQM in higher education. It is also focus on measuring student satisfaction with the quality of educational services in higher education using ESQ model and link its five dimensions with the sixth dimension which is student satisfaction and its items.

To achieve these objectives two questionnaires were designed for the study; one for the teaching faculty members from different faculties in the University of Jordan and is based on BEC for Performance Excellence (2006), while the other one is for students in their final year from the Faculty of Engineering and Technology in the University of Jordan and is based on ESQ instrument.

3. IMPORTANCE OF THE THESIS

The importance of the thesis comes from being a start to pave the way for implementing TQM in higher education specifically in the University of Jordan using BEC for Performance Excellence and assessing educational service quality in higher education using ESQ model. These models have been used as non prescriptive and adaptable systems that strive for implementing TQM and continuous improvement through self assessment, strategic planning, benchmarking and stakeholders satisfaction. The perceptions of faculty members and students can also be used to set priorities for improvements and identify areas where most need to be improved.

4. STUDY QUESTIONS

1. Is BEC a valid and reliable measure of performance excellence in higher education?
2. Does leadership have significant effect on all dimensions of Baldrige system?
3. Which dimensions in the Baldrige system mostly affect performance results dimension, student learning outcome item, and student satisfaction item?

4. What are the obstacles that mostly affect the implementation of TQM in higher education?

5. Is ESQ model a valid and reliable measure of student satisfaction with educational service quality in higher education?

6. Which dimensions in the ESQ model mostly affect overall student satisfaction dimension in higher education?

7. Which dimensions in the ESQ model best predict student satisfaction with the quality of education item and student satisfaction with the quality of teaching?

5. OBJECTIVE OF THE THESIS

This study first aims to represent BEC as a valid and reliable model for measuring performance excellence and assessing quality in higher education, and relate its six dimensions with the seventh dimension which is performance results and two of its items (student learning outcomes item and student satisfaction item). In addition to identify the obstacles that may impede the implementation of TQM in higher education. It also aims to measure student satisfaction with the quality of educational services in higher education using ESQ model and link its five dimensions with the sixth dimension which is student satisfaction and two of its items (student satisfaction with the quality of education and student satisfaction with the quality of teaching).

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6. ORGANIZATION OF THE THESIS

The thesis is divided into five chapters. The first chapter is the introduction of the thesis. Chapter Two is the literature review, where the previous work of other researchers is discussed. The research methodology is presented in Chapter Three. Chapter Four shows results and discussion. Finally the conclusions and recommendations are presented in Chapter Five.

CHAPTER TWO
LITERATURE REVIEW

1. INTRODUCTION

Over the past two decades many organizations have come to understand that in order to stay competitive globally, a self assessment framework to continuously improve organizational performance is required. In this context, TQM has been accepted as disciplined management process in order to cope with changes in market place and to focus on quality in their products as well as their services. Although there are only a few studies that fully address TQM in higher education, most studied showed that the principles of TQM can definitely contribute to the improvement in higher education (Arcaro, 1995; Bonstingl, 2001; Anyamele, 2004; Venkatraman, 2007).

The literature review chapter is divided into three main sections:

1. Total Quality Management: This section gives a brief review of the concept of TQM, TQM in higher education, application of TQM, TQM in higher education in Jordan and barriers of TQM application.

2. Baldrige Educational Criteria: This section reviews BEC framework and core values and the applicability of BEC in higher education.

3. Educational Service Quality: This section reviews the concept of service quality, ESQ model.

2. TOTAL QUALITY MANGEMENT

2.1 The Concept of TQM

While TQM is widely practiced, there is little agreement on what it actually means. According to Lawler (1994) there is no single theoretical formulation of the TQM approach. Green (1994) defined it as the capacity, which whole organization can be made to have, to continually learn and implement customer wants. Witcher (1990) defined the term by breaking the phrase into three terms, whereby "total" implies every person is involved, " quality", implies customer requirement are met exactly; and "management", implies senior executives are committed. Roosevelt (1995) defined TQM as a strategic architecture requiring evaluation and refinement of continuous improvement practices in all areas of customer satisfaction. Djerdjour and Patel (2000) see TQM as a management philosophy, which seeks continuous improvement in the quality of all processes, people, products and services of an organization.

In higher education TQM is considered as a process oriented approach to increasing productivity, decreasing costs, and improving quality of services (Green, 1994). Dahlgaard *et al.* (1995) defined TQM in education as educational culture characterized by increased customer satisfaction through continuous improvement in which all employee and students actively participate. Siegel and Byrne (1994) further iterate that Total Quality Management, by definition, is a continuous improvement process, which can be used by all types of organizations, and it provides a systemic focus, by offering a way for them to connect to their administration and vice versa. TQM was also defined as a systematic and stream lined philosophy for quality management that lead to improvement in educational processes

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realizing on the experience, expertise, and commitment of all members of an organization to improve the process by which the customers are served (Bettina, 1992; Anyamele, 2004). Sahney *et al.* (2002) said that TQM in education is multi faceted, it believes in the foundation of an educational institution on a systems approach, implying a management system, technical system and a social system all based on principles of quality to be implemented throughout. Thus, we can conclude that TQM is a multiple concept with varying meanings and this poses problems in formulating single comprehensive definition.

2.2 The role of TQM in Higher Education

Since 1980s the concept of TQM has been a central focus of attention in the debate of higher education. The literature on TQM in education confirms that the strategies and processes that build quality businesses and industries can transform universities and schools into quality learning organizations (Arcaro, 1995; Bonstingl, 2001; Anyamele, 2004). The tools, processes, and philosophy of TQM can help education professionals cope with today's changing environment, alleviate fear and increase trust, provide a flexible infrastructure, help cope with budget and time constraints and make it easier to manage change (Arcaro, 1995). TQM can be used as a tool by which the demands of universities, students' need for better facilities in the institution, reduced government funding, decline of quality of graduates, decline in students' performance, spiraling tuition, and increased competition for outstanding students and faculty could be met (Anyamele, 2004). Frazer (1994) identified five reasons for the concern for quality and TQM in higher education; government, which in most countries is the pay master, citizens, who pay taxes to government, employers of graduates, students and their parents; and teachers professors

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and mangers in universities. The universities must be accountable to society, to employers, to students and to each other. Siegel and Byrne (1994) investigated eleven web sites and conducted over 200 interviews to examine quality and TQM as a systemic change strategy for education. Four findings emerged from the study:

1. TQM as a comprehensive, systemic change strategy is applicable to an education setting.

2. Implementing TQM in education is not a quick fix; in fact, it will be more difficult than in the private sector

3. Business management experience and political support are critical if not essential resources for implementing TQM in education.

4. Before business and education leaders can use TQM to restructure education, bridges between them need to be built

Siegel and Byrne (1994) further iterate that TQM, by definition, is a continuous improvement process, which can be used by all types of organizations, and it provides a systemic focus, by offering a way for them to connect to their administration and vice versa. Feast and Barnet (2000) see TQM as a management model that was developed to provide a framework for debate and discussion about measures that may lead to improvement in educational processes. TQM realizes on the experience, expertise, and commitment of all members of an organization to improve the process by which the customers are served (Bettina, 1992; Anyamele, 2004). It places customer satisfaction as an organization's primary goal. Education institutions provide service (education) by starting with raw material (students) through an application of a process (teaching), and turn out products (graduates). Sahney *et al.*(2002) confirmed that by saying that TQM aims at satisfying the needs of the various stakeholders through the design of a system based on certain principles and practices including the quality of inputs in the form of student, faculty support staff and infrastructure; the quality process in the form of learning and teaching activities; and the quality of outputs in the form of the enlightened students that move out the system. To apply TQM there is a need for facilitation of action, which might enable universities gradually to reshape themselves into learning organization in which all

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categories of staff work to achieve high quality management in their institutions.

2.3 Application of TQM in Higher Education

TQM is a continuous improvement system that can be used by all types organizations (Siegel and Byrne, 1994). Although it was first implemented in business and manufacturing sectors, recent studies have confirmed its applicability in different environments including higher education.

Kanji and Tambi (1999) say that the first implementation of TQM in U.S. higher education was at Fox Valley Technical College. As a result it has become more efficient in areas such as placement of graduates, employer satisfaction and improvement in its learning environment. They also reported that within the US there are 160 universities which applied TQM and fifty percent of the universities have established an organizational structure for quality such as Wisconsin Madison University, North Dakota University, Delware Community College and Oregon State University. Grant *et al*.(2004) found in his study for TQM approaches in higher education institutions in U.S.A. that several universities like Aurban University, Rochester Institute of Technology, Drexel Virginia Commonwealth and Michigan State developed unique TQM approaches for improving the quality of teaching, student life, academic programs, research and university operations. Another study that dealt with TQM in higher education is Mergan *et al*.(2000) study which showed how the Business College at Rochester Institute of Technology confront the problems of declining student enrollment, low research productivity and decreasing student retention by application of TQM principles and practices. Wolvernton (1996) reported on

the successes of implementing TQM into the classroom at Arizona's State University in addition to a case study which utilized TQM principals in the design and implementation of graduate course at the Northwestern State University.

In U.K. higher education , the application of TQM has been slow, however since 1993, there has been increasing interest in TQM at several universities like South Bank University, University of Ulster, Aston University and Wolver Hampton University and there are institutions in the U.K. which offer undergraduate degree courses in TQM (Kanji and Tambi, 1999). They also found that TQM principles and core values can be used to assess the quality of institution on various aspects of their internal processes.

2.4 TQM in Higher Education in Jordan

Higher education in Jordan has achieved noticeable progress and distinction at the pan Arab and regional levels regarding content, programs and methods of teaching and learning that affect both quality and quantity. It has witnessed a rise of public and private universities which offer solid and advanced learning opportunities. The higher Education council, The Accreditation Commission and the Higher Committee for Scientific Research oversee the programs offered by both private and public institutions and evaluate their effectiveness implementing higher education's vision, mission and objectives. Future strategic goals for the Ministry of Higher Education and Scientific Research:

1. Improving higher education sector management.
2. Improving the quality of higher education environment.

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3. Enhancing scientific research quality and the role of higher education institutions.

4. Providing national quality data- bases and periodic studies on the higher education sector and scientific research. In accordance with international best practices.

The Ministry has developed a strategy for higher education and scientific research. The main components include admission polices of Jordanian universities, curricula and study plans, developing human resources, university management, quality assurance and legislation. The Higher Education Accreditation Commission aims to enhance and guarantee quality in higher education to encourage universities to be open and interact with international scientific research institutions and accreditation commissions and to upgrade higher education in Jordan on the basis of internationally recognized criteria. It has a mandate over private and public universities and overall foreign institution of higher education in Jordan affiliated with Jordanian universities. The commission is charged with the establishment and management of the National Testing Center, which designs and conducts all kinds of standardized tests in almost all fields, to be used for graduation and admission, and not only an exit test in a limited number of fields. It also demands that institution of higher education setup departments to be charged with TQM, internal audit and self assessment (Ministry of Higher Education).

Therefore, most Jordanian universities started to adopt TQM practices in their departments, establish quality assurance offices to manage quality and seek to achieve accreditation standards set by international bodies like the British Quality Assurance Agency, where the faculties of Information and Technology and Business Administration in the Universit of Jordan succeeded in achieving its requirements (Al-Ymani, 2006).

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They also try to achieve the requirements of the Accreditation Board of Engineering and Technology (ABET) which accredits university programs in applied science, computing , engineering and technology for meeting the quality standards established by the profession for which it prepares its student.

Badah (2003) studied the applicability of TQM in eight public Jordanian universities using a questionnaire consisted of 100 items under ten dimensions which reflect different areas of application of TQM: leadership, the university vision and mission, organizational culture, information system and analysis, strategic planning, managing human resources, operation management, continuous improvement, customer satisfaction and feedback dimension. The study sample consisted of 508 faculty members in different administration units in eight public Jordanian universities: University of Jordan, Yarmouk University, Mutah University, Jordanian Science and Technology University, Al-Elbait University, Hashemite University, Al- Balqa University and Al- Hussein Bin Talal University. The study showed that TQM can be applied to Jordanian universities. And that it is mostly applicable to customer satisfaction dimension followed by continuous improvement, the university vision and mission, information system and analysis, leadership, strategic planning, managing human resources, operations management, organizational culture and feedback.

Another study conducted by Tarazi (2005) studied the applicability of TQM constructs presented in the Baldrige Education Criteria for Performance Excellence in the University of Jordan and studied the relationship between its six dimensions and operational and financial results. The sample population was a random sample drawn from

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all the members of the teaching staff in the Faculty of Engineering and Technology at the University of Jordan. The study revealed that TQM elements are applicable to higher education with different degrees with soft enablers of TQM (leadership, student, stakeholder and market focus and faculty and staff focus) being more applicable than hard enablers (strategic planning, measurement, analysis and knowledge management and process management). It was also found that leadership and student, stakeholder and market focus are the significant elements that influence the operational performance of higher education while Student, stakeholder and market focus is the only element that affects the financial performance of higher education significantly and positively.

2.5 Barriers to TQM Implementation

The literature survey has revealed several barriers to the application of TQM in education. Horine and Haily (1995) performed a study of what was perceived as the greatest challenge to implementing TQM throughout the education system by distributing a questionnaire to 425 colleges and universities in U.S.A. The responses were grouped to the following points ordered with respect to importance:

1. Organizational culture, which has been cited as potential barrier characterized by aversion to change, skepticism and belief that there is no need for TQM.

2. Lack of senior leadership commitment. Without the involvement and commitment of senior leaders, the quality management journey becomes difficult and at times impossible.

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3. Insufficient implementation time.

4. Insufficient training.

Bonstingl (2001) through his work with district school leaders compiled a list of the most often cited mistakes in implementing TQM in education. He referred to them as the seven stumbling blocks in the road to TQM and includes:

1. Failure to set clear vision and objectives.

2. No consistency of purposes.

3. Fixing blame, applying coercion.

4. Basing decisions on assumptions rather than data.

5. Excluding key players from participation.

6. Lack of training for leaders and staff.

7. Failure to walk the talk.

Kathryn (2004) confirmed these reasons in her study and added that the lack of sufficient funds and resources could be one of the barriers in addition to the intangible elements that are difficult to be measured in the educational process. Vazzana *et al*.(2000) believed that potential barriers to TQM programs in academia include organizational culture, academia freedom, time constraints, research responsibilities and irregular teaching schedules.

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3. BALDRIGE EDUCATIONAL CRITERIA

3.1 BEC Framework and Core Values

The Malcolm Baldrige National Quality Award (MBNQA) framework has become a template for most quality awards in many countries (Mackerron, 2003). It was established in 1987 by the congress to recognize U.S.A. organizations in business and manufacturing sectors for their achievements in quality and performance and raise the awareness of quality practices. In 1999, the National Institute of Standards and Technology (NIST) announced the inclusion of Baldrige Award in education and healthcare.

Since then it has been used by higher education institutions for continuous improvement through self assessment, strategic planning, benchmarking and stakeholders satisfaction**.** The criteria are non prescriptive and adaptable. BEC focus on results not on procedures, tools or organizational structure. Organizations are encouraged to develop creative and flexible approaches for meeting requirement. And the selection of tools, techniques and organizational structure depends on factors such as organization type and size, organizational relationships, organization's stage of development, and faculty and staff capabilities and responsibilities (Baldrige Education Criteria 2006). The criteria focus on stakeholders and defined them as students, their families, communities, governments and investors in students. There have been little empirical studies examining the usefulness and validity of BEC in education. Recognition of the value of using the Baldrige Criteria in education can be traced throughout the literature of the 1990s. Siegel and Byrne (1994) studied a number of educational organizations that exhibited key characteristics of the Baldrige Criteria finding that quality as a comprehensive, systemic change strategy is

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applicable to an education setting. Arcaro (1995) also suggests a number of benefits of applying the Baldrige Criteria including establishing a culture focused on student learning, an involved and informed staff willing to improve educational processes, increased cooperation, better learning environments, efficiency and productivity, improved student and administrative outcomes, effective teamwork, and improvements in education recognized by all stakeholders. Other benefits as cited by Karathanos (1999) include the provision of a rigorous and comprehensive model for educational excellence and widespread adoption of the Baldrige education Criteria should result in a significant increase in research addressing the teaching and learning processes.

