Arab American University

Faculty of Graduate Studies

The Influence of Students' Perceived Service Quality on Their Satisfaction and Loyalty at Palestinian Higher Education Institutions

By

Wafa Sheikh

Supervisor

Dr. Khaled Rabayah

Co-supervisor

Dr. Ashraf Almimi

This thesis was submitted in partial fulfilment of the requirements for the Master's degree in Quality Management

September / 2020

THESIS APPROVAL

The Influence of Students' Perceived Service Quality on Their Satisfaction and Loyalty at Palestinian Higher Education Institutions

By

Wafa Sheikh

This thesis was defended successfully on 19/09/2020 and approved by:

Committee Members	**Signature**
1. Supervisor: Dr. Khaled Rabayah	.....
2. Co-supervisor Dr. Ashraf Almimi	.....
3. Internal examiner: Dr. Ahmad Ewais	.....
4. External examiner: Dr. Yahya Saleh	.....

DECLARATION

I certify that this thesis submitted for the Master's degree in Quality Management is the result of my own research, except where otherwise acknowledged and that this thesis (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Name: Wafa Sheikh

Signature:

Date: ___/___ /_____

ACKNOWLEGEMENT

First, I am thankful to the main supervisor Dr. Khalid Rabayah and the co-supervisor Dr. Ashraf Almimi. Without their valuable comments, this thesis would not have seen the light. Thanks are also extended to all of the thesis committee members. In addition, I would like to thank my family for their continuous support throughout my academic life. Last but not the least, I appreciate higher education students who provided the primary data.

ABSTRACT

The main objective of the study is to examine the impact of students' perceived service quality on their satisfaction and loyalty at higher education institutions in the West Bank, Palestine. To achieve this objective, the quantitative hypothesis-testing research design is used. Through an electronic questionnaire, primary data are gathered from a sample of 271 students who are currently pursuing their graduate studies in the West Bank, Palestine.

The questionnaire, which is based on the HiEduQual scale, consists of three parts. The first part aims to collect data on students' characteristics. The second part aims to collect data on students' perceived service quality. Finally, the third part, which consists of two sections, aims to collect data on higher education students' experiences including their satisfaction and loyalty. A seven-point Likert scale is used in the last two parts of the questionnaire. Descriptive statistics, non-parametric inferential statistics, and the structural equation modelling technique are used in data analysis with the aid of SPSS and Smart-PLS.

The results show that the overall quality level of higher education services ranges between 3.7 (somewhat low) and 5.6 (high). Additionally, the overall level of higher education students' satisfaction with the higher education services ranges between 3.3 (somewhat low) and 5.9 (high). The results also indicate that the overall level of students' loyalty towards their institutions ranges between 3.4 (Somewhat low) and 6.4 (very high). Moreover, the results indicate that the HiEduQual proved to be an excellent scale for the purpose of assessing the quality level of higher education services in the Palestinian setting. The results also indicate that the dimensions of teaching and course materials, administrative services, academic facilities, and internationalization

contribute to forming the construct of higher education service quality. Finally, the estimated structural model confirms that higher education service quality positively affects students' satisfaction and loyalty. Students' satisfaction, in turn, positively affects their loyalty.

Some recommendations are given including, amongst others, the importance to assess the quality level of higher education services on a regular basis and the need to pay more attention to the quality of these services, particularly the dimensions of campus infrastructure, support services, and internationalization to enhance students satisfaction and loyalty.