Like the Baldrige Performance Excellence Criteria for business, the Educational criteria are built on a set of intercorrelated core values that characterize all types of high performing organizations and are linked to student's need to be fully engaged in seeking and interpreting knowledge and facts (Blazy *et al*., 2001). The education framework consists of seven categories as presented in Fig 1.

Organizational Profile: Environment, Relationships and Challenges

2. Strategic Planning (SP)

5. Faculty and Staff Focus (FS)

7. Results (R)

1. Leadership (L)

3. Student, stakeholders and Market Focus (SF)

6. Educational Support and Process Management (ES)

4. Measurement, Analysis and Knowledge Management (M)
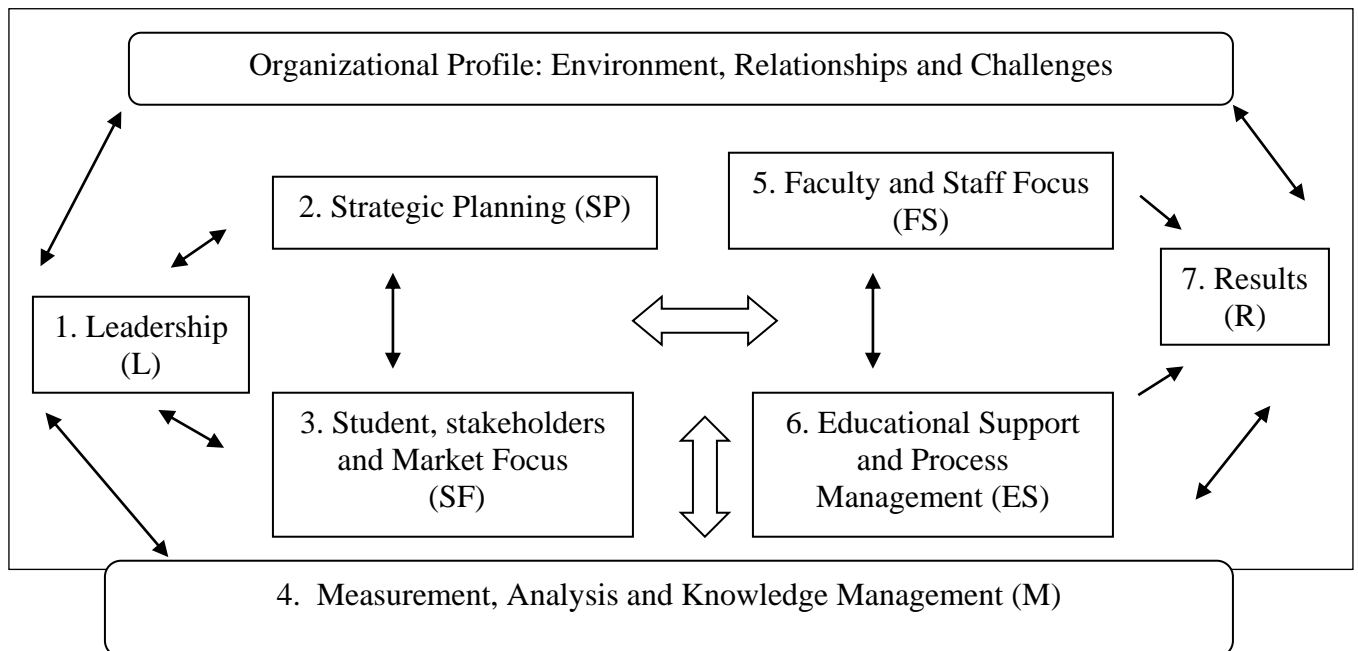
The seven categories are presented as follows:

1. Leadership

Leadership is the key driver in BEC (Abdullah *et al*., 2006; Kathryn 2004; Meyer and Collier, 2001; Winn and Cameron, 1998). Without the involvement and commitment of senior leaders, the quality management journey become difficult and at times impossible (Vora 2002). BEC evaluates leadership's ability to instill quality values and customer focus among the employee and to continuously improve their leadership styles. In higher education senior leaders should inspire and motivate the entire workforce and encourage all the faculty and staff to contribute develop and learn to be innovative and creative. They should serve as role models through their commitment, ethical behavior, personal involvement in planning, communication with all employee, faculty and staff recognition and reviewing of organizational performance(Abdullah *et al*., 2006; Kathryn 2004).

2. Strategic Planning

It examines how the organization develops strategic objectives and action plans, how they are deployed and how progress is measured. For higher education the category stresses that learning centered education and operational performance are key strategic issues that must be considered in planning for strategic objectives and action plans. It also examines how the organization understands key student, stakeholder, market and societal requirement as input to set strategic directions (Khoo and Tan, 2003).

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3. Student, Stakeholder and Market Focus

Student, stakeholder and market focus address how the organization seeks to understand needs of current and future students and stakeholders and to understand the market with focus on delighting students and stakeholders, meeting their needs and expectations, responding to their opinions and complaints, and building loyalty.

4. Measurement, Analysis and Knowledge Management

It evaluates the methods used to continuously improve its information gathering and analysis cycle. It is the main point within the criteria for all key information about effectively measuring and analyzing organizational performance. It calls for alignment of the organization programs and offerings with strategic objectives. It addresses how the information is gathered, analyzed and used to optimize organizational performance.

5. Faculty and Staff Focus

It addresses the key human resource practices, those directed toward creating and maintaining a high performance workplace with focus on student and learning and toward developing faculty and staff for adoption to change. It covers faculty and staff development and management requirements in an integrated way, which is aligned with the organization's strategic objectives. It includes the work environment and faculty and staff support climate and considers faculty and staff planning as a part of overall planning.

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6. Educational Support and Process Management

It addresses the central requirement for efficient and effective process management: effective education design and delivery, a focus on student learning, linkage to students, stakeholders, suppliers and partners, focus on learning centered education, organizational learning and continuous improvement.

7. Results

It examines the organizational performance and improvement in all key areas; student learning outcomes, student and stakeholder satisfaction, faculty and staff outcomes, leadership outcomes, organizational effectiveness outcomes and budgetary and financial outcomes.

3.2 Application of BEC in Higher Education

There are few studies that fully address MBNQA and BEC in the area of education. Evans (1997) initially discusses MBNQA and institutions of higher education by relating it to learning and curriculum issues and identifying what higher education should be teaching based upon a survey of Baldrige Award winners. Using the findings of Evans, Weinstein *et al.*(1998) identified a gap between Baldrige Award winner's perceptions and the current practice and the current practice in higher education institutions. Belohlav (2004) described how faculty members in the department of management at DePaul University designed, developed and delivered course material using the BEC both as apart of structure and as point in their individual classes. Winn and Cameron (1998) examined the validity of BEC

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dimensions using data from higher education. They developed a survey instrument of processes, practices and outcomes of quality at large Midwestern University in the U.S.A. They found that the seven MBNQA dimensions are distinct constructs and are being measured reliably by the questionnaire items. To assess the validity of the framework, regression analysis was conducted. They found that the relationship between the leadership dimension and each of the four dimensions was strong and statistically significant. Pannirselvam and Ferguson (2001) also tested the validity of relationship between the categories by modifying the Baldrige framework into eight construct model, separating customer focus and satisfaction into two separate constructs. Their results provided evidence to confirm the validity of the modified framework. Abdullah *et al*.(2006) also empirically tested the relationships in BEC using a sample of 220 respondents from fifteen United Arab Emirates (U.A.E.) universities and colleges. Results of regression analysis showed that the hypothesized relationships in the Baldrige model are statistically significant, with the leadership dimension being the driver of the system.

The University of Wisconsin-Stout (UW-Stout) is one of the educational organizations that received MBNQA in 2001. It had utilized some of the quality tools and TQM since the 1990s. They saw the match between what they had been doing and the Baldrige. The Chancellor of Wisconsin-Stout University noted, "It was tight, it was focused and it didn't necessarily tell you what you had to do within those seven categories. It allows you to really address those things in your mission and how you function" One of the most significant changes at UW-Stout involves how everyone thinks in terms of improving everything on a continual basis and reinventing the campus from isolated departments to a set of systems. Pearl River School District which is another Baldrige Award winner also

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used the Baldrige Education Criteria as a model that can move them toward their goals without being prescriptive or limiting, resulting in improving students' performance and increasing faculty satisfaction

From the forgoing discussion, it can concluded that BEC can be has proven its validity as a non prescriptive and adaptable model that strives for continuous improvement through self assessment, strategic planning, benchmarking and stakeholders satisfaction in many educational institutions and that the seven dimensions of Baldrige system are all valid constructs with leadership dimension being the driver of the whole system.

4. EDUCATIONAL SERVICE QUALITY
4.1 Defining Service Quality

The last two decades have witnessed a wide acceptance and use of quality in service sector, with service quality being an important factor for growth, survival and success. The conceptualizing of service quality has considerable interest and debate in literature because it is difficult in both defining it and measuring. Defining service quality is more difficult than product because services are intangible, heterogeneous (can vary by customer) and production is inseparable from consumption (Parasurman *et al.,* 1985). Most definitions of service quality are customer-centered (Galloway, 1998), with customer satisfaction being seen as functions of perceived quality (Parasurman et al., 1988). Service quality evaluations are based on both the manner in which the service is delivered (functional quality) and what outcomes resulted from that service (technical quality). Lewis and Booms (1983) were perhaps the first to define service quality as a measure of how well the service level delivered matches the customer's expectations. Thereafter, there seems to be a broad

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consensus that service quality is an attitude of overall service superiority, although the nature of the attitude is still hazy. Parasurman *et al*.(1985) stated that service quality as perceived by customer involves a comparison between of what they feel the service should be (expectations) and with their judgment of what they received (perceptions). If the expectations are greater than performance, then customer dissatisfaction occurs. Cronin and Taylor (1992) defined service quality as perceptions of performance alone while others argue that it is derived from comparison of performance with ideal standards (Teas 1993).

4.2 Educational Service Quality

In the field of education, substantial interest in service quality has begun and this interest has been focused primarily on higher education. Universities strive to provide high educational service quality to satisfy their students and stakeholders. Educational service quality can be defined as a student overall evaluation of services received as a part of their educational experience (Holdford and Patkar, 2003). It has been assessed as apart of TQM programs (Anderson, 1995). It describes a variety of educational activities both inside and outside the class room.

A survey conducted by Owlia and Aspinwall (1996) examined the view of professionals on the service quality in higher education and concluded that from the different customers of higher education, students were given the highest rank. Student feed back about educational services can be used to:

- Help educators to recognize opportunity to improve services and establish positive student

    perception (Anderson, 1995)

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- Identify the gab between student perceptions and that of educators (Pariseau and McDaniel, 1997)

- Identify student feelings.

- As strategic tool for marketing educational programs.

The majority of educational service studies used Service Quality instrument (SERVQUAL) which measures the gab between the student' expectations of service quality and the actual performance of that service. It was developed from the initial research conducted by Parasurman *et al*. (1985), which identified ten dimensions of service quality (tangible, reliability, responsiveness, competency, courtesy, communication, credibility, security, access and understanding), based upon a series of focus group. Thereafter, Parasurman *et al*.(1988) developed SERVQUAL instrument which utilizes 22 pairs of measurement scale that compares differences between consumer's expectations of services and their assessment of the actual performance. Five dimensions of service quality have been specified by SERVEQUAL; reliability, responsiveness, empathy, assurance and tangible. Despite the popularity of SERVEQUAL, numerous criticisms have been made which focus on the following points:

- A five dimensional structure of service quality may not be appropriate for all services or in all situations (Carman, 1990).

- Measuring expectations may be unnecessary to assess service quality. Performance measures alone may be superior both theoretically and practically (Cronin and Taylor, 1994).

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- Questions in the SERVEQUAL instrument focus on the service process and not the outcome of that service (Mangold and Babakus**,** 1991).
- The SERVEQUAL instrument is too generic for many services to be used without alteration (Carman, 1990).

In response to the above criticisms, an alternative instrument have been utilized by Cronin and Taylor (1992) , called Service Performance instrument (SERVPERF) , retains the original 22 items of SERVEQUAL but measures only perceptions of performance instead of both performance and expectations. Proponents argue that SERVPERF is shorter, theoretically superior, and better reflects service quality assessment than SERVEQUAL It has been validated for banking, dry cleaning, advertising, and dental services (Cronin and Taylor 1992; Carman, 1990).

4.3 ESQ Model

Both instruments SERVEQUAL and SERVPERF focus on measuring functional quality and only indirectly evaluate technical quality services, based on that consumers lack the ability, information, and confidence to assess the technical quality services. For many services this premise may be true, but for higher education it may lack validity for two reasons. The first reason is that educational services are highly involving and require high level of participation through which students can develop strong opinions about their educational outcomes. The second reason is that service literature proved that student use educational outcomes to evaluate the school they attended (Holdford and Reinders, 2001).

A study conducted by Fjortoft and Lee (1994) found student perceptions of their intellectual development (educational outcomes which describe student's evaluation of knowledge and skills gained and their relevance to student career goals) to be an important variable in student assessment of their educational experiences. Therefore, Holdford and Patkar (2003) developed ESQ model to assess student perceptions of the quality of their education and link those dimensions with student satisfaction with their educational experience. It was conducted to pharmacy students in Virginia Commonwealth University in the Unites States. Performance measures similar to those in SERVPERF service quality measure developed by Cronin and Taylor were used. ESQ model consisted of 44 items under six dimensions, five dimensions with 37 items assess the service process functional quality and the sixth dimension with seven items assess student satisfaction with their intellectual development based on Fjortoft and Lee study. Holdford and Patkar found that ESQ with its six dimensions is a valid and reliable tool for assessing educational service quality. Besides that, student perceptions of faculty are multidimensional with faculty interpersonal behavior explaining the most variance in student satisfaction followed by administration dimension and facilities. The six dimensions of ESQ model are presented as follows:

1. Administration

Assesses student perceptions of administration reliability, responsiveness and expertise. It examines how the administration treats student, understand their needs, solve their problems, help them, keep in touch with them, answer their questions and insure

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confidentiality and safety. Students receive extensive exposure to administration in their final year which gives the administration multiple opportunities to improve student satisfaction before graduation

2. Interpersonal Behavior of Faculty

It was found that faculty member interpersonal behaviors were the most important dimension in explaining overall student satisfaction with their education (Holdford and Patkar, 2003). It included perceptions of faculty member friendliness, approachability, willing to help, availability, honesty, ability to instill confidence and respectful behavior. These attributes deal with one to one interaction between student and faculty members, where an opportunity exits to either satisfy or dissatisfy students. Faculty members should pay more attention to how they deal with theses opportunities if they wish to develop good professional relationships with students and enhance overall satisfaction (Holdford and Patkar, 2003).

3.Faculty Communication

It deals with how faculty members communicate with students, explain things in understandable and clear way, understand student needs and give them an adequate feedback about their performance. It is important in preventing conflicts and establishing trust. Many student complaints about faculty members result from student perceptions that they have been treated unfairly, which often result because faculty members and students differ about what is expected from students. When expectations and consequences are not consistently communicated to students through syllabi, policies, grading, words and actions , then conflicts is a likely result (Holdford and Patkar, 2003).

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4. Faculty Expertise

It addresses faculty members knowledge, ability to answer student questions, experience in their fields and how far they are current with their area of expertise.