CONTENTS

Page

Thesis Approval …….. i

Declaration …….. ii

Acknowledgement …….. iii

Abstract (English) ……... iv

List of Tables ……..……... ix

List of Figures …….……... xiii

Chapter One: Introduction …….……. 1

1.1 Overview ……..... 1

1.2 General Background ……..……..... 1

1.3 Overview of Higher Education Institutions in Palestine ……..... 2

1.4 Problem Statement …….…… 4

1.5 Questions of Study ……..…….……..…...… 5

1.6 Objectives of Study ……..…….…….……... 5

1.7 Hypotheses of Study …….…… 6

1.8 Thesis Organization ……... 7

Chapter Two: Theoretical Framework ……..... 9

2.1 Overview ……..... 9

2.2 Concept of Service Quality ……... 9

2.3 Importance of Service Quality ……... 11

2.4 Measurement of Service Quality …….……..…… 12

2.5 Concept of Student Satisfaction ……..……..…… 19

Page

2.6 Determinants of Student Satisfaction …… 22

2.7 Concept of Student Loyalty ……... 23

2.8 Determinants of Student Loyalty ……... 24

2.9 Dimensions of Student Loyalty ……..... 25

Chapter Three: Literature Review ……..… 27

3.1 Overview ……... 27

3.2 Previous Studies …… 27

3.3 Comments on Previous Studies ……. 32

Chapter Four: Methodology …… 34

4.1 Overview ……... 34

4.2 Research Design ……..... 34

4.3 Population and Sample ……..... 35

4.4 Data Collection Method ……..... 36

4.5 Research Instrument ……..... 36

4.6 Unit of Analysis ……. 39

4.7 Data Analysis Techniques ……..... 39

4.8 Statistical Analysis Softwares ……... 42

4.9 Ethical Considerations ……..... 42

Chapter Five: Data Analysis and Discussion ……. 43

5.1 Overview ……... 43

5.2 Descriptive Statistics ……..……... 43

5.2.1 Students' Profile ……...……..... 43

Page

5.2.2 Level of Higher Education Service Quality ……. 45

5.2.3 Level of Students' Satisfaction …… 61

5.2.4 Level of Students' Loyalty ……... 72

5.3 Inferential Statistics ……... 83

5.3.1 Evaluation of Measurement Model …….. 83

5.3.2 Testing Hypotheses ……..... 97

5.3.3 Evaluation of Structural Model ……..…….. 102

Chapter Six: Conclusions and Recommendations ……..…… 105

6.1 Overview ……... 105

6.2 Conclusions ……..... 105

6.3 Recommendations ……..... 106

6.4 Future Research Directions ……... 108

6.5 Limitations of Study …….. 108

References ……..…….…… 109

Appendix A: Questionnaire ……..... 131

Abstract (Arabic) …… 136

LIST OF TABLES

Page

Table 1.1:	Universities Offering Master's Degrees in Palestine ……..	3
Table 2.1:	Service Quality Measurement Models Used in Higher Education ….	19
Table 4.1:	Qualitative Evaluation of Study Variables …….	38
Table 5.1:	Students' Profile …….	43
Table 5.2:	Descriptive Statistics for Teaching and Course Materials ……..	45
Table 5.3:	Descriptive Statistics for Administrative Services …….	46
Table 5.4:	Descriptive Statistics for Academic Facilities ……	47
Table 5.5:	Descriptive Statistics for Campus Infrastructure ……	48
Table 5.6:	Descriptive Statistics for Support Services …….	49
Table 5.7:	Descriptive Statistics for Internationalization ……	49
Table 5.8:	Descriptive Statistics for Dimensions of Service Quality ……..…	50
Table 5.9:	Normality Test: Level of Service Quality ……..……	51
Table 5.10:	Median Ranks of Service Quality by Gender …….	51
Table 5.11:	Mann-Whitney Test: Service Quality by Gender ……...	52
Table 5.12:	Median Ranks of Service Quality by Age …….…….	52
Table 5.13:	Kruskal-Wallis Test: Service Quality by Age ……	53
Table 5.14:	Median Ranks of Service Quality by Location ……...	54
Table 5.15:	Kruskal-Wallis Test: Service quality by Location …….....	54
Table 5.16:	Median Ranks of Service Quality by Economic Condition ……	55
Table 5.17:	Kruskal-Wallis Test: Service Quality by Economic Condition ….....	55
Table 5.18:	Median Ranks of Service Quality by University Type ……...	56

Page

Table 5.19: Kruskal-Wallis Test: Service Quality by University Type ……..... 56

Table 5.20: Multiple Comparisons: Service Quality by University Type ……..... 57

Table 5.21: Median Ranks of Service Quality by Academic Discipline ……... 57

Table 5.22: Kruskal-Wallis Test: Service Quality by Academic Discipline ……. 58

Table 5.23: Median Ranks of Service Quality by Academic Year …… 59

Table 5.24: Kruskal-Wallis Test: Service Quality by Academic Year …….. 59

Table 5.25: Multiple Comparisons: Service Quality by Academic Year …….. 60

Table 5.26: Median Ranks of Service Quality by GPA ……. 61

Table 5.27: Kruskal-Wallis Test: Service Quality by GPA ……... 61

Table 5.28: Descriptive Statistics for Students' Satisfaction ……. 62

Table 5.29: Normality Test: Level of Students' Satisfaction …… 62

Table 5.30: Median Ranks of Students' Satisfaction by Gender ……... 63

Table 5.31: Mann-Whitney Test: Student's Satisfaction by Gender ……. 63

Table 5.32: Median Ranks of Students' Satisfaction by Age …… 64

Table 5.33: Kruskal-Wallis Test: Students' Satisfaction by Age …….. 64

Table 5.34: Median Ranks of Students' Satisfaction by Location ……. 65

Table 5.35: Kruskal-Wallis Test: Students' Satisfaction by Location ……... 65

Table 5.36: Median Ranks of Students' Satisfaction by Economic Condition ….. 66

Table 5.37: Kruskal-Wallis Test: Students' Satisfaction by Economic Condition 66

Table 5.38: Median Ranks of Students' Satisfaction by University Type ……. 67

Table 5.39: Kruskal-Wallis Test: Students' Satisfaction by University Type ….. 67

Table 5.40: Multiple Comparisons: Students' Satisfaction by University Type ... 68

Page

Table 5.41:	Median Ranks of Students' Satisfaction by Academic Discipline ….	69
Table 5.42:	Kruskal-Wallis Test: Students' Satisfaction by Academic Discipline	69
Table 5.43:	Multiple Comparisons: Students' Satisfaction by Discipline …….	70
Table 5.44:	Median Ranks of Students' Satisfaction by Academic Year ……..	70
Table 5.45:	Kruskal-Wallis Test: Students' Satisfaction by Academic Year ….....	71
Table 5.46:	Median Ranks of Students' Satisfaction by GPA …….……..	71
Table 5.47:	Kruskal-Wallis Test: Students' Satisfaction by GPA …….……	72
Table 5.48:	Descriptive Statistics for Students' Loyalty …….……..	73
Table 5.49:	Normality Test: Level of Students' Loyalty …….…..	73
Table 5.50:	Median Ranks of Students' Loyalty by Gender …….	74
Table 5.51:	Mann-Whitney Test: Student's Loyalty by Gender …….…...	74
Table 5.52:	Median Ranks of Students' Loyalty by Age …….…..	75
Table 5.53:	Kruskal-Wallis Test: Students' Loyalty by Age …….…	75
Table 5.54:	Median Ranks of Students' Loyalty by Location ……...	76
Table 5.55:	Kruskal-Wallis Test: Students' Loyalty by Location …….	76
Table 5.56:	Median Ranks of Students' Loyalty by Economic Condition …….....	77
Table 5.57:	Kruskal-Wallis Test: Students' Loyalty by Economic Condition …..	77
Table 5.58:	Median Ranks of Students' Loyalty by University Type ……...	78
Table 5.59:	Kruskal-Wallis Test: Students' Loyalty by University Type …….	78
Table 5.60:	Multiple Comparisons: Students' Loyalty by University Type ……..	79
Table 5.61:	Median Ranks of Students' Loyalty by Academic Discipline …….....	80
Table 5.62:	Kruskal-Wallis Test: Students' Loyalty by Academic Discipline …..	80

Page

Table 5.63:	Median Ranks of Students' Loyalty by Academic Year …….....	81
Table 5.64:	Kruskal-Wallis Test: Students' Loyalty by Academic Year ……..	81
Table 5.65:	Median Ranks of Students' Loyalty by GPA ……..…	82
Table 5.66:	Kruskal-Wallis Test: Students' Loyalty by GPA ……...	82
Table 5.67:	Convergent Validity of First Stage of Measurement Model ……..	85
Table 5.68:	Cross Loadings of First Stage of Measurement Model ……..	88
Table 5.69:	Fornell-Larcker Criterion of First Stage of Measurement Model …..	90
Table 5.70:	Convergent Validity of Second Stage of Measurement Model ……..	93
Table 5.71:	Cross Loadings of Second Stage of Measurement Model ……..	94
Table 5.72:	Fornell-Larcker Criterion of Second Stage of Measurement Model ..	95
Table 5.73:	Collinearity Assessment of Formative Measure …….	96
Table 5.74:	Item Weights of Higher Education Service Quality …….……..	96
Table 5.75:	Path Analysis …….…….	98
Table 5.76:	Indirect Effect of Higher Education Service Quality …….	100
Table 5.77:	Total Effect of Higher Education Service Quality …….	100
Table 5.78:	Summary of Hypotheses Testing ……	101
Table 5.79:	R^2 Evaluation ……..……	102
Table 5.80:	f^2 Evaluation …….……..	103
Table 5.81:	Q^2 Evaluation ……..……..…….…….	104

LIST OF FIGURES

Page

Figure 1.1: Conceptual Model of Study ……..... 7

Figure 5.1: Results of First Stage of Measurement Model ……... 91

Figure 5.2: Results of Second Stage of Measurement Model ……... 97

Figure 5.3: Results of Estimaled Structural Model ……... 101

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter gives an introduction to the study. Specifically, a general background is presented, an overview of higher education institutions in Palestine is given, the problem of the study is stated, the questions are listed, the objectives are identified, the hypotheses are developed, and finally the thesis structure is outlined.