5. Facilities

Examines how the organization provides student with up-to-date tools and equipment, make them visually appealing , comfortable, with a convenient operating hours and how it provides access mechanism to seek data and information and keep them current with the educational changes.

6. Student Satisfaction

Represents student satisfaction with the organization administration, faculty, facilities, quality of education and teaching, curriculum and their intellectual development during their study.

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CHAPTER THREE
RESEARCH MODELS AND METHODOLOGY

1. RESEARCH MODELS

This study is based on two models that embrace TQM concepts and practices; Baldrige Education Criteria for Performance Excellence (2006) and Educational Service Quality. The validity and reliability of the two models were proved by this study which agreed with previous researches.

1.1 Baldrige Education Criteria

The first model is BEC (2006) which was derived from MBNQA program and modified to fit the educational environment. The MBNQA was established in 1987 by the congress to recognize U.S.A. organizations in business and manufacturing sectors for their achievements in quality and performance and raise the awareness of quality practices.

In 1999, the National Institute of Standards and Technology (NIST) announced the inclusion of Baldrige Award in education and healthcare. Since then it has been used by higher education institutions as an adaptable system that strives for continuous improvement through self assessment, strategic planning, benchmarking and stakeholders satisfaction. BEC are designed to help educational organizations enhance their competitiveness by focusing on: delivering of ever improving value for student and stakeholder, sharing of best practices and improving overall organizational performance (Educational Criteria for Performance Excellence 2006).

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BEC are built on seven dimensions presented as follows

1. Leadership

2. Strategic planning

3. Student, stakeholder and market focus

4. Measurement analysis and knowledge management

5. Faculty and staff focus

6. Educational support and process management

7. Results

This study aims to represent BEC as a valid and reliable model for measuring performance excellence and assessing quality in higher education specifically in the University of Jordan, and relate its six dimensions of BEC with the seventh dimension which is performance results. It will also relate these dimensions with two of result items: student learning outcomes item and student satisfaction item. Then it will study the relationship between leadership dimension which is considered the key driver of Baldrige system and its other dimensions.

1.2 Educational Service Quality Model

Holdford and Patkar (2003) developed ESQ model to assess student perceptions of the quality of educational services and link those dimensions with student satisfaction with their educational experience. It was conducted to pharmacy students in Virginia Commonwealth University in the Unites States. It consisted of six dimensions; five dimensions assessing educational service quality similar to those in the SERVPERF service quality measure developed by Cronin and Taylor, and the sixth dimension assess student satisfaction with their intellectual development based on Fjortoft and Lee study.

The ESQ dimensions are presented as follows:

1. Administration

2. Interpersonal Behavior of Faculty

3. Faculty Communication

4. Faculty Expertise

5. Facilities

6. Student Satisfaction

These dimensions were used in this study to identify student perceptions of the quality of educational services in higher education, specifically in the University of Jordan and link the five dimensions of ESQ model with the sixth dimension which is student satisfaction and two of its items: student satisfaction with quality of education and quality of teaching using multiple regression analysis.

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2. THE METHODOLOGY

2.1 Research Hypotheses

Two sets of hypotheses were assigned for both models BEC and ESQ model as follows:

2.1.1 BEC Hypotheses

The hypotheses assigned to BEC aim to test the validity and reliability of BEC as measurement of performance excellence and quality in higher education, specifically in the University of Jordan, and relate its six dimensions with the seventh dimension which is performance results and with two of its items: student learning outcomes and student satisfaction dissatisfaction and perceived values. It will also study the relationship between the leadership dimension which is considered the key driver of Baldrige system and other dimensions. These objectives have been translated into the following hypothesis:

H_{01}: BEC is not a valid and reliable measure of performance excellence in higher education

H_{a1}: BEC is a valid and reliable measure of performance excellence in higher education

H_{02}: There is no significant relationship between the six dimensions (leadership, strategic planning, student and stakeholder focus, faculty and staff focus, measurement analysis and knowledge management, and educational support and process management) and the result dimension.

H_{a2}: There is significant relationship between the six dimensions and the result dimension.

H$_{03}$: There is no significant relationship between leadership and (strategic planning, student and stakeholder focus, faculty and staff focus, measurement analysis and knowledge management, educational support and process management) and result dimension.

H$_{a3}$: There is significant relationship between leadership and (strategic planning, student and stakeholder focus, faculty and staff focus, measurement analysis and knowledge management, educational support and process management) and result dimension

H$_{04}$: Student, stakeholder and market focus dimension and faculty and staff focus dimension don't predict student learning outcomes better than any other dimensions.

H$_{a4}$: Student, stakeholder and market focus dimension and faculty and staff focus dimension do predict student learning outcomes better than any other dimensions.

H$_{05}$: Student, stakeholder and market focus dimension doesn't predict student and stakeholders satisfaction item better than any other dimensions.

H$_{a5}$ Student, stakeholder and market focus dimension does predict student and stakeholders satisfaction item better than any other dimensions.

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2.1.2 ESQ Hypotheses

The hypotheses assigned to ESQ model aim to test the validity and reliability of ESQ as a valid and reliable model for assessing educational service quality and measuring student satisfaction with their educational experiences in higher education, specifically in the University of Jordan and relate the five dimensions of ESQ with student satisfaction and two of its items: student satisfaction with the quality of education and with the quality of teaching. These objectives have been translated into the following hypothesis:

H_{06}: ESQ is not a valid and reliable measure of educational service quality in higher education

H_{a6}: ESQ is a valid and reliable measure of educational service quality in higher education

H_{07}: There is no significant relationship between behavior of faculty dimension and overall student satisfaction.

H_{a7}: There is significant relationship between behavior of faculty dimension and overall student satisfaction.

H_{08}: There is no significant relationship between at least one of the faculty service dimensions (faculty interpersonal behavior, faculty communication and faculty expertise) and the student satisfaction with the quality of education.

H_{a8}: There is significant relationship between at least one of the faculty service dimensions and student satisfaction with the quality of education.

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$H_{09:}$ There is no significant relationship between at least one of the faculty service dimensions (faculty interpersonal behavior, faculty communication and faculty expertise) and student satisfaction with the quality of teaching.

$H_{a9:}$ There is significant relationship between at least one of the faculty service dimensions (faculty interpersonal behavior, faculty communication and faculty expertise) and student satisfaction with the quality of teaching

2.2 Sampling Procedure

Two sample populations were used in this study; the first sample includes 120 teaching faculty members from different faculties in the University of Jordan including (Engineering and Technology, Information Technology, Science, Pharmacy, Agriculture, Medicine, Business and Management and Arts) with response rate of (120/355) 33.8%. Different response rates were recorded between faculties, where the Faculty of Engineering and Technology had the highest response rate and the Faculty of Arts had the lowest response rate as presented in Table 1. below

Table1. Response Rate of Faculties

Faculty	% Response
Engineering and Technology	30%
Information Technology IT	18.33%
Science	15.83%
Pharmacy	10%
Agriculture	8.33%
Medicine	7.5%

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Business Administration	6.66%
Arts	3.33%

The second sample consisted of 269 undergraduate students in their final year from different departments in Engineering and Technology Faculty with a response rate (269/360) i.e. 74.7%.

2.3 The Study Instrument

Two questionnaires were designed for the study; the first one was based on BEC for Performance Excellence (2006), the second one was based on ESQ model. Both models have proved their validity and reliability as measures of quality and TQM in higher education based on many previous studies mentioned in the literature review.

2.3.1 Faculty Questionnaire Design

Is based on BEC for Performance Excellence (2006) and consisted of two parts:

Part A: begins with mentioning the objective of the questionnaire and the dimensions that it will measure. It consisted of 43 items under seven dimensions relating to BEC. These items were used to reflect the perceptions of faculty members of the extent of implementation (EXT), impact on quality (IMP1) and the difficulty of implementation (DIFF) of each item in the University of Jordan. Each item was measured using Likert Scale of five for EXT data set. It was developed from the judging criteria of MBNQA, where a score of 1 means fully implemented, 2 well implemented, 3 reasonably implemented, 4 early stage of implementation and 5 no systematic approach. For the IMP1

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data set a four point Likert Scale was used where a score of 1 means strong impact, 2 moderate impact, 3 limited impact and 4 no impact.

The DIFF data set was measured using a Likert Scale of four points where a score of 1 means very easy, 2 easy, 3 difficult and 4 very difficult. The seven dimensions that are presented in the faculty questionnaire are:

Leadership (L): Leadership was assessed using ten items (L1-L10), those items examines how the organization's top management sets the organizational vision, demonstrates commitment to that vision, adopts legal and ethical behavior, promotes total involvement, makes employee aware of their mission, provides support system, examines changing needs, serves local community, communicate with employees and reviews organizational performance.

Strategic Planning (SP): Strategic planning was assessed using four items (SP11-SP14). They examined how the organization's strategic plans involve key processes and participants; consider the organization's capabilities and how they are implanted into action plans and assessed using performance measures.

Student and Stakeholder and Market Focus (SF): It was assessed using six items (SF15-SF20). They examined how the organization determines student needs and expectations, uses student feedback for improvement, provides access mechanisms to seek data and information, keeps them current with educational changes, manages student complaints and keeps in touch with them.

Measurement, Analysis and Knowledge Management (M): It was assessed using five items (M20-M25). They examined how the organization gathers data and information,

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analyses and reviews organizational performance, sets priorities, keeps performance measures current with educational changes and provides reliable and secure data and information.

Faculty and Staff Focus (FS): It was assessed using six items (FS26-FS31). They examined how the organization supports cooperation within faculties and teamwork, manages an effective hiring system for faculty and staff, provides training for them, provides safe and healthy environment and workplace and looks for their well-being and satisfaction.

Educational Support and Process Management (ES): It was assessed using five items (ES32-ES37). They examined how the organization manages key processes, uses new technologies, ensures that faculty and staff are properly prepared to implement educational programs, evaluates these programs, considers student differences, and provides adequate budgetary and financial resources to support processes.

Results (R): It was assessed using six items (R38-R43). They examined how the organization evaluates student leaning outcomes, student satisfaction, leadership outcomes, faculty and staff outcomes, organizational effectiveness outcomes and budgetary and financial outcomes.

Part B: consisted of ten items listed the main obstacles that may impede TQM implementation in higher education referring to many studies of TQM in higher education. Faculty members where asked to chose the extent at which each item can impede TQM implementation in higher education, using a four point Likert Scale, where a score of 1 means

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strong effect, 2 moderate effect, 3 limited effect and 4 no effect .

The faculty questionnaire was ended with a request to send the questionnaire after completing it to the secretary of the department with the respondent's faculty name and thanked them for cooperation.

2.3.2 Student Questionnaire Design

Is based on ESQ model developed by Holdford and Patkar (2003). It consisted of two parts A and B. Part A was optional and concerned with the personal data of the respondents (faculty, gender, major and GPA). Part B began with mentioning the objective of the questionnaire and the elements that it will measure. The questionnaire consisted of 44 items under six dimensions, where these items reflect the student current assessment (CA) of educational service quality in the University of Jordan and the impact of each item on quality (IMP2). A Likert Scale of five points were used to reflect the student current assessment of educational service quality CA , where a score of 1 means strongly agree, 2 means agree, 3 means somewhat agree, 4 means disagree and 5 means strongly disagree whereas a Likert Scale of four points were used for the impact on quality IMP2 , where a score of 1 means strong impact, 2 moderate impact, 3 limited impact and 4 no impact. The six dimensions that are presented in the student questionnaire are:

Administration (A): It was assessed using fourteen items (A1-A14). They examined how the organization's admistration treats student, understand their needs, solve their problems,

help them, keep in touch with them, answer their questions and insure confidentiality and safety.

Interpersonal Behavior of Faculty (BF): It was assessed using eight items (BF15-BF22). They examined how the faculty members treat student, help student, keep their promises, instill confidence in student and be sensitive to student confidentiality.

Faculty Communication (FC): It was assessed using six items (FC23-FC28). They examined how the faculty members communicate with students, explain things in understandable and clear way, understand student needs, put grade to student and give them an adequate feedback about their performance.

Faculty Expertise (FE): It was assessed using three items (FE29-FE31). They examined how the faculty members are prepared to answer student questions, experience in their fields and how far they are current with their area of expertise.

Facilities (F): It was assessed using six items (F32-F37). They examined how the organization provides student with up-to-date tools and equipment, make them visually appealing, comfortable, with a convenient operating hours and how it provides access mechanism to seek data and information and keep them current with the educational changes.

Student Satisfaction (SS): It was assessed using seven items (SS38-SS44). They represented student satisfaction with the organization administration, faculty, curriculum, quality of education and teaching, facilities and their intellectual development during their

study

After designing the two questionnaires, they were introduced to the supervisor of the study who reviewed them and gave back his comment. The Faculty questionnaire was pilot tested on selected faculty members of Industrial Engineering Department and the student questionnaire was pilot tested on selected students of Industrial Engineering Department. After final modification, it was introduced to the University Presidency for approval before conducting it on faculties and students.

2.4 Data Preparation

The data obtained form faculty questionnaire was separated into three data sets as presented in Table 2, and symbols were assigned for the seven dimensions of faculty questionnaire as presented in Table 3.

Table 2. Data sets of faculty questionnaire

Data Set	Description
EXT	Data set of the extent of implementation of each item in the University of Jordan
IMP1	Data set of the impact of each item on education quality in the University of Jordan
DIF	Data set of the difficulty of implementation of each item in the University of Jordan
LIM	Data set of the limitations that may impede TQM in the University of Jordan

Table 3. Symbols of faculty questionnaire dimensions

Symbol	Dimension	Symbol	Dimension
L	Leadership	FS	Faulty and Staff Focus
SP	Strategic Planning	ES	Educational Support and Process Management
SF	Student Stakeholder and Market Focus		
M	Measurement, Analysis and Knowledge Management	R	Results

The data obtained form student questionnaire was separated into two data sets as presented

in Table 4 and symbols were assigned for the six dimensions of student questionnaire as

presented in Table 5.

Table 4. Data sets of student questionnaire

Data Set	Description
CA	Data set of the student current assessment of educational service quality provided by the University of Jordan
IMP2	Data set of the impact of each item on the quality of educational services in the University of Jordan

Table 5 .Symbols of student questionnaire dimensions

Symbol	Dimension	Symbol	Dimension
A	Administration	FE	Faulty Expertise
BF	Interpersonal Behavior of Faculty	F	Facilities
FC	Faculty Communication	SS	Student Satisfaction

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2.4.1. Screening the outliers

Outliers are the observations that appear to be inconsistent with the reminder of the collected data (Forza, 2002). For normally distributed data three different methods are used to label outliers: Z score method, modified Z score method and box plot method. In this study the normal distribution was assumed for all variables and the Z score method was used. Those cases with Z values greater than 3 were labeled as outliers.

2.4.2 Examination of missing values

Missing values can limit the generalizability of the results and lead to a sample that doesn't represent the population even if the sample was adequately designed for that purpose. Most studies agreed on that if the percent of missing values is less than 20% and don't affect the adequacy of the sample, then theses values can be excluded from the analysis otherwise the researcher must gather more or find a treatment for the missing values (Forza, 2002).

2.5 Data Analysis

The first step in the analysis procedure is empirically testing the validity and reliability of the two instruments; BEC and ESQ model.

2.5.1 Validity

Validity is concerned with whether we are measuring the right concept that is intended to be measured. Lack of validity introduces systematic error (bias). There are three

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main methods for validity testing: content validity, criteria validity and construct validity.

Content validity: It represents how the study instrument reflects a specific domain of content. It concerns with the appropriateness of the items with respect to the reviewers who have knowledge on that domain.

Criteria validity: It reflects how well the instrument correlates with what it is intended to predict. The multiple R coefficients in the regression model were used to assess the criteria validity. It represents the correlation between the dependent variable and independent variables.