1.2 General Background

Higher education is witnessing a number of dramatic changes all over the world including, amongst others, increasing competition, internationalization, institutional cooperation, and higher students' expectations (Harvey & Williams, 2010; Psomas et al., 2017). These changes put higher education institutions under more and more pressure to satisfy their students as being the main stakeholders (Telford & Masson, 2005).

In this regard, many empirical studies that have been carried out all over the world confirmed the important effect of service quality on both customer satisfaction and loyalty (e.g. Brady et al., 2002; Caruana 2002; Mosahab et al., 2010).

In the field of higher education, satisfaction and loyalty are highly affected by the quality of higher education services (e.g. Annamdevula & Bellamkonda, 2016; Clemes et al., 2013; Huili & Jing, 2012).

Consequently, it is important to deliver high quality of higher education services to students. To do so, the first step is to assess the level of higher education service quality, from the viewpoints of the students themselves. In this regard, many empirical studies

assessed the quality level of services in the higher education sector using the SERVQUAL model (e.g. Chua, 2004; Oliveira & Ferreira, 2009).

However, due to increasing critiques of using the general SERVQUAL model in the field of higher education, as explained in Chapter Two, many researchers have developed other scales to assess service quality in this field (e.g. Clemes et al., 2013; Mahapatra & Khan, 2007; Senthilkumar & Arulraj, 2011).

In the Palestinian context, 11 universities provide their higher education services to students in the West Bank. These universities offer academic programs to approximately 9,000 Master's students per year in different fields including arts, education, law, business, science, pharmacy, and engineering.

Each of these institutions has to deliver quality services to attract the most talented candidates, to compete locally and regionally, and to enhance the level of student satisfaction and loyalty.

From this perspective, it is believed that there is theoretical and practical need to extend the research regarding the effect of higher education service quality, as viewed by students, on various student-related variables. Therefore, and due to the role of higher education in the Palestinian society, this study is undertaken to examine the influence of higher education service quality in the West Bank, Palestine on student satisfaction and loyalty.

1.3 Overview of Higher Education Institutions in Palestine

The higher education sector in Palestine can be described as a dynamic and competitive one. As at 2019, there are 16 universities offering Master's degrees in Palestine (11 universities in the West Bank and 5 universities in Gaza Strip). Among those, 3 universities are governmental, 9 universities are public (among them one open-

education university), and 4 universities are private (Ministry of Higher Education and Scientific Research, 2019).

Table 1.1 lists the universities that offer Master's degrees in Palestine.

Table 1.1: Universities Offering Master's Degrees in Palestine

University	Year of Foundation	Type
1. Al-Aqsa University	1991	Governmental
2. Al-Azhar University	1991	Public
3. Al-Istiqlal University	2007	Governmental
4. Al-Quds Open University	1991	Public
5. Al-Quds University	1984	Public
6. An-Najah National University	1977	Public
7. Bethlehem University	1973	Public
8. Birzeit University	1972	Public
9. Gaza University	2007	Private
10. Hebron University	1971	Public
11. Palestine Ahliya University	2007	Private
12. Palestine Polytechnic University	1999	Public
13. Palestine Technical University	2007	Governmental
14. The Arab American University	1997	Private
15. The Islamic University	1978	Public
16. University of Palestine	2008	Private

In this context, governmental universities are managed and financed by the Palestinian National Authority (PNA) and are subject to the supervision of the Ministry of Higher Education and Scientific Research. Private universities, on the other hand, are managed and financed by charities, religious parties, individuals, and companies. Finally, public

universities are non-profit universities that are owned by local charities and NGOs. Theses universities rely on fundraising and partial government funding.

According to the Ministry of Higher Education and Scientific Research (2019), a total of 3,045 new Master's students enrolled for the academic year 2018/2019 in Palestine whereas the total number of registered Master's students for the same academic year is 9,271.

These universities offer a number of Master's programs in different fields of study including: (1) education, (2) social sciences, (3) law and public administration, (4) physical sciences, (5) engineering, (6) information technology, (7) nursing and pharmacy, and (8) medicine.

1.4 Problem Statement

In the Palestinian context, higher education institutions are encountering significant challenges due to several reasons. First, there is growing competition among these institutions. Second, many of these institutions are facing financial problems. Third, there are continuous critiques by graduate students about the quality of higher education services they receive. Fourth, graduate students have lower levels of satisfaction and loyalty. Fifth, there are complaints of the labor market that graduate students are not highly qualified and that there is a gap between learning outcomes and market needs. Finally, there is an increasing demand for contemporary graduate programs to be offered by universities that satisfy customers' (graduate students') needs.

Consequently, providing high level of service quality by these institutions, especially in the current era of information and information technology, is an increasingly important priority for these institutions since service quality is critical for the success and survival of these institutions over the long-run.

To this end, assessing the level of higher education service quality is the first step. The second one is to investigate the impact of this service quality on students' satisfaction and loyalty. This will enable university leaders to enhance the quality of services, which in turn enhances students' satisfaction and loyalty.

1.5 Questions of Study

This study is conducted to answer the following main question:

What is the impact of service quality as perceived by students of higher education institutions in the West Bank, Palestine on their satisfaction and loyalty?

In particular, the study is conducted to answer these questions:

1. What is the level of higher education service quality in the West Bank, Palestine?
2. What is the level of student satisfaction with higher education services in the West Bank, Palestine?
3. What is the level of student loyalty towards the higher education institutions in the West Bank, Palestine?
4. What is the effect of higher education service quality on student satisfaction in the West Bank, Palestine?
5. What is the effect of higher education service quality on student loyalty towards the higher education institutions in the West Bank, Palestine?
6. What is the effect of student satisfaction on their loyalty to the higher education institutions in West Bank, Palestine?

1.6 Objectives of Study

The main goal of the study is to examine the effect of higher education service quality on student satisfaction and loyalty in the West Bank, Palestine. Accordingly, the study aims at achieving the following specific objectives:

1. To assess the level of higher education service quality in the West Bank, Palestine.
2. To assess the level of student satisfaction with higher education services in the West Bank, Palestine.
3. To assess the level of student loyalty towards higher education institutions in the West Bank, Palestine.
4. To examine the effect of higher education service quality on student satisfaction in the West Bank, Palestine.
5. To examine the effect of higher education service quality on student loyalty in the West Bank, Palestine.
6. To examine the effect of student satisfaction with higher education services in the West Bank, Palestine on student loyalty.

1.7 Hypotheses of Study

To examine the effect of higher education service quality on student satisfaction and loyalty in the West Bank, Palestine, the following hypotheses are developed:

H_1: Higher education service quality positively affects student satisfaction with higher education services in the West Bank, Palestine.

H_2: Higher education service quality positively affects student loyalty towards higher education institutions in the West Bank, Palestine.

H_3: Student satisfaction with higher education services in the West Bank, Palestine positively affects student loyalty.

The conceptual model of the above-mentioned hypotheses is illustrated in Figure 1.1.

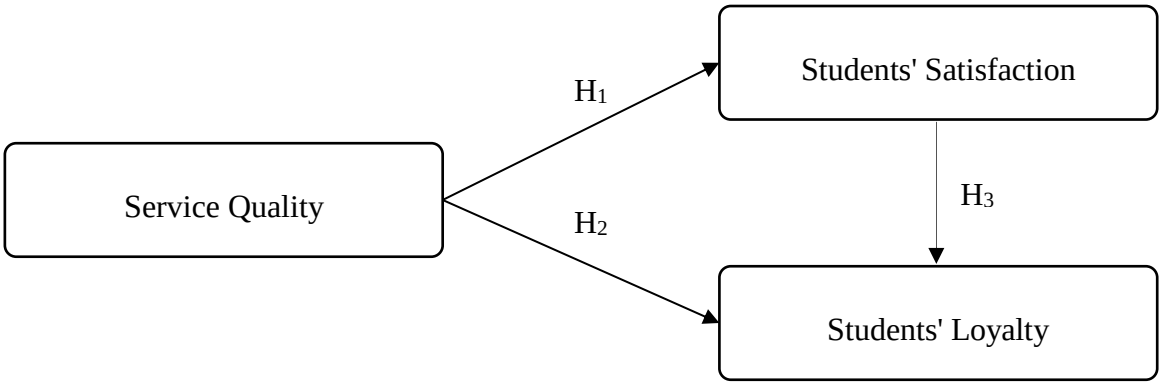

Figure 1.1: Conceptual Model of Study

1.8 Thesis Organization

This thesis is organized as follows:

Chapter One: Introduction

In this chapter, a general background to the study is presented, an overview of higher education institutions in Palestine is given, the problem statement is defined, the questions of the study are stated, the objectives are determined, and the hypotheses are developed.