Construct validity: A measure has construct validity if the set of items constituting a measure faithfully represents the set of aspects of the theoretical construct measured, and doesn't contain items which represent aspects not included in the theoretical construct (Forza, 2002). It reflects the degree to which each measure represents the BEC construct that it is designed to measure. To assess construct validity researchers use the following methods: Unifactor analysis, Kaiser- Meyer-Olkin (KMO) measure of sampling adequacy, percent of variance explained and Eigen values analysis.

Factor Loading: Represents the correlation coefficient between the variable and the factor or dimension, with higher loading making the variable more representative of the factor. Factor loadgings greater than 0.3 are considered significant; loadings of 0.4 are considered more important; if the loadings are 0.5 or greater they are considered very significant (Zheng *el al*., 2000). A factor loading of 0.4 was used as a cutoff point in this study with

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deleting poor loadings that are less than 0.4.

KMO Measure for Sampling Adequacy: It represents the proportion of variance in the variables that may be caused by the underlying factor or dimension. It supports the appropriateness of data for each unifactorial dimension. Most operation research studies agreed on that if the KMO is in the 0.90's it is considered as marvelous; in the 0.80's is considered as meritorious; in the 0.7's is considered as middling; in the 0.6's is considered as mediocre; in the 0.5's is considered as miserable and below 0.5 is considered as unacceptable (Zheng *el al*., 2000).

Eigen value: It is also called characteristic root or latent root. It measures the variance in all variables that is accounted for by that factor. If a factor has Eigen value less than 1.0, then it is contributing little to the explanation of variances in the variables and may be ignored as redundant with more important factors.

Percent of Variance Explained: It was used to insure that the construct explains at least a specified amount of variance. It is expressed as percentage of variance accounted for by each component to total variance in all variables.

2.5.2 Reliability

It refers to the extent to which a measuring instrument yields the same results on repeated trials. It indicates dependability, stability, predictability, consistency and accuracy. The four most common methods used to estimate reliability are: test-retest method,

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alternative form method, split halves method and internal consistency method.

The Internal consistency method was used to assess the homogeneity and intercorrelation among the variables representing the factor or dimension.

The most popular test within the internal consistency method is *Cronbach coefficient alpha* (α), which reflects the homogeneity of the scales. It can be considered as the lower bound of the true reliability of the measurements. Measures with α greater than 0.6 are accepted, with α greater than 0.7 are considered good, with α greater than 0.8 are considered very good and with α greater than 0.9 are considered excellent (Forza, 2002).

The average interitem correlation and the min and max of average interitem correlation were also computed to assess the reliability of the measurements.

2.5.3 Exploratory Data Analysis

To acquire knowledge of the characteristics and properties of the collected data exploratory data analyses are usually performed before performing measurement assessment or conducting test hypotheses. Exploratory data analyses utilize many statistics in addition to several graphical techniques that facilitate presentation of data. The mean, standard deviation, median, mode, and 95 percent confidence interval of the mean were estimated. The mean is the average value, the standard deviation reflects the dispersion or variability in data, the median represents the value which half of the observations fall above and the other half fall below and the mode represents the most frequently occurring value.

2.5.4 Confirmatory Data Analysis

Confirmatory data analysis was conducted to test the research hypotheses to determine whether the data collected confirm these hypotheses or not, using multiple linear regression analyses. **Multiple linear regression analyses:** multiple linear regression is used to model the value of a dependent variable based on its linear relationship to one or more independent factors (predictors).There are several methods for variable selection in linear regression analysis: stepwise regression, backward elimination and forward selection method. In this study the stepwise regression was used where at each step; the independent variable not in the equation which has the smallest probability of F is entered, if that probability is sufficiently small (less than or equal to .05). Variables already in the regression equation are removed if their probability of F becomes sufficiently large (greater than or equal 0.1). The method terminates when no more variables are eligible for inclusion or removal. The F ratio, the significance of F (p-value), the coefficient of determination R^2, adjusted R^2, Beta and significant T (p-value) were calculated using SPSS software and used to determine the validity of the models.

For the faculty questionnaire multiple regression analysis was used to study the relationship between**:**

1. The six dimensions of BEC (leadership, strategic planning, student and stakeholder focus, faculty and staff focus, measurement analysis and knowledge management, and educational support and process management) and the result dimension.

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2. Leadership dimension and (strategic planning, student and stakeholder focus, faculty and staff focus, measurement analysis and knowledge management, educational support and process managements and result) dimensions.

3. The six dimensions of BEC and student learning outcomes item.

4. The six dimensions of BEC and student and stakeholders satisfaction item.

For the student questionnaire multiple regression analysis was used to study the relationship between:

1. The five dimensions (administration, behavior of faculty, faculty communication, faculty expertise and facilities) and overall student satisfaction.

2. The five dimensions and student satisfaction with the quality of education item.

3. The five dimensions and student satisfaction with the quality of teaching item.

CHAPTER FOUR
RESULTS AND DISCUSSION

1. Data Preparation

Before conducting analysis, the data were screened to identify outliers and missing values.

1.1 Screening Outliers Results

Outliers are the observations that appear to be inconsistent with the remainder of the collected data (Forza, 2002). The Z score method was used and those cases with z values greater than 3, were labeled as outliers. Screening outlier results are presented in Appendix D with the case number. The outliers in both questionnaires were not extreme on a sufficient number to be considered unrepresentative of the population, so no modifications were conducted on data.

1.2 Missing Values Results

The percentages of missing values for all sets of variables in both questionnaires are presented in Appendix E. These percentages are very low, the highest recorded percentage was 10% for A9 variable in student questionnaire. Therefore, these missing values can be excluded without affecting the results.

2. Validity Test Results

Validity as mentioned previously is concerned with whether we are measuring the right concept that is intended to measure. Lack of validity introduces systematic error (bias). Three methods for testing validity were used: content validity, construct validity and criteria validity.

2.1 Content validity

It represents how the study instrument reflects a specific domain of content. It concerns with the appropriateness of the items with respect to the reviewers who have knowledge on that domain. The faculty questionnaire was based on BEC for performance excellence (2006), while student questionnaire was based on ESQ model developed by Holdford and Patkar (2003). Both models have proved their validity and reliability in higher education as discussed in the literature review. The questions were derived from both models and previous instruments conducted these subjects, then they were simplified and pilot tested by a group of teaching faculty members of Industrial Engineering Department who have relevant knowledge in this field and they agreed on the content validity of both questionnaires.

2.2 Construct validity

It reflects the degree to which each measure represents the construct that is designed to measure. Unifactorial test was conducted via SPSS on BEC framework (part A) and the limitations part (B part) in Table 6, using Kaiser- Meyer-Olkin (KMO) measure of sampling adequacy, percent of variance explained and Eigen values.

Table 6. Unifactorial test for BEC framework and the limitations part.

Part A:	KMO			EIGEN VALUES			%VARIANCE		
	EXT	IMP1	DIFF	EXT	IMP1	DIFF	EXT	IMP1	DIFF
L	0.8	0.731	0.660	1.023	2.943	1.055	68.205	61.276	62.286
SP	0.7	0.762	0.788	2.544	2.584	2.730	63.599	64.604	68.245
SF	0.8	0.845	0.684	4.307	3.773	1.015	71.787	62.886	64.839
M	0.8	0.797	0.674	3.786	3.040	1.037	75.719	60.796	72.283
FS	0.8	0.878	0.743	3.643	3.950	3.166	60.713	65.827	52.758
ES	0.8	0.817	0.739	1.069	3.571	1.237	76.331	59.520	71.030
R	0.8	0.780	0.699	3.995	3.750	1.006	66.584	62.502	70.888
Part B:	KMO			EIGEN VALUES			%VARIANCE		
LIM	0.788			1.143			68.828		

Examination of Table 6 revealed that the seven dimensions or factors (leadership, strategic planning, student and stakeholder and market focus, Measurement, Analysis and Knowledge Management, Faculty and staff focus, educational support and process management and results) are valid indicators of BEC for performance excellence in higher education.

The KMO measure of sampling adequacy value ranged between 0.660 and 0.887 and listed as middling for EXT and IMP1 data sets (the KMO is in the 0.70's) and mediocre for DIFF data set (the KMO is in the 0.60's) . The Eigen values of these seven dimensions in the three data sets are ranged from 1.006 to 4.307 and exceeded the minimum value of 1. BEC constructs in the three data sets explains at least 52.758% of the total amount of variance in all variables by faculty focus dimension in DIFF data set, and explains at most 76.331% of the total amount of variance in all variables by educational support dimension

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in EXT data set which are relatively good percentages.

For part B the ten items assigned for the limitation part are valid indicators of the limitations that may impede TQM in higher education. The KMO measure of sampling adequacy value was middling (the KMO is in the 0.70's). The Eigen value was 1.143 and exceeded the minimum value of 1 and the ten items explained 68.828% of total amount of variance in the limitation part.

Unifactorial test was also conducted via SPSS on ESQ model, using Kaiser- Meyer-Olkin (KMO) measure of sampling adequacy, percent of variance explained and Eigen values. The results of unifactorial test are presented in Table 7 below.

Table 7. Unifactorial test for ESQ model

	KMO		EIGEN VALUES		%VARIANCE EXPLAINED	
	CA	IMP2	CA	IMP2	CA	IMP2
A	0.878	.949	2.130	8.315	54.478	59.393
BF	0.923	.936	5.116	5.034	63.950	62.924
FC	0.900	.883	4.077	3.654	67.942	60.906
FE	0.714	.706	2.217	2.117	73.895	70.560
F	0.890	.915	4.172	4.292	69.537	71.528
SS	0.766	.920	1.213	4.433	68.957	70.465

Examination of Table 7 revealed that the six dimensions (administration, behavior of faculty, faculty communication, faculty expertise, facilities and student satisfaction) are valid constructs of educational service quality in higher education. The KMO measure of sampling adequacy values ranged between 0.706 and 0.943 and listed as middling for CA and IMP2 data sets (the KMO is in the 0.70's). Eigen values exceeded the minimum value of 1. ESQ constructs for all data sets explains at least 54.478% by administration dimension in CA data set, and explains at most 73.895% of the total amount of variance in all variables by faculty expertise dimension in CA data set, which are relatively good percentages.

Factor loadings for each variable on its construct was computed, they indicate the correlation of each variable and the factor or dimension with higher loadings making the variable more representative. The factor loadings for BEC framework and the limitations part are presented in Table 8 with a factor loading of 0.40 was used as a cutoff point in the study.

Table 8. Factor loadings for BEC framework and the limitations part.

	Factor Loadings				**Factor Loadings**		
Variable	**EXT**	**IMP1**	**DIFF**	**Variable**	**EXT**	**IMP1**	**DIFF**
Part A: BEC framework							
L: Leadership				M22	0.846	0.697	0.684
L1	0.540	0.805	0.443	M23	0.702	0.784	0.68
L2	0.904	0.669	0.511	M24	0.805	0.443	0.733
L3	0.554	0.56	0.623	M25	0.669	0.511	0.604
L4	0.632	0.715	0.582	**FS: Faculty Focus**			
L5	0.797	0.513	0.554	FS26	0.549	0.746	0.407
L6	0.631	0.571	0.534	FS27	0.753	0.525	0.404
L7	0.697	0.666	0.633	FS28	0.585	0.653	0.613
L8	0.702	0.641	0.753	FS29	0.523	0.611	0.496

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L9	0.808	0.524	0.744	FS30	0.785	0.651	0.604
L10	0.554	0.647	0.475	FS31	0.447	0.764	0.641
SP: Strategic Planning				**ES: Educational Support**			
SP11	0.751	0.75	0.717	E32	0.784	0.681	0.767
SP12	0.587	0.714	0.539	E33	0.750	0.717	0.666
SP13	0.638	0.738	0.435	E34	0.714	0.539	0.638
SP14	0.568	0.799	0.554	E35	0.738	0.435	0.804
SF: Student Focus				E36	0.799	0.554	0.608
SF15	0.589	0.745	0.533	**R: Results**			
SF16	0.768	0.712	0.71	R38	0.738	0.681	0.588
SF17	0.654	0.572	0.621	R39	0.722	0.651	0.615
SF18	0.724	0.588	0.736	R40	0.728	0.733	0.708
SF19	0.856	0.613	0.681	R41	0.594	0.591	0.809
SF20	0.716	0.542	0.609	R42	0.754	0.493	0.801
M :Measurement and analysis				R43	0.459	0.601	0.734
M21	0.764	0.605	0.913				
Part B: Limitations LIM							
L1	0.688	L6	0.699				
L2	0.796	L7	0.654				
L3	0.831	L8	0.548				
L4	0.682	L9	0.695				
L5	0.677	L10	0.641				

The results of factor loading in Table 8 ranged from 0.404 to 0.913 indicating that the variables assigned to each dimension in BEC framework and the variables assigned for the limitation part are good indicators of that dimensions and exceeding the cutoff point 0.4 (there is no need to delete any variable).

The factor loadings for ESQ model are presented in Table 9 with a factor loading of 0.40 was used as a cutoff point in the study.

Table 9. Factor loadings of ESQ model

Variable	Factor Loadings CA	IMP2	Variable	Factor Loadings CA	IMP2
A: Administration			**FE: Faculty Expertise**		
A1	0.577	0.645	FE29	0.769	0.703
A2	0.633	0.635	FE30	0.748	0.729
A3	0.575	0.559	FE31	0.7	0.685
A4	0.515	0.636	**F: Facilities**		
A5	0.404	0.575	F32	0.724	0.717
A6	0.454	0.688	F33	0.679	0.744
A7	0.599	0.688	F34	0.641	0.721
A8	0.495	0.6	F35	0.647	0.744
A9	0.573	0.557	F36	0.736	0.704
A10	0.468	0.55	F37	0.745	0.662
A11	0.624	0.512	**SS: Student Satisfaction**		
A12	0.459	0.546	SS38	0.944	0.701
A13	0.564	0.638	SS39	0.455	0.683
A14	0.688	0.485	SS40	0.558	0.683
BF: Behavior of Faculty			SS41	0.657	0.703
BF15	0.422	0.735	SS42	0.617	0.735
BF16	0.681	0.655	SS43	0.934	0.748
BF17	0.598	0.575	SS44	0.662	0.68
BF18	0.686	0.624			
BF19	0.721	0.542			
BF20	0.623	0.588			
BF21	0.667	0.624			
BF22	0.717	0.689			
FC: Faculty Communication					
FC23	0.725	0.688			
FC24	0.729	0.683			
FC25	0.663	0.44			
FC26	0.708	0.498			
FC27	0.582	0.664			
FC28	0.669	0.681			

The results of factor loading in Table 9 ranged from 0.404 to 0.944 indicating that the variables assigned to each dimension in ESQ model are good indicators of that dimension and exceeding the cutoff point 0.4 (there is no need to delete any variable).

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2.3 Criteria validity

It reflects how well the instrument correlates with what is intended to predict. The multiple R coefficients in the multiple regression models were used to assess the criteria validity. Two regression models were used using stepwise regression method to test the criteria validity of Both BEC framework and ESQ model. The regression analyses were conducted on data obtained from the EXT data set in faculty questionnaire and represented the correlation between the six dimensions of BEQ framework and overall performance results and it was also conducted on CA data set in student questionnaire and represented the correlation between the five dimensions of ESQ model and overall student satisfaction of educational service quality. The results of multiple regression analyses are presented in Table 10 and Table 11.