Chapter Two: Theoretical Framework

In this chapter, higher education service quality, student satisfaction, and student loyalty are all discussed. Moreover, an overview of higher education institutions in the West Bank, Palestine is given.

Chapter Three: Literature Review

In this chapter, previous empirical studies are reviewed. Then, comments on these studies are given.

Chapter Four: Methodology

In this chapter, the research design is discussed, the population and sample are specified, data collection method is selected, the research instrument is described, unit

of analysis is determined, data analysis techniques are explained, statistical analysis software is mentioned, and some ethical considerations are highlighted.

Chapter Five: Data Analysis and Discussion

In this chapter, primary data are analyzed using both descriptive and inferential statistics.

Chapter Six: Conclusions and Recommendations

In this chapter, conclusions are presented, recommendations are provided, some directions for future researchers are given, and limitations to the study are discussed.

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 Overview

In this chapter, the theoretical framework of the study is discussed. More specifically, higher education service quality, student satisfaction, and student loyalty are all discussed.

2.2 Concept of Service Quality

The concept of service quality dates back to the early 1980s. Nevertheless, organizations started to pay attention to the concept as a main driver of satisfaction in the 1990s (Chen & Aritejo, 2008).

Normally, it is more difficult to define quality in the service sector in comparison to the other sectors like manufacturing. However, many researchers and academics defined the concept of service quality from their own point of views. The most important of these definitions are highlighted below.

Service quality is an overall evaluation of the extent to which a service is good or bad (Twaissi & Al-Kilani, 2015). According to Khodayari and Khodayari (2011), service quality is the entire opinion on the degree to which a service is considered superior or excellent. Eshghi et al. (2008) define this concept as the general assessment of a given service by stakeholder including customers.

In addition, the quality of a service is the difference between what the consumer expected and what he or she really got (Lovelock & Wright, 2002). According to Rowley (1996), service quality is the customers' perceived gap between actual and expected performance. Service quality can also be defined as the view or opinion

concerning the degree to which the service is described as excellent or superior (Zeithaml et al., 1990).

Parasuraman et al. (1985) defined service quality as the difference between consumers' anticipations and perceptions from using a given service. In this context, anticipations are the features that consumers believe service providers should deliver. In 1988, Parasuraman et al. said that service quality is related to, but different from, satisfaction and emerges from a comparison between expected and perceived performance. On the other hand, perceptions are consumers' assessment of what and how services are delivered (Lim & Tang, 2000; Lovelock & Wright, 2002).

To make the concept clearer, many researchers and academics defined this variable in terms of its constructs. For instance, Lehtinen and Lehtinen (1982) described service quality with reference to corporate, interactive, and physical qualities. Gronroos (1983) described it using technical and functional qualities. Lastly, Berry (1983) said that process and outcome qualities designate service quality.

In higher education arena, no generally accepted definition of service quality exists. Accordingly, there is no agreement about its measurement (Brochado, 2009; Doherty, 2008). Nevertheless, higher education service quality refers to the gap between what students expect to get and what they actually get (O'Neill & Palmer, 2004).

According to Teeroovengadum et al. (2016), higher education service quality consists of functional and transformative components. The first refers to the process of delivery (Brady & Cronin, 2001), whereas the second denotes the technical dimensions of service quality (Teeroovengadum et al., 2016).

In this study, service quality is defined as graduate students' perceived opinions on the services they obtain throughout their higher education studies.

2.3 Importance of Service Quality

Many authors emphasized the importance of service quality in general and the higher education sector is no exception. The most important benefits that can be gained from providing high quality services are discussed below.

First of all, many empirical studies in the higher education setting worldwide concluded that service quality is a main predictor of student satisfaction (e.g. Dericks et al., 2019). This was previously confirmed by Shan et al. (2016) who perceived service quality as the predecessor of satisfaction. Moreover, service quality is viewed as a strategic tool that is utilized to boost customer satisfaction (Baidoo et al., 2015). Furthermore, service quality is a key driver of satisfaction and good word-of-mouth behavior (Lee et al., 2000).

Due to increasing competition in the higher education sector, service quality, in addition to other related variables such as student satisfaction and student loyalty, has recently been considered as a main determinant of higher education institutions' survival over the long-run (Psomas et al., 2017).

Nek Kamal et al. (2010) confirmed that delivering higher education quality services, including its all dimensions, enhances students' perceptions towards the value of these services.

As Muhammed et al. (2010) suggest, the tangibility dimension of service quality in higher education is critical in enhancing the image of superiority of these institutions.

Businesses that provide high quality services are more likely to have more satisfied customers and consequently be capable of competing on local, regional, and even international levels (Yaghmaie et al., 2007).

Moreover, Landrum et al. (2007) concluded that service quality is a significant determinant of institutions' success. Additionally, Kotler and Armstrong (2006) said that it is critically important for providers of services to focus more on quality issues to have competitive edge over their competitors. Previously, Lim and Tang (2000) confirmed this idea by saying that quality can be utilized to differentiate certain services from those of competitors and therefore gain competitive advantage over them.

According to many researchers including Yoon and Suh (2004) and Gounaris et al. (2003), the quality of services has been considered to be one of the critical variables that lead to: (1) service differentiation, (2) distinctive advantage, (3) more satisfied customers, (4) positive word-of-mouth, (5) enhanced customer loyalty, (6) increased customer retention, (7) less costs of bringing new customers, (8) larger market share, and ultimately (9) better financial results.

Furthermore, organizations that improve their service quality have achieved competitive gains in the form of more retained and loyal customers (Alexandris et al., 2002). This is also confirmed by Thomas et al. (2002) who stressed that organizations providing excellent services are more able to differentiate their services from those of their competitors, enabling them to create more value added to their customers. Consequently, the rate of customer retention is increased.

Finally, past authors proved that delivering services of superior quality is critical for businesses if they are willing to enlarge their share in the market, enhance investment returns (Anderson & Zeithaml, 1984), cut costs, and boost productivity (Garvin, 1983).

2.4 Measurement of Service Quality

Recently, researchers and academics have increased their effort to assess the quality of higher education services all over the world from the viewpoints of students; since they

are the primary stakeholders (Cardona & Bravo, 2012; Zineldin, 2007). This increasing effort to measure higher education service quality is mainly triggered by the fact that you cannot manage and improve higher education services unless these services are periodically assessed (Chong & Ahmed, 2012).

Although many researchers and academics talked about the need to measure service quality in higher education from viewpoints of students (e.g. O'Neill & Palmer, 2004; Quinn et al., 2009), no general agreement about the dimensions of this concept is reached till now (Sultan & Wong, 2012). However, below is a brief description of the most important models used in the measurement of higher education service quality, ordered from the most to the least recent.

HESQUAL Model

In 2016, Teeroovengadum et al. suggested a model, called HESQUAL, to measure higher education service quality in Mauritius. It comprises 48 items representing functional features and technical features of higher education service quality that are grouped under five main dimensions: (1) admin quality, (2) facilities quality, (3) education quality, (4) transformative quality, and (5) environment quality.

The most important advantage of the HESQUAL scale is that it combines together the two main features of higher education service quality (i.e. functional and technical). In addition, the HESQUAL scale proved to be reliable and valid (e.g. Teeroovengadum et al., 2019).

HEDQUAL Model

In 2014, Icli and Anil suggested a scale –made up of 26 items– to measure the quality of higher education called the HEDQUAL. The model has only been used in MBA

programs. This scale emphasizes on the quality of five main constructs: (1) teaching, (2) admin, (3) library, (4) job opportunities, and (5) support services.

According to its developers, the HEDQUAL model derives its importance from the fact that this model is particularly designed for MBA students and the higher education sector in general (Icli & Anil, 2014).

HiEduQual Model

The HiEduQual (Higher Education Quality) is a model developed to assess the quality of higher education services in India, from students' viewpoints as being main customers of higher education institutions (Annamdevula & Bellamkonda, 2014).

The HiEduQual model consists of 23 items that belong to the six constructs of: (1) academic services, (2) administrative services, (3) academic facilities, (4) campus infrastructure, (5) support services, and (6) internationalization.

The first dimension evaluates education procedures and curriculum. The second dimension deals with the proficiency and speed of providing non-academic services, staff behavior, and archives. The third dimension is about classroom facilities, laboratories, and libraries. The fourth dimension refers to sport and entertainment facilities, hostel services, and security. Support services include conveniences, optional activities, and advising services. Finally, internationalization denotes the presence of international activities and foreign faculty members.

It can be said that the most important advantage of the HiEduQual model is that it is highly valid and reliable (Annamdevula & Bellamkonda, 2012).

SQM-HEI Scale

In 2011, Senthilkumar and Arulraj proposed a model to assess higher education service quality in India. The model consists of 30 items belonging to three dimensions: (1) teaching and methodology, (2) environment, and (3) disciplinary action.

This model has been tested empirically using factor analysis techniques. The authors confirmed that the scale is effective and reliable (Senthilkumar & Arulraj, 2011).