Table 10. Multiple regression results of the six dimensions of BEC on result dimension

Dep. Var.	Multiple R	R Square	Adjusted R Square	Std. Error of the Estimate
R	.923	0.851	0.846	0.403

Model	Sum of Squares	df	Mean Square	F	P-value
Regression	104.051	4	26.013	160.140	2.28E-45
Residual	18.193	112	0.162		

Model	Dimension	B	T	P-value T
Indep.	**L**	0.382	3.950	0.000
	SP	-0.213	-3.352	0.001
	SF	0.473	6.712	0.000
Vars.	**M**	0.035	0.042	0.216
	FS	0.380	3.181	0.002
	ES	-0.069	-0.107	0.358

Examination of the value of multiple R coefficient 0.923 in Table 10 revealed the there is strong correlation between the four dimensions of BEC framework (student and stakeholder focus dimension, leadership dimension, faculty focus dimension and strategic planning dimension) and the overall performance results which confirms the criteria validity of the model. It can also be noticed that student and stakeholder focus, leadership and faculty focus dimensions had a statistical significant effect on organizational performance results, where Beta equals, 0.473, 0.382 and 0.380 respectively and with significance levels lower than 0.05. This means that student and stakeholder and market focus has higher impact on overall performance results than the leadership. The adjusted R^2 for this model is 0.846 which means that the four dimensions of BEC framework explain about 84.6% of variance caused by overall performance results.

Table 11. Multiple regression results of the five dimensions of ESQ model on overall   student satisfaction dimension

Dep. Var.	Multiple R	R Square	Adjusted R Square	Std. Error of the Estimate
SS	0.938	0.880	0.879	0.306

Model	Sum of Squares	df	Mean Square	F	P-value
Regression	175.017	3.000	58.339	622.955	0.000
Residual	23.787	254.000	0.094		

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Model	Dimension	Beta	T	P-value
Indep.	**A**	0.225	6.860	0.000
	BF	0.394	9.975	0.000
Vars.	**FC**	-0.008	-0.011	0.248
	FE	0.040	0.087	0.571
	F	0.358	9.306	0.000

Examination of the value of multiple R coefficient 0.938 in Table 11 revealed the there is strong correlation between three dimensions of ESQ model (behavior of faculty, facilities and administration dimensions) and overall student satisfaction with educational service quality, which confirms the criteria validity of the model. It can also be noticed that behavior of faculty, facilities and administration dimensions had a statistical significant effect on student satisfaction with educational service quality, where Beta equals 0.394, 0.358, and 0.225 respectively and with p-values lower than 0.05. This means that behavior of faculty has the highest impact on student satisfaction between all dimensions. The adjusted R^2 for this model is 0.879 which means that three dimensions of ESQ model explain about 87.9% of variance caused by student satisfaction. To assess the two regression models, the normality assumptions of residual are checked. Figures 2 and 3 represent the normal probability   plot of standardized residuals for the two models.
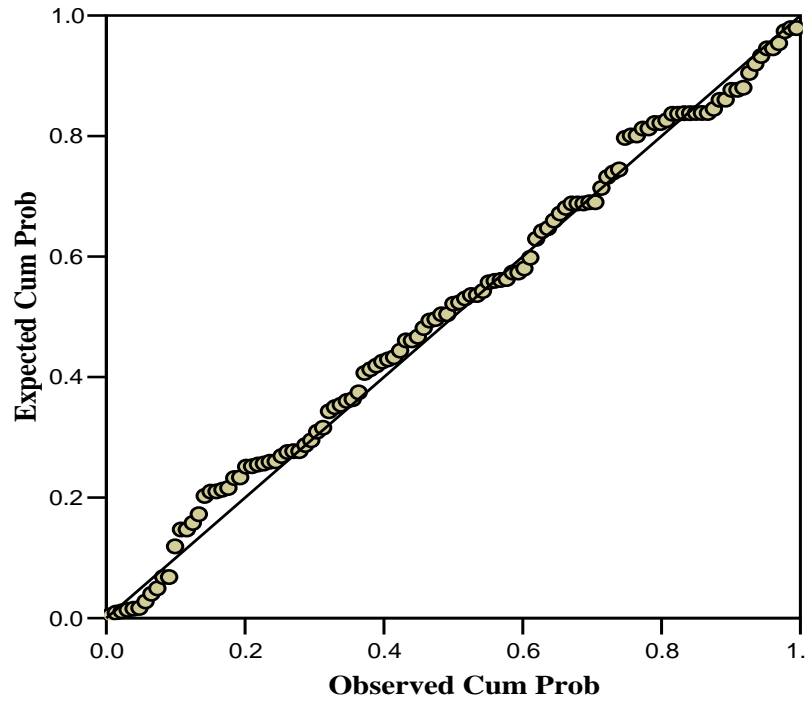
**Figure 2. Normal probability plot of standardized residuals of BEC framework
(Dependent variable: Results)**

Figure 2 show that the residuals of the BEC model meet the assumption of normality which

confirms the adequacy of the regression model.
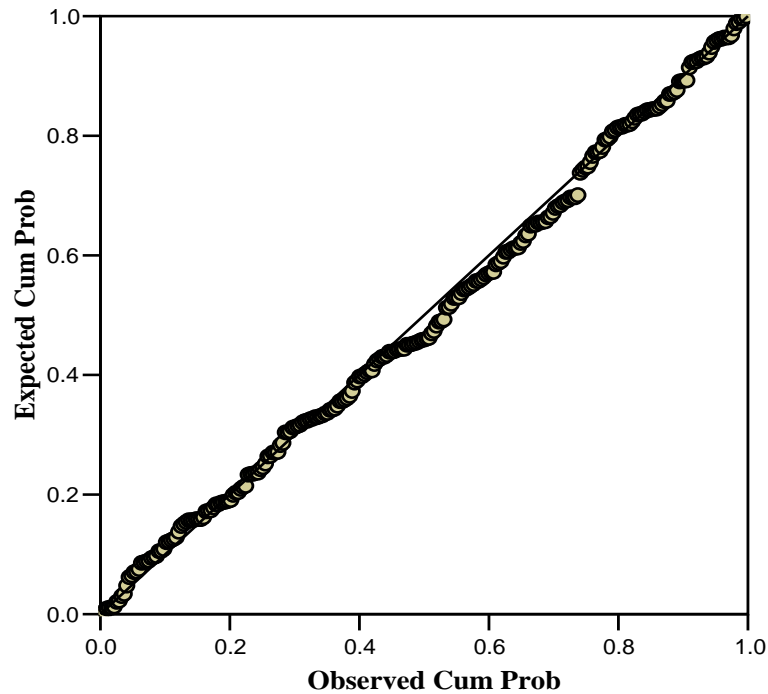
Figure 3. Normal probability plot of standardized residuals of ESQ model
(Dependent Variable: Student Satisfaction)

Figure 3 show that the residuals of ESQ model meet the assumption of normality which confirms the adequacy of the regression model.

3. Reliability Test Results

It refers to the extent to which a measuring instrument yields the same results on repeated trials. The internal consistency method was used to assess the homogeneity and intercorrelation among the variables representing the factor or dimension. Cronbach Coefficient Alpha (α), average interitem correlation and the min and max of average interitem correlation were computed to assess the reliability of the two models. Summary

of the reliability analysis using SPSS of both models BEC and ESQ are presented in

Table 12 and 13 respectively.

Table 12. Reliability analysis of BEC framework and the limitations part

Data	BEC	Cronbach	Average Interitem	Min and Max of Average interitem correlation
Set	Dimensions	Alpha	Correlation	Interitem Correlation
EXT	L	0.910	0.540	0.080 – 0.845
	SP	0.805	0.512	0.373 – 0.634
	SF	0.921	0.659	0.348 – 0.821
	M	0.918	0.695	0.611 – 0.843
	FS	0.868	0.522	0.364 – 0.764
	L	0.857	0.497	0.241 – 0.663
	R	0.905	0.611	0.329 – 0.755
IMP1	L	0.719	0.207	0.019 – 0.458
	SP	0.816	0.523	0.403 – 0.721
	SF	0.881	0.552	0.428 – 0.754
	M	0.836	0.504	0.372 – 0.780
	FS	0.895	0.587	0.428 – 0.765
	ES	0.859	0.510	0.300 – 0.666
	R	0.877	0.548	0.313 – 0.688
DIFF	L	0.787	0.270	0.260 – 0.630
	SP	0.845	0.576	0.468 – 0.637
	SF	0.766	0.403	0.179 – 0.688
	M	0.757	0.381	0.034 – 0.522
	FS	0.811	0.425	0.215 – 0.606
	ES	0.794	0.395	0.101 – 0.656
	R	0.824	0.443	0.183 – 0.742
Part B: Limitations				
	LIM	0.843	0.352	0.095-0.751

Examination of Table 12 revealed that for EXT data set, leadership student focus,

measurement and analysis and result dimensions have excellent level of reliability in the

0.90s range, whereas strategic planning faculty focus and educational support have very good levels of reliability in the 0.80s range. For IMP1 data set strategic planning, student focus, measurement and analysis, faculty focus, educational support and result dimensions have very good levels of reliability in the 0.80s range, while leadership dimension has good level of reliability in the 0.70s range. For DIFF data set, strategic planning faculty focus and result dimensions have very good levels of reliability in the 0.80s range, where as leadership, student focus, measurement and analysis and educational support dimensions have good levels of reliability in the 0.70s range. The average interitem correlation for all dimensions in the three data sets ranged from 0.207 to 0.695. For part B the limitation dimension had very good levels of reliability in the 0.80s range and the average interitem correlation was 0.325.

Table 13. Reliability analysis of ESQ model

Data Set	ESQ Dimensions	Cronbach Alpha	Average Interitem Correlation	Min and Max of Average interitem correlation Interitem Correlation
CA	A	0.879	0.344	0.905 – 0.683
	BF	0.918	0.584	0.404 – 0.722
	FC	0.905	0.614	0.525 – 0.720
	FE	0.823	0.608	0.571 – 0.655
	F	0.912	0.634	0.540 – 0.726
	SS	0.842	0.429	0.212 – 0.490
IMP2	A	0.947	0.561	0.437– 0.838
	BF	0.915	0.575	0.471 – 0.750
	FC	0.870	0.548	0.312 – 0.685
	FE	0.701	0.438	0.347 – 0.488
	F	0.920	0.658	0.599 – 0.718
	SS	0.930	0.655	0.582 – 0.736

Examination of Table 13 revealed that in CA data set, behavior of faculty, faculty communication, and facilities dimensions have excellent level of reliability in the 0.90s range, whereas administration, faculty expertise and student satisfaction have very good levels of reliability in the 0.80s range. For IMP2 data set, administration, behavior of faculty and facilities have excellent level of reliability in the 0.90s range, faculty communication has very good level of reliability in the 0.80s range, and faculty expertise has good level of reliability in the 0.70s range. The average interitem correlation for all dimensions in the two data sets ranged from 0.344 to 0.658. From the previous analysis it can be included that the ESQ constructs or dimensions are reliable measures of educational service quality in higher education.

4. Results of Exploratory Data Analysis

After proving the validity and reliability of BEC framework and ESQ model, the means of variables under each dimension were computed to provide an estimate of each dimension. The mean, standard deviation, median, mode, and 95 percent confidence interval of the mean were estimated for all dimensions in all data sets for both models. The Exploratory data analysis for the seven dimensions of BEC framework in the three data sets EXT, IMP1 and DIFF is presented in Table 14.

Table 14. Exploratory data analysis for BEC framework

Data Set	BEC Dimensions	Mean	Standard de Deviation	Median	Mode	95% CI LB	UB
EXT	L	3.164	0.865	3.15	3.00	3.00	3.328
	SP	3.145	1.031	3.00	2.75	2.95	3.334
	SF	3.157	0.990	3.00	3.00	2.97	3.345
	M	3.125	1.049	3.00	3.00	2.93	3.323

	FS	3.146	0.975	3.25	3.33	2.96	3.331
	ES	3.123	0.916	3.17	3.00	2.94	3.286
	R	3.200	1.014	3.17	3.00	3.01	3.393
IMP1	L	1.360	0.311	1.30	1.00	1.30	1.417
	SP	1.994	0.680	2.00	2.25	1.87	2.117
	SF	1.9511	0.734	1.83	1.00	1.81	2.084
	M	1.9858	0.637	2.00	1.60	1.87	2.101
	FS	1.9856	0.726	1.75	1.300	1.85	2.117
	ES	2.0436	0.683	1.83	2.17	1.90	2.167
	R	2.0892	0.678	1.92	1.83	1.96	2.212
DIFF	L	2.550	0.466	2.67	2.80	2.49	2.659
	SP	2.670	0.669	2.75	2.75	2.57	2.815
	SF	2.305	0.520	2.21	2.00	2.25	2.427
	M	2.500	0.493	2.40	2.00	2.41	2.590
	FS	2.440	0.590	2.50	2.67	2.37	2.578
	ES	2.525	0.592	2.63	3.00	2.41	2.629
	R	2.472	0.603	2.50	2.83	2.63	2.584

Examination of the results in Table 14 for EXT data set revealed that the mean median and the mode of most dimensions were approximately 3 which represent reasonable implementation of theses dimensions in the University of Jordan, with educational support being the most implemented dimension and the result dimension being the least implemented dimension.

Examination of the means of the second data set IMP1 revealed that leadership has the strongest impact on the quality of higher education with mean equal approximately 1, while the remaining dimensions strategic planning, student focus, measurement and analysis, faculty focus, educational support and result dimensions have moderate impact on quality with mean equal approximately 2. The mode results showed that leadership, student focus and faculty focus dimensions have strong impact on quality with mode equal approximately 1, while strategic planning, measurement and analysis, educational support

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and result dimensions have moderate impact on quality with mode equal approximately 2.

Examination of the means of the third data set DIFF revealed that student focus, faculty focus and result dimensions are easy to implement in higher education with mean equal approximately 2, whereas leadership, strategic planning, measurement and analysis and educational support dimensions are difficult to implement in higher education with mean equal approximately 3. The mode results showed that student focus and measurement and analysis dimensions are easy to implement in higher education with mode equal approximately 2, whereas leadership, strategic planning, faculty focus, educational support and results dimensions are difficult to implement in higher education with mode equal approximately 3.

The means of the seven dimensions in BEC framework were ranked in descending order for the EXT data set and ascending order for IMP1 and DIFF data sets in order to specify those dimensions which most need improvement and have strong impact on quality and identify the level of difficulty of implementation so that we can set priorities for improvement. The results are presented in Table 15.

Table 15. Ranked means of the three data sets of BEC dimensions

EXT	IMP1	DIFF
R = 3.200	L=1.360	SF=2.305
L=3.164	SF=1.951	FS=2.440
SF= 3.157	FS= 1.9858	R=2.472
FS= 3.146	M=1.9856	M=2.500
SP= 3.145	SP= 1.9940	ES=2.525

EXT: Less implemented ↑

IMP1: Strong impact ↑

DIFF: Easy to implement ↑

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| M=3.125 | ES=2.0436 | L=2.550 |
| ES=3.123 | R= 2.089 | SP=2.670 |

Examining Table 15, and based on faculty members perceptions the results showed that all dimensions are reasonably implemented (means ≈ 3) in the University of Jordan, with leadership having the strongest impact (mean ≈ 1) which gives it the priority for improvement, although it is difficult to implement (mean ≈ 3). After improving leadership dimension the university should focus on student, stakeholder and market focus dimension and faculty and staff focus dimension since they are reasonably implemented (means ≈ 3), have moderate impact on quality (means ≈ 2) and are easy to implement (means ≈ 2), followed by measurement and analysis, strategic planning, educational support and result dimensions, were they are reasonably implemented, having moderate impact (means ≈ 2) and are difficult to implement (means ≈ 3).

For the second part, part B of faculty questionnaire which consisted of ten items that list the main obstacles that might impede TQM in higher education, the mean, standard deviation, median, mode, and 95 percent confidence interval of the mean were estimated for each dimension as presented in Table 16.

Table 16. Exploratory data analysis for limitation part

Limitations	Mean	Standard Deviation	Median	Mode	95% CI	
					LB	UB
- Lack of leadership commitment	1.50	0.674	1.00	1.00	1.39	1.64
- Organizational culture and resistance to change	1.795	0.856	2.00	1.00	1.64	1.95
- Basing decisions on assumptions rather than data	1.80	0.816	2.00	1.00	1.62	1.92
- Lack of governmental funding	1.825	0.806	2.00	2.00	1.70	1.99
- No clear vision or objectives	1.825	0.976	2.00	1.00	1.64	2
- Lack of faculty support	1.850	0.694	2.00	2.00	1.72	1.97
- Insufficient training for leaders and staff	1.850	0.795	2.00	2.00	1.73	2.02
- No consistency of purposes	1.875	0.784	2.00	1.00	1.75	2.04
- Insufficient time for implementation	2.05	0.708	2.00	2.00	1.92	2.18
- Excluding some participants	2.15	0.913	2.00	2.00	1.94	2.26

Examining the results in Table 16 revealed that lack of leadership commitment has the most negative effect on implementing TQM in higher education, which confirms the role of leadership as the driver of all dimensions, followed by organizational culture and resistance to change, basing decisions on assumptions rather than data, no clear vision or objectives, lack of governmental funding, lack of faculty support, insufficient training for leaders and staff, no consistency of purposes, insufficient time for implementation and ending with excluding some participants which has the smallest negative effect on implementing TQM in higher education.

The Exploratory data analysis for the six dimensions of ESQ model for the two data sets CA and IMP2 is presented in Table 17.

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Table 17. Exploratory data analysis for ESQ model

Data Set	ESQ Dimensions	Mean	Standard de Deviation	Median	Mode	95% CI LB	UB
CA	A	3.440	0.662	3.43	3.00	3.354	3.515
	BF	2.963	1.032	3.00	3.00	2.803	3.053
	FC	2.841	0.984	2.83	3.00	2.704	2.943
	FE	2.528	0.953	2.33	3.00	2.411	2.645
	F	2.883	1.049	2.83	2.83	2.735	2.989
	SS	2.963	0.898	3.00	3.00	2.837	3.053
IMP2	A	1.855	0696	1.71	1.00	1.754	1.900
	BF	1.822	0.725	1.63	1.00	1.750	1.927
	FC	1.847	0.712	1.67	1.00	1.750	1.948
	FE	1.857	0.792	1.68	1.00	1.751	1.948
	F	1.831	0.816	1.67	1.00	1.736	1.938
	SS	1.838	0.776	1.71	1.00	1.742	1.933

Examination of the results in CA data set in Table 17 revealed that the mean and the mode of most dimensions were approximately 3 which indicated that students are somewhat agree on their assessment of the current level of performance of these dimensions in the University of Jordan, with faculty expertise dimension having the highest assessment and the administration dimension having the lowest assessment.

Examination of the results in IMP2 data set revealed that the mean of most dimensions were approximately 2 which indicated that all dimensions have moderate impact on the quality of educational services in the University of Jordan with behavior of faculty having the strongest impact and faculty of expertise having the least impact.

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The mode results showed that all dimensions have strong impact on the quality of educational services where most students answered 1.

The means of the five dimensions of ESQ model were ranked in descending order for the CA data set and ascending order for IMP2 data set in order to specify those dimensions which most need improvement and have the strongest impact on the quality of educational services in the University of Jordan. The results are presented in Table 18.

Table 18. Ranked means of the two data sets of ESQ dimensions

CA		IMP2	
	A = 3.440		BF=1.822
Less Assessment ↑	BF= 2.963	Strong Impact ↑	F =1.831
	SS= 2.963		SS=1.838
	F= 2.883		FC= 1.847
	FC= 2.841		A=1.855
	FE= 2.528		FE= 1.857

Examining Table 18, revealed that students in the University of Jordan somewhat agree on their assessment of the current level of performance on all dimensions (means≈3), and that all dimensions have moderate impact on quality from their perception (means≈2) with behavior of faculty and facilities dimensions having the strongest impact on service quality. Therefore, the University of Jordan should focus on interpersonal behavior of faculty and facilities dimensions in order to improve overall student satisfaction.

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5. Results of Confirmatory Data Analysis

Multiple linear regression analyses using stepwise regression method were used to test the hypotheses stated to each model.

5.1 Test Results of BEC Framework Hypotheses
5.1.1 Test Results of Hypothesis H_1 and H_2

The validity and reliability of BEC framework as measure of performance excellence in higher education were previously proved in the validity and reliability test results, which confirms H_1. The relationship between the six dimensions (leadership, strategic planning, student stakeholder and market focus, measurement analysis and knowledge management, faculty and staff focus and educational support and process management) and overall performance results dimension was examined using multiple regression analysis in Table 10 in page 49, which showed that there is a strong correlation between the six dimensions of BEC framework and the overall performance results with multiple R coefficient 0.923, which confirms H_2.

The study also showed that that student and stakeholder and market focus, leadership and faculty and staff focus dimensions had a statically significant positive effect on performance results, with Beta values equal 0.473, 0.382, and 0.380 respectively and with p-values less than 0.05, which proved that that (student stakeholder and market focus , leadership and faculty focus) dimensions are more affecting the quality of higher education than (strategic planning, measurement and analysis and educational support) dimensions. The adjusted R^2 for this model is 0.846 which means that the six dimensions of BEC framework explain about 84.6% of variance caused by overall performance result.

5.1.2 Test Results of Hypothesis H_3

To assess the validity of hypothesis H_3, regression analysis was conducted to examine the relationship between leadership (independent variable) and each of the five dimensions individually (strategic planning, student and stakeholder focus, measurement and analysis, faculty and staff focus and educational support) as well as result dimension. The regression coefficients produced by this analysis are represented in Table 19.

Table 19. Multiple regression results of leadership dimension on the five dimensions of   BEC and result dimension.

Independent	Coefficients	Dependent Variables					
Variable. variables		SP	SF	M	FS	ES	R
Leadership	Multiple R	0.787	0.823	0.802	0.917	0.746	0.874
	Adjusted R^2	0.617	0.675	0.640	0.839	0.553	0.762
	Beta	0.926	0.943	0.971	1.033	0.790	1.024
	P-value	0.000	0.000	0.000	0.000	0.000	0.000

The multiple regression analysis revealed that leadership dimension had a statistically significant effect on the five dimensions strategic planning, student and stakeholder focus, measurement and analysis, faculty and staff focus, educational support as well as result dimension, with Beta values exceeded 0.9 and p-values less than 0.05 which confirms **H_3** which stated that leadership drives the system which creates results (Meyer and Collier 2001).

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5.1.3 Test Results of Hypothesis H_4 and H_5

Since BEC framework is a valid measure of performance excellence in higher education, then its dimensions should correlate in a predictable manner with individual result items. The H_4 hypothesis stated that student, stakeholder and market focus and faculty and staff focus dimensions, predict student learning outcomes item better than any other dimensions, whereas H_5 hypothesis stated that student, stakeholder and market focus dimension, predict student and stakeholders satisfaction item better than any other dimensions. Two regression analyses were conducted to check the validity of the two hypotheses. The Multiple regression results of the six dimensions of BEC framework on student learning outcomes item is presented in Table 20.

Table 20. Multiple regression results of the six dimensions of BEC framework on student learning outcomes item

Depend. Var.	Multiple R	R Square	Adjusted R Square	Std. Error of the Estimate
student learning outcomes	0.731	0.534	0.522	0.937

Model	Sum of Squares	df	Mean Square	F	P-value
Regression	113.781	3	37.927	43.228	0.000
Residual	99.143	113	0.877		

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Model	Dimension	Beta	T	P-value
Indep. Vars.	L	0.285	1.598	0.113
	SP	-0.464	-3.201	0.002
	SF	0.856	5.498	0.000
	M	-0.221	-1.672	0.097
	FS	0.564	3.632	0.000
	ES	-0.069	-0.681	0.497

The multiple regression results in Table 20 revealed that student focus and faculty focus dimensions had a statically significant positive effect on student learning outcomes item with Beta equals 0.856 and 0.564 respectively and with p-values less than 0.05, which confirms **H₄**. The adjusted R^2 for this model is 0.522 which means that the regression model explains about 52.2% of variance in student learning outcomes item. The multiple regression results of the six dimensions of BEC framework on student and stakeholders satisfaction item is presented in Table21.

Table 21. Multiple regression results of the six dimensions of BEC framework on student and stakeholders satisfaction item

Depend. Var.	Multiple R	R Square	Adjusted R Square	Std. Error of the Estimate
Student and stakeholders satisfaction	0.853	0.728	0.723	0.632

Model	Sum of Squares	df	Mean Square	F	P-value
Regression	121.744	2.000	60.872	152.557	0.000
Residual	45.487	114.000	0.399		

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Model	Dimension	Beta	T	P-value
Indep. Vars.	L	-0.076	-0.800	0.425
	SP	-0.288	-3.221	0.002
	SF	1.232	13.407	0.000
	M	-0.063	-0.626	0.533
	FS	-0.023	-0.260	0.795
	ES	0.022	0.304	0.762

The multiple regression results in Table 21 revealed that student focus dimension had statistically the most significant effect on student and stakeholders' satisfaction item, with Beta equals 1.232 and with p-values less than 0.05 which confirms **H₅**. The adjusted R^2 for this model is 0.723 which means that the regression model explain about 72.3% of variance in student and stakeholders satisfaction item.

5.2 Test Results of ESQ Model Hypotheses
5.2.1 Test Results of Hypothesis H₆ and H₇

The validity and reliability of ESQ model as measure of student satisfaction with educational service quality in the University of Jordan were previously proved in the validity and reliability results sections, which confirms **H₆** and the relationship between the five dimensions independent variables (administration, behavior of faculty, faculty communication, faculty expertise and facilities) and overall student satisfaction dimension (dependent variable) was examined using multiple linear regression analysis, the results were reported in Table 11 page 50. The multiple R coefficient 0.938 revealed that there is strong correlation between the five dimensions of ESQ model and overall student satisfaction dimension, which confirms the criteria validity of the model. It can also be

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noticed that behavior of faculty, facilities and administration dimensions had statistically the most significant effect on student and stakeholders' satisfaction dimension which confirms **H7**, with Beta equals 0.394, 0.358 and 0.225 respectively and with p-values less than 0.05. The adjusted R^2 value was 0.879 which means that the regression model explain about 87.9% of variance in student and stakeholders satisfaction item.

5.2.2 Test Results of Hypothesis H8 and H9

Since ESQ model is a valid measure of student satisfaction with educational service quality in the University of Jordan, then its dimensions should correlate in a predictable manner with individual student satisfaction items. The hypothesis **H8** assumed that there is significant relationship between at least one of the faculty service dimensions (faculty behavior, faculty communication and faculty expertise) and the student satisfaction with the quality of education, whereas, **H9** hypothesis assumed that there is significant relationship between at least one of the faculty service dimensions (faculty behavior, faculty communication and faculty expertise) and the student satisfaction with the quality of teaching. Two regression analyses were conducted to assess the validity of the two hypotheses.

The multiple regression results of the five dimensions of ESQ model on student satisfaction with the quality of education item is presented in Table 22.

Table 22. Multiple regression results of the five dimensions of ESQ model on student satisfaction with the quality of education.

Dep. Var.	Multiple R	R Square	Adjusted R Square	Std. Error of the Estimate
Student Satisfaction with the quality of education	0.695	0.483	0.479	0.907

Model	Sum of Squares	df	Mean Square	F	P-value
Regression	193.262	2.000	96.631	117.479	0.000
Residual	206.458	251.000	0.823		

Model	Dimension	Beta	T	P-value
Indep. Vars.	**A**	0.229	2.348	0.020
	BF	0.783	12.339	0.000
	FC	-0.093	-1.041	0.299
	FE	-0.016	-0.261	0.794
	F	-0.075	-0.795	0.427

The multiple regression results in Table 22 revealed that behavior of faculty and administration had statistically significant effect on student satisfaction with the quality of education item, with Beta equals 0.783 and 0.229 respectively and with p-values less than 0.05, which confirms **H$_8$**. The adjusted R^2 for this model is 0.479 which means that the regression model explain about 47.9% of variance in student satisfaction with the quality of education item.

The multiple regression results of the five dimensions of ESQ model on student satisfaction with the quality of teaching item is presented in Table 23.

Table 23. Multiple regression results of the five Dimensions of ESQ model on student satisfaction with the quality of teaching

Dep. Var.	Multiple R	R Square	Adjusted R Square	Std. Error of the Estimate
Student Satisfaction with the quality of teaching	0.784	0.615	0.608	0.754

Model	Sum of Squares	df	Mean Square	F	P-value
Regression	223.888	4.000	55.972	98.482	0.000
Residual	140.382	247.000	0.568		

Model	Dimension	Beta	T	P-value
Indep. Vars.	A	-0.011	-0.234	0.815
	BF	0.361	3.067	0.002
	FC	0.234	2.350	0.020
	FE	0.238	3.472	0.001
	F	0.213	2.224	0.027

The multiple regression results in Table 23 revealed that behavior of faculty, faculty expertise, faculty communication and facilities dimensions had statically the most significant effect on student satisfaction with the quality of teaching item, with Beta equals 0.361, 0.238, 0.234 and 0.213 respectively and with p-values less than 0.05 which confirms **H9**. The adjusted R^2 for this model is 0.608 which means that the regression model explain about 60.8% of variance in student satisfaction with the quality of teaching item.

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CHAPTER FIVE
CONCLUSIONS, RECOMMENDATIONS AND UTUREWORK

1. Conclusions

After conducting the validity, reliability, exploratory and confirmatory data analyses on the faculty questionnaire, which is based on BEC for Performance Excellence and student questionnaire, which is based on ESQ model, the following conclusions were obtained:

- BEC framework is a valid and reliable measure of performance excellence in the University of Jordan. The content, construct and criteria validity tests, as well as reliability test, showed that BEC dimensions comprise a reliable and a valid instrument for measuring performance in higher education.

- Leadership is the driver of all dimensions in Baldrige system. Multiple regression analysis showed that leadership has a significant effect on the five dimensions (strategic planning, student and stakeholder focus, measurement and analysis, faculty and staff focus and educational support) as well as result dimension.

- Multiple regression analysis revealed that student, stakeholder and market focus, leadership and faculty and staff focus dimensions have statically significant effect on performance results, with student focus dimension, having the strongest effect among them.

- Student, stakeholder and market focus, and faculty focus dimensions predict student learning outcomes in Baldrige system better than any other dimension. This was confirmed by the multiple regression analysis which revealed that student focus and faculty focus dimensions have statically the most significant effect on student learning outcomes.

- Student, stakeholder and market focus dimension predict student satisfaction dissatisfaction item in Baldrige system better than any other dimension. This was confirmed by the multiple regression analysis which revealed that student focus has statistically the most significant effect on student learning outcomes.

- The limitation results showed that lack of leadership commitment has the most negative effect on implementing TQM in higher education specifically in the University of Jordan, which confirms the major role of leadership as the driver of all dimensions.

- ESQ model is a valid and reliable measure of student satisfaction with educational service quality in the University of Jordan. The content, construct and criteria validity tests, as well as reliability test, showed that ESQ dimensions comprise a reliable and a valid instrument for measuring student satisfaction with educational service quality in higher education

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- Multiple regression analysis revealed that interpersonal behavior of faculty, facilities and administration are the most significant dimensions affecting overall student satisfaction.

- Multiple regression analysis revealed that Behavior of faculty and administration dimensions of ESQ model are the best predictors of student satisfaction with the quality of education since they have statistically the most significant effect on student satisfaction with the quality of education.

- Multiple regression analysis revealed that Behavior of faculty, faculty expertise, faculty communication and facilities dimensions of ESQ model are the best predictors of student satisfaction with the quality of teaching since they have statically the most significant effect on student satisfaction with the quality of teaching.

2. Recommendations

- In order to implement TQM in higher education, there is a need to find a comprehensive measurement model that strives for continuous improvement through self assessment, strategic planning, benchmarking and stakeholders satisfaction such as BEC for Performance Excellence.

- TQM can be applied in several areas in higher education such as administration of university functions, curricula, core learning processes, teaching method, research activities and nonacademic functions.

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- Senior leaders in higher education should initiate and support quality programs because, without their involvement and commitment the quality journey become difficult and at sometimes impossible.

- Higher education institutions in Jordan should focus on student, stakeholder and market needs and expectations, since they have the strongest impact on organizational performance results.

- To provide amore comprehensive view of educational service quality in higher education, it is valuable to assess student perceptions of both functional quality as well as technical quality.

- ESQ in higher education are highly involving and require high level of participation unlike other services especially from students.

- Faculty members should pay more attention to how they deal with students if they wish to develop good professional relationships with them and enhance overall satisfaction

2. Recommendations for Future Work

- Extend this study to include both governmental and private Jordanian universities and compare their results with each other.

- Another possible direction for future research might test both models across different cultures or countries.

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- To include the perceptions of other stakeholders in assessing the quality in higher education such as staff , employing agencies, accreditation bodies, parents…..etc

- Future studies can explore new dimensions of service quality that may affect student satisfaction with educational service quality provided by their institutions.

- Examine in greater depth the key dimensions most affecting both organizational performance results and student satisfaction.

REFERENCES

- Abdullah, M., Younis, H., Badri, M.A., Selim, H., Alshare, K. and Grandon, E.G. (2006).The Baldrige Education Criteria for Performance Excellence: Empirical test and validation. **International Journal of Quality and Reliability Management**, 23, 9, 1118-1157.

- Al -Ymani, M. (2006). Quality assurance in higher education**.** On line at **http: // www. ju.edu.jo /old- publication /the cultural journal. html.**

- Anderson, E. (1995). High technology versus high touch: A case study of TQM implementation in higher education. **Management Service Quality**, 48-56

- Arcaro, J. S. (1995). **Quality in Education**. Lucie Press.

- Anyamele, S. C., (2004). **Institutional Management in Higher Education**. PH.D. Dissertation, Helsinki University Press, Finland.

- Badah, A. M. (2003). **Proposed Model for Administrative Development and the Applicability of Implementation in Public Jordanian Universities.** PH.D. Dissertation, Amman Arab University for Graduate Studies, Jordan.

- Baldrige Education Criteria for Performance Excellence (2006). On line at **http://www.quality.Baldrige.nist.gov.htm**

- Belohlave, J. (2004). Using the MBNQA in teaching: One criteria several perspectives. **Decision Science of Innovation Education**, 2(2), 76-80.

- Bettina, L. A. (1992). Total Quality Management (TQM): Application in vocational education. **ERIC Digest**, 125, 221-238.

- Blazey, M. L., Davison, K. S. and Evans, J. P. (2001). Insights to performance excellence in education: An inside look at the 2001 Baldrige award criteria for education. **Quality Progress**, 30(61), 61-64.

- Blomqvist, M. (1997). **Toward World Class University Department**. PH.D. Dissertation. Department of Industrial Management, Helsinki University of Technology.

- Bogan, C. E., and English, M. J. (1994). **Benchmarking for Best Practices: Winning Through Innovation and Adaptation.** New York, Washington, London: Mc-Graw-Hill Inc.

- Bonstingl, J. J. (2001). **Schools of Quality**: **An Introduction to Total Quality Management in Education,** (3rd ed.) .Alexandria, VA: Association for Supervision and Curriculum Development.

- Carman, J. (1990). Consumers' perceptions of service quality: An assessment of SERVQUAL dimensions. **Journal of Retailing**, 66, 33-55.

- Cronin, J., and Taylor, S. (1992). Measuring service quality: A reexamination and expansion **. Journal of Marketing,** 56, 55-68.

- Cronin, J., and Taylor, S. (1994). SERVPERF vs. SERVQUAL: Reconciling performance based and perceptions minus expectations measurement of service quality. **Journal of Marketing,** 58, 125-131.

- Dahlgaard, J.J., Kristensen, K. and Kanji, G.K. (1995).TQM and education. **Total Quality Management**, 6, 6-5.

- Djerdjour, M. and Patel, P. (2000). Implementation of Quality Programs in developing countries: A Fiji Island case. **Total Quality Management**, 11(1), 25-30

- Evans, J. (1997). Critical linkage in the Baldrige award criteria: Research model and educational challenges. **Quality Management Journal**, 5(1), 13-30.

- Feast, V., and Barnett, S. (2000). Application of total quality management in higher education. **Quality Management Journal**, 6(2), 9-21.

- Fjortoft, N., and Lee, M. (1994). Developing and testing a model of professional commitment. **American Journal of Pharmaceutical Education**, 58, 370-378.

- Forza, C. (2002). Survey research in operations management: A process-based perspective. **International Journal of Operations and Production Management**, 22(2), 152-194.

- Frazer, M. (1994) **Quality in Higher Education: an International Perspective**, in: Green, D. What is quality in higher education? Open University Press, Buckingham, ISBN 0-335-15740-8.

- Galloway L. (1998). Quality perceptions of internal and external customer: A case study in educational institution. **The TQM Magazine**, 10, 20-26.

- Grant, D., Mergan, E. and Stanley, W. (2004). A comparative analysis of quality management in US and international universities. **Total Quality Management**, 15(4), 423-438.

- Green, D. (1994) **What is Quality in Higher Education?.** Open University Press, Buckingham, ISBN 0-335-15740-8.

- Holdford, D., and Reinders, P. (2001). Development of an instrument to assess student perceptions of the quality of pharmaceutical education. **American Journal of Pharmaceutical Education**, 56, 125-131.

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- Holdford, D., and Patkar, A. (2003). Identification of the service quality dimensions of pharmaceutical education. **American Journal of Pharmaceutical Education**, 67(4).

- Horine, J., and Haily, W. (1995). Challenges to successful quality management in higher education institutions. **Innovation Higher Education**, 20(1), 7-17.

- Kanji, G. K., and Tambi, A. M. (1999). TQM in U.K. higher education institution. **Total Quality Management**, 10(1), 129-153.

- Karathanos, D. (1999). Quality: Is education keeping pace with business?. **Journal of Education for Business**, 74, 231-235.

- Kathryn, A. (2004). **Baldrige Education Criteria for Performance Excellence: Perceptions of District Personnel of Implementation and Collective Teacher Efficacy.** PH.D. Dissertation, Texas A&M University.

- Khoo, H., and Tan, K. (2003). Measuring for quality in U.S.A. and Japan: Differences between MPNQA, DP and JQA. **The TQM Magazine**, 15, 14-24.

- Lawler, E.E.(1994).TQM and employee involvement: are they contribute? Academy of **Management Review**, 8(1), 68-76.

- Lewis, R. C. and Booms, B.H (1983). The marketing aspects of service quality. **American Marketing**, 99-107.

- Mackerron, G. (2003). Self assessment: Used at operational levels to promote continuous improvement. **Production Planning and Control**, 14(1), 79-82.

- Mangold, W., and Babakus, E. (1991). Service quality: The front stage versus the backstage perspectives. **Journal of Services Marketing**, 51, 59-70.

Mergan, E., Grant, D. and Widdricks, S. (2000).Quality Management applied to higher education. **Total Quality Management**, 11, 345-352.

- Meyer S., and Collier D., (2001). An empirical test of causal relationships in the Baldrige healthcare pilot criteria. **Journal of Operational Management**, 19(4), 400-403.

- Ministry of Higher Education and Scientific Research. On line at **http:// www.mohe.gove.jo/ Tempus/ jordanian priorities**

- Owlia, M., and Aspinwall E. (1996). Quality in higher education: A survey. **TQM Magazine,** 7(2).

- Pannirselvam, G., and Ferguson, L. (2001). A study of the relationships between the Baldrige categories. **International Journal of Quality and Reliability Management**, 18(1), 14-34.

- Parasurman, A., Zeithmal, V. and Berry, L. (1985). A conceptual model of service quality and Its implication for future work. **Journal of Marketing**, 49, 41-50.

- Pariseau, S., and Mc Daniel, J. (1997). Assessing service quality in schools of business. **International Journal of Quality and Reliability Management**, 14, 200-204.

- Roosevelt, B. (1995). Quality and business practices: Essential gradients for success. **Quality Progress**, 28, 35-44.

- Sahney, S., Karunes, S. and Banwet, D. K. (2002).**TQM in India: A diagnostic Study of Engineering and Management Institutions** PH.D. Dissertation, Department of managemt studies, IIT, Delhi.

- Siegel, P., and Byrne, S. (1994). Using quality to redesign school systems: The cutting edge of common sense. **American Society for Quality**, 5, 16-17.

- Tarazi, A. (2005). **The Effect of TQM Practices on Higher Education Performance: The Faculty of Engineering and Technology at the University of Jordan as a Case Study.** Master Thesis, Industrial Engineering Department, the University of Jordan.

- Teas, R. (1993). Expectation performance evaluation and consumers perceptions of quality. **Journal of Marketing**, 57(4), 18-34.

- Vazzana, G., Bachman, D. and Elfrink, J.(1997). Does higher education practice what it teaches?: A study of TQM processes in academia answers this question. **Quality Progress**, 30, 67-74.

- Venkatraman, S. (2007). A framework for implementing TQM in higher education programs. **Quality Assurance in Education**, 15(1), 92-112

- Vora, M. (2002). Business excellence through quality management. **TQM Magazine**, 8, 9-1151.

- Weinstein, L., Patrick, J. and Sanders, P. (1998). What higher education should be teaching about quality but is not**. Quality Progress**, 31, 35-41.

- Winn, B., and Cameron K. (1998). Organizational quality: An examination of the MBNQA framework. **Research in Higher Education**, 5, 491-512.

- Witcher, B.J.(1990).Total marketing: Total quality and the marketing concept. **The Quarterly Review of Marketing**, 1-6.

- Wolvernton, M. (1996).The zealots and the old guard. **Quality Progress**, 29, 65-78.

- Zheng, Z., Waszink, Ab. And Wijgaard, J. (2000). An instrument for measuring TQM implementation for Chinese manufacturing companies. **International Journal of Quality and Reliability Management**, 17(7), 730-755.

Appendices
APPENDIX A
FACULTY QUESTIONNAIRE

Part A:

This questionnaire aims to collect faculty members' perspectives of quality aspects in the University of Jordan as a part of master thesis of Total Quality Management (TQM) in Higher Education. Please circle the number that best reflects the extent of implementation, impact on educational quality and difficulty of implementation of each statement. Your frank answers will help us to evaluate quality aspects in our university.

		Extent of Implementation					Impact On Quality				Difficulty Of Implementation			
		Fully Implemented	Well Implemented	Reasonably Implemented	Early Stage of Implementation	No systematic approach	Strong Impact	Moderate Impact	Limited Impact	No Impact	Very Easy	Easy	Difficult	Very Difficult
1.	**Leadership**													
1	Top management sets the organizational vision that reflects the university values and objectives	1	2	3	4	5	1	2	3	4	1	2	3	4
2	Top management demonstrates their commitment to the organizational vision	1	2	3	4	5	1	2	3	4	1	2	3	4
3	Top management fosters legal and ethical behavior in all interactions	1	2	3	4	5	1	2	3	4	1	2	3	4
4	Top management promotes total involvement in the improvement process	1	2	3	4	5	1	2	3	4	1	2	3	4
5	Top management makes all employees aware of the organization mission and their role	1	2	3	4	5	1	2	3	4	1	2	3	4

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#		Extent of Implementation					Impact On Quality				Difficulty Of Implementation			
6	Top management provides an adequate support system for the continuous improvement process	1	2	3	4	5	1	2	3	4	1	2	3	4
7	Top management examines the changing needs and capabilities to ensure continuous improvement	1	2	3	4	5	1	2	3	4	1	2	3	4
8	Top management facilitates the use of the university resources for local society	1	2	3	4	5	1	2	3	4	1	2	3	4
9	Top management communicates with and motivates all employees	1	2	3	4	5	1	2	3	4	1	2	3	4

#		Extent of Implementation					Impact On Quality				Difficulty Of Implementation			
		Fully Implemented	Well Implemented	Reasonably Implemented	Early Stage of Implementation	No systematic approach	Strong Impact	Moderate Impact	Limited Impact	No Impact	Very Easy	Easy	Difficult	Very Difficult
10	Top management reviews organizational performance to assess the progress of goals	1	2	3	4	5	1	2	3	4	1	2	3	4

2. Strategic Planning

#														
11	Strategic plans involve key processes and key participants in the planning process	1	2	3	4	5	1	2	3	4	1	2	3	4
12	Strategic plans consider university capabilities and time horizon	1	2	3	4	5	1	2	3	4	1	2	3	4
13	Strategic plans are implemented into action plans	1	2	3	4	5	1	2	3	4	1	2	3	4
14	Performance measures are established to track the progress of action plans	1	2	3	4	5	1	2	3	4	1	2	3	4

3.Student and Stakeholder Focus

#														
15	The university seeks student needs and expectations	1	2	3	4	5	1	2	3	4	1	2	3	4

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#	Statement	Extent of Implementation					Impact On Quality				Difficulty Of Implementation			
16	The university uses relevant information and student feedback for the improvement process	1	2	3	4	5	1	2	3	4	1	2	3	4
17	The university provides an access Mechanisms that enables students and stakeholders to seek data and information	1	2	3	4	5	1	2	3	4	1	2	3	4
18	The university keeps these access mechanisms current with educational changes	1	2	3	4	5	1	2	3	4	1	2	3	4
19	The university manages student and stakeholder complaints effectively	1	2	3	4	5	1	2	3	4	1	2	3	4
20	The university keeps in touch with students and stakeholders to insure their satisfaction and loyalty	1	2	3	4	5	1	2	3	4	1	2	3	4

4. Measurement Analysis and   Knowledge Management

#	Statement	Extent of Implementation					Impact On Quality				Difficulty Of Implementation			
		Fully Implemented	Well Implemented	Reasonably Implemented	Early Stage of Implementation	No systematic approach	Strong Impact	Moderate Impact	Limited Impact	No Impact	Very Easy	Easy	Difficult	Very Difficult
21	The university gathers data from many sources to support organizational performance	1	2	3	4	5	1	2	3	4	1	2	3	4
22	The university analyses and reviews organizational performance	1	2	3	4	5	1	2	3	4	1	2	3	4
23	The university keeps performance measurement current with educational service needs	1	2	3	4	5	1	2	3	4	1	2	3	4
24	The university uses the organizational review results to set priorities and opportunities for improvement	1	2	3	4	5	1	2	3	4	1	2	3	4
25	The university provides reliable, secure data and information for all users	1	2	3	4	5	1	2	3	4	1	2	3	4

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	5. Faculty and Staff Focus													
26	The university supports cooperation within faculties and team work	1	2	3	4	5	1	2	3	4	1	2	3	4
27	The university manages an effective hiring and career progression for all faculty and staff	1	2	3	4	5	1	2	3	4	1	2	3	4
28	The university motivates faculty and staff to utilize their full potentials	1	2	3	4	5	1	2	3	4	1	2	3	4
29	The university provides education and training for faculty and staff	1	2	3	4	5	1	2	3	4	1	2	3	4
30	The university provides healthy, safe and ergonomic workplace for faculty and staff	1	2	3	4	5	1	2	3	4	1	2	3	4
31	The university looks for faculty and staff well-being and satisfaction	1	2	3	4	5	1	2	3	4	1	2	3	4
6. Educational Support and Process Management														
32	The university manages key processes that focus on active learning	1	2	3	4	5	1	2	3	4	1	2	3	4
33	The university considers student differences when developing educational programs	1	2	3	4	5	1	2	3	4	1	2	3	4
34	The university incorporates new technologies into educational programs	1	2	3	4	5	1	2	3	4	1	2	3	4
35	The university ensures that faculty and staff are properly prepared to implement educational programs	1	2	3	4	5	1	2	3	4	1	2	3	4
36	The university evaluates and improves educational programs and offerings	1	2	3	4	5	1	2	3	4	1	2	3	4
		Extent of Implementation					**Impact On Quality**				**Difficulty Of Implementation**			
		Fully Implemented	Well Implemented	Reasonably Implemented	Early Stage of Implementation	No systematic approach	Strong Impact	Moderate Impact	Limited Impact	No Impact	Very Easy	Easy	Difficult	Very Difficult

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No.	Statement	1	2	3	4	5	1	2	3	4	1	2	3	4
37	The university provides adequate budgetary and financial resources to support processes	1	2	3	4	5	1	2	3	4	1	2	3	4

7. Results

No.	Statement	1	2	3	4	5	1	2	3	4	1	2	3	4
38	The university evaluates student learning outcomes	1	2	3	4	5	1	2	3	4	1	2	3	4
39	The university measures students and stakeholder's satisfaction, dissatisfaction and perceived values	1	2	3	4	5	1	2	3	4	1	2	3	4
40	The university evaluates leadership and social responsibility outcomes	1	2	3	4	5	1	2	3	4	1	2	3	4
41	The university evaluates faculty and staff outcomes	1	2	3	4	5	1	2	3	4	1	2	3	4
42	The university evaluates the organizational effectiveness outcomes	1	2	3	4	5	1	2	3	4	1	2	3	4
43	The university measures budgetary and financial outcomes	1	2	3	4	5	1	2	3	4	1	2	3	4

Part B:

The following statements represent some of the obstacles that may impede TQM in higher education. Please Circle the No. that best reflects your perception of the extent at which each item can impede TQM implementation in higher education	Negative Effect On Implementing TQM in Higher Education			
	Strong	Moderate	Limited	No Impact
1 Lack of leadership commitment	1	2	3	4
2 No clear vision or objectives	1	2	3	4
3 No consistency of purposes	1	2	3	4
4 Organizational culture, resistance to change	1	2	3	4
5 Lack of faculty support	1	2	3	4
6 Insufficient training for leaders and staff	1	2	3	4
7 Insufficient time for implementation	1	2	3	4
8 Excluding some participants	1	2	3	4
9 Basing decisions on assumptions rather than data	1	2	3	4
10 Lack of governmental funding	1	2	3	4

** After completing the survey please leave it with the secretary of your department.
 Your Faculty: -------------   Thanks for cooperation

STUDENT QUESTIONNAIRE

This survey aims to collect student perceptions of educational service quality in the University of Jordan as a part of master thesis of Total Quality Management in Higher Education. Please circle the number that best reflects your current assessment of service quality in your university and the impact on quality for each of the following statements. Your frank answers will help us decide where we most need to improve.

- **Personal Data:**

  - Faculty: --------------   - Specialization:……………

  - Gender: ◯   Male   ◯   Female   - Grade Point Average:……

		Current Assessment					Impact On quality			
	1. Administration	Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Strong Impact	Moderate Impact	Limited Impact	No Impact
1	The university administration shows sincere interest in solving student problems	1	2	3	4	5	1	2	3	4
2	The University administration is friendly and approachable	1	2	3	4	5	1	2	3	4
3	The university administration is dependable	1	2	3	4	5	1	2	3	4
4	The university administration attempts to understand student needs	1	2	3	4	5	1	2	3	4
5	The university administration acts promptly	1	2	3	4	5	1	2	3	4
6	The university administration is willing to help student	1	2	3	4	5	1	2	3	4
7	The university administration is honest with student	1	2	3	4	5	1	2	3	4

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#		Current Assessment					Impact On quality			
		Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Strong Impact	Moderate Impact	Limited Impact	No Impact
8	The university administration behavior instills confidence in student	1	2	3	4	5	1	2	3	4
9	The university administration is sensitive to student confidentiality	1	2	3	4	5	1	2	3	4
10	The university administration is sensitive to student safety	1	2	3	4	5	1	2	3	4
11	The university administration keeps student informed about issues that concern him	1	2	3	4	5	1	2	3	4
12	The university administration treats student with respect	1	2	3	4	5	1	2	3	4
13	The university administration has knowledge to answer student questions	1	2	3	4	5	1	2	3	4
14	The university administration is responsive to student evaluations about the curriculum.	1	2	3	4	5	1	2	3	4

2. Interpersonal Behavior of Faculty

#										
15	Faculty members are friendly and approachable	1	2	3	4	5	1	2	3	4
16	Faculty members are willing to help student	1	2	3	4	5	1	2	3	4
17	Faculty members are available outside of classes	1	2	3	4	5	1	2	3	4
18	Faculty and staff keep their promises	1	2	3	4	5	1	2	3	4
19	Faculty members behavior instills confidence in student	1	2	3	4	5	1	2	3	4
20	Faculty members are sensitive to student confidentiality	1	2	3	4	5	1	2	3	4
21	Faculty members are honest with student	1	2	3	4	5	1	2	3	4
22	Faculty members treat student with respect	1	2	3	4	5	1	2	3	4

3. Faculty Communication

#										
23	Faculty members are consistent with their grading practices and what they tell student.	1	2	3	4	5	1	2	3	4
24	Faculty members explain things in a way that student can understand	1	2	3	4	5	1	2	3	4
25	Faculty members have student best interest at heart	1	2	3	4	5	1	2	3	4
26	Faculty members attempt to understand student specific needs	1	2	3	4	5	1	2	3	4

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27	Faculty members make clear what they expect of student	1	2	3	4	5	1	2	3	4
28	Faculty members usually give student an adequate feedback about his performance	1	2	3	4	5	1	2	3	4

4. Faculty Expertise

29	Faculty members have the knowledge to answer student questions	1	2	3	4	5	1	2	3	4
30	Faculty members are current with the development in their area of expertise	1	2	3	4	5	1	2	3	4
31	Faculty members know what topics are relevant to become a good student	1	2	3	4	5	1	2	3	4

5. Facilities

32	Up- to- date teaching tools and equipment	1	2	3	4	5	1	2	3	4
33	Physical facilities visually appealing and comfortable	1	2	3	4	5	1	2	3	4

		Current Assessment					Impact On quality			
		Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Strong Impact	Moderate Impact	Limited Impact	No Impact
34	Physical facilities convenient to student	1	2	3	4	5	1	2	3	4
35	Electronic access to data and in formation	1	2	3	4	5	1	2	3	4
36	Computer laboratory an important asset	1	2	3	4	5	1	2	3	4
37	Operating hours of these facilities are convenient to student	1	2	3	4	5	1	2	3	4

6. Student Satisfaction

38	The university provided me a high quality education	1	2	3	4	5
39	I'm satisfied with the administration of my university	1	2	3	4	5
40	I'm satisfied with the my faculty	1	2	3	4	5
41	I'm satisfied with the university curriculum	1	2	3	4	5
42	I'm satisfied with the quality of teaching	1	2	3	4	5
43	I'm satisfied with my intellectual development in my university	1	2	3	4	5

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APPENDIX C

SCREENING OUTLIERS (ZVALUES >3)
FACULTY RESPONCES

Variable	EXT	IMP1	DIFF	Variable	LIM
L1	none	none	none	LIM1	none
L2	none	none	none	LIM 2	none
L3	none	none	none	LIM 3	none
L4	none	none	none	LIM 4	none
L5	none	none	none	LIM 5	none
L6	none	none	none	LIM 6	case 33
L7	none	none	none	LIM 7	none
L8	none	none	case5	LIM 8	none
L9	none	none	none	LIM 9	none
L10	none	none	none	LIM 10	none
SP11	none	none	none		
SP12	none	none	none		
SP13	none	none	none		
SP14	none	none	none		
SF15	none	none	none		
SF16	none	none	none		
SF17	none	none	none		
SF18	none	case 90	none		
SF19	none	none	none		
SF20	none	none	none		
M210	case 67	none	none		
M22	none	none	none		
M23	none	none	none		
M24	none	case 4	none		
M25	none	none	none		
FS26	none	none	none		
FS27	none	none	none		
FS28	none	none	none		
FS29	none	none	none		
FS30	none	none	none		
FS31	none	none	none		
ES32	none	none	none		
ES33	none	none	none		
ES34	none	none	none		
ES35	none	none	none		

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ES36	none	none	none		
ES37	none	none	none		
R38	none	none	none		
R39	none	none	none		
R40	none	none	none		
R41	none	none	none		
R42	none	none	none		
R43	none	none	case 12,40		

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SCREENING OUTLIERS (Z VALUES >3)
STUDENT RESPONCES

Variable	CA	IMP2
A1	none	none
A2	none	none
A3	none	none
A4	none	none
A5	case 23	none
A6	none	none
A7	none	none
A8	none	none
A9	none	none
A10	none	none
A11	none	none
A12	none	none
A13	none	none
A14	none	none
BF15	none	case 8
BF16	none	none
BF17	none	none
BF18	none	none
BF19	none	none
BF20	none	none
BF21	none	none
BF22	none	none
FC23	none	none
FC24	none	none
FC25	case 6,51	none
FC26	none	none
FC27	none	none
FC28	none	none
FE29	none	none
FE30	none	none
FE31	none	none
F32	none	none
F33	none	none
F34	none	case 115
F35	none	none
F36	none	none
F37	none	none
SS38	none	none

SS39	none	None
SS40	none	none
SS41	none	none
SS42	none	none
SS43	none	case 3,66,201
SS44	none	none

APPENDIX D
PERCENT OF MISSING VALUES
FACULTY RESPONCES

Variable	EXT	IMP	DIFF	Variable	LIM
L1	1.7%	0	0	LIM1	0
L2	0	0	2.5%	LIM 2	0
L3	0	0	0	LIM 3	2.5%
L4	0	0	5%	LIM 4	0
L5	0	2.5%	0	LIM 5	0
L6	0	0	2.5%	LIM 6	0
L7	0	0	0	LIM 7	0
L8	0	0	2.5%	LIM 8	0
L9	5%	0	0	LIM 9	0
L10	1.7%	0	0	LIM 10	0
SP11	5%	0	2.5%		
SP12	2.5%	0	0		
SP13	2.5%	0	0		
SP14	2.5%	2.5%	0		
SF15	0	0	2.5%		
SF16	0	0	2.5		
SF17	2.5%	0	5%		
SF18	0	0	5%		
SF19	2.5%	0	5%		
SF20	0	5%	5%		
M210	0	0	2.5%		
M22	0	0	2.5%		
M23	2.5%	2.5%	2.5%		
M24	0	2.5%	5%		
M25	0	0	2.5%		
FS26	0	0	0		
FS27	2.5%	0	0		
FS28	0	2.5%	2.5%		
FS29	0	2.5%	0		
FS30	0	0	0		
FS31	2.5%	0	5		
ES32	0	0	0		
ES33	1.7%	0	2.5%		
ES34	0	0	0		
ES35	0	0	2.5%		
ES36	0	0	5%		

ES37	0	2.5%	2.5%		
R38	0	2.5%	0		
R39	0	0	0		
R40	0	0	0		
R41	0	0	0		
R42	0	0	2.5%		
R43	0	0	0		

PERCENT OF MISSING VALUES
STUDENT RESPONCES

Variable	CA	IMP2
A1	3.7%	5.9%
A2	1.9%	3.3%
A3	1.9%	7.1%
A4	4.8%	6.7%
A5	1.5%	9.7%
A6	3.7%	7.1%
A7	2.6%	6.3%
A8	4.8%	5.6%
A9	5.6%	10%
A10	2.6%	6.3%
A11	3%	4.1%
A12	3.7%	7.4%
A13	0.4%	5.2%
A14	1.9%	5.6%
BF15	3.3%	3.7%
BF16	4.1%	3.3%
BF17	3.7%	5.6%
BF18	4.1%	5.2%
BF19	5.9%	5.2%
BF20	4.5%	5.2%
BF21	5.9%	5.2%
BF22	5.9%	4.8%
FC23	4.8%	5.9%
FC24	3.7%	4.5%
FC25	6.3%	7.8%
FC26	4.8%	4.8%
FC27	7.4%	6.3%
FC28	7.4%	4.8%
FE29	7.1%	3.3%
FE30	6.7%	5.2%
FE31	6.3%	5.2%
F32	3.75	5.9%
F33	4.8%	5.2%
F34	4.8%	6.3%
F35	4.8%	6.3%
F36	4.5%	7.1%
F37	4.5%	6.3%

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SS38	3.3%	6.7%
SS39	2.6%	6.3%
SS40	4.1%	6.3%
SS41	3.3%	7.8%
SS42	5.2%	5.2%
SS43	3.3%	7.1%
SS44	4.5%	6.7%

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دراسة إدارة الجودة الشاملة في التعليم العالي باستخدام جائزة بالدريدج الوطنية للجودة ونموذج التميز للمؤسسة الأوروبية في إدارة الجودة

إعداد
منار فايز زكي الحسن

المشرف
الدكتور ناصر رحال

ملخص

Arabic Summary

إن إدارة الجودة الشاملة قضية بارزة في جميع القطاعات وخاصة في قطاع الأعمال والتصنيع. بناء على النتائج المرضية في تلك المجالات فان العديد من مؤسسات التعليم العالي بدأت تتبنى ببطء نماذج إدارة الجودة الشاملة التي تم تعديلها لتلائم البيئة التعليمية منها معايير بالدريج التعليمية لبراعة الأداء ونموذج جودة الخدمة التعليمية. هذه النماذج تم استخدامها لقياس الأداء وتقييم الجودة في التعليم العالي لتحقيق التحسين المستمر.

تهدف هذه الدراسة إلى تمثيل معايير بالدريج التعليمية كنموذج صحيح وموثوق لقياس براعة الأداء ، والربط بين أبعاده الستة والبعد السابع وهو نتائج الأداء وعناصره، بالإضافة إلى التعرف على العقبات التي قد تعرقل من تطبيق إدارة الجودة الشاملة في التعليم العالي. كما تهدف إلى قياس مدى رضا الطلبة بجودة الخدمات التعليمية باستخدام نموذج جودة الخدمة التعليمية والربط بين أبعاده الخمسة والبعد السادس وهو رضاء الطلبة وعناصره.

تم تصميم استبيانين لهـذه الدراسـة: احـدهما لأعضـاء التـدريس مـن مختلـف الكليـات في الجامعـة الأردنية مبني على معايير بالدريج التعليمية لبراعة الأداء والآخر للطلاب في سنتهم النهائية في كليـة الهندسـة والتكنولوجيا في الجامعة الأردنية، تم جمع وتحليل البيانـات وتقيـيم صـحة وموثوقيـة النمـوذجين باسـتخدام برنامج SPSS.

أظهرت الدراسة أن معايير بالدريج التعليميـة هـي مقيـاس صـحيح وموثـوق لقيـاس براعـة الأداء في التعليم العالي حيث أن بعد القيادة يعتبر المحرك الاساسي لنظام بالـدريج، كـما اظهـرت أن بعـد التركيـز عـلى الطالب وأصحاب الحصص والسوق من أكثر الأبعاد تأثيرا من الناحية الإحصائية على: بعد نتـائج الأداء، عنصر ـ مخرجات الطالب التعليمية، وعنصر رضا الطلبة. بالإضافة الى ذلك أثبتـت الدراسـة أن نمـوذج جـودة الخدمـة التعليمية هو مقياس صحيح وموثوق لقياس رضا الطلبة بجودة الخدمات التعليميـة، وأن بعـد سـلوك أعضـاء الكلية من أكثر الأبعاد تأثيرا في بعد رضا الطلبة ككل وعنصري رضا الطلبة بجودة التعليم وجودة التدريس.