5Q Model

Zineldin (2007) developed a model, called 5Q, to assess the higher education quality using new criteria. The model includes five main criteria: (1) object quality, (2) process quality, (3) infrastructure quality, (4) communication quality, and (5) atmosphere quality.

Object quality deals with educational services. Process quality refers to the way the object (i.e. educational services) is provided. Infrastructure quality emphasizes on the key resources required to provide educational services. Communication quality assesses the student-university relations and the way of managing these relations. Finally, atmosphere quality denotes confidence, safety, and competitive position of the higher education institution.

HEdPERF Model

In 2006, Abdullah proposed a measuring instrument to assess higher education service quality based on performance. This instrument is called the HEdPERF. The scale consists of 41 items that belong to five major dimensions: (1) administrative aspects, (2) academic aspects, (3) reputation, (4) access, and finally (5) program issues.

In this model, the first dimension refers to components that are under the control of administrative staff (e.g. respect, treatment, confidentiality, interaction, and service

delivery). Academic aspects denote components that are under the control of academic staff including (e.g. behavior, interaction, and consultation). Reputation mainly describes prestige, image, and certificate recognition. Access designates the ease with which students can have the different kinds of services. Finally, program issues focus on features of programs offered by higher education institution (e.g. flexibility, specialization, and quality).

According to the author, the scale has many advantages. The first one is that it concentrates not only on academic features but also on other features as perceived by students. The second advantage is that the 41 items of the scale are distinct and theoretically clear. Finally, the scale has been successfully tested using the statistical tool of factor analysis.

The HEdPERF is the most advanced model to assess higher education service quality in the literature (Icli and Anil, 2014). Many academics and researchers have adopted the HEdPERF scale since 2014 to evaluate service quality in higher education. However, they are few in comparison with both SERVQUAL and SERVPERF scales (Silva et al., 2017).

SERVPERF Scale

Cronin and Taylor introduced the SERVPERF scale in 1992. They debated that it is customer perceptions that reflect service quality whereas customer expectations are irrelevant in this context. Accordingly, they proposed their SERVPERF scale involving the same 22 items of the SERVQUAL model while omitting the expectation component (Brandon-Jones & Silvestro, 2010).

Practically, the two developers of the scale confirmed that the SERVPERF seems to be more able to measure differences in customer satisfaction. They also confirmed that the

SERVPERF scale has better predictive ability than the SERVQUAL model in many industrial settings (Cronin & Taylor, 1992).

Many academics and researchers emphasize that the most appropriate models for measuring quality of services in several industries are still the SERVQUAL and the SERVPERF (Angell et al., 2008).

Yet, the application of these two models in the higher education context has been subject to criticism since they are not comprehensive due to the complication of higher education and the fact that these two models were designed to assess service quality in service sectors instead of measuring it in higher education (Abdullah, 2006).

SERVQUAL Model

The most-widely used scale to assess quality of services in many sectors is still the SERVQUAL, originally suggested by Parasuraman et al. in 1988. Although it is a general model, many academics and researchers have extensively used the SERVQUAL, sometimes with modifications, to measure service quality provided by higher education institutions (e.g. Afridi et al., 2016; Twaissi & Al-Kilani, 2015).

The SERVQUAL model consists of 22 items belonging to five dimensions: (1) tangibiles, (2) reliability, (3) responsiveness, (4) assurance, and (5) empathy. In this context, tangibility signifies an organization's physical facilities, staff look, and type of interactions (Naik et al., 2010). Reliability denotes the capability to provide the service promptly, correctly, and dependably (Kassim & Abdullah, 2010). Responsiveness is the degree to which an organization's staff are willing to deliver satisfactory and quick service to customers (Lee et al., 2011). Assurance refers to trust due to knowledge and politeness of an organization's staff (Yap et al., 2010). Finally, empathy means personal care and attention by an organization's staff (Kassim & Abdullah, 2010).

The theoretical basis for the SERVQUAL is the “gap” model since it measures the quality of services as the gap between customers’ expected and perceived quality with respect to each of the 22 items of the model.

The SERVQUAL model has five main advantages. First, the model is considered as a reference point for measuring various service quality dimensions. Additionally, the model is valid to be used in many service industries including education, health care, banking, retailing, and tourism. Moreover, the model is highly reliable. Furthermore, the model has a relatively few items so that it can be answered rapidly. Finally, the data generated from the model are easy to be analyzed and interpreted (Rohini & Mahadevappa, 2006).

Despite its widespread use, the SERVQUAL has been subject to critiques by some academics and researchers due to its deficiencies conceptually and operationally (e.g. Buttle, 1996; Trivellas & Dargenidou, 2009). Specifically, the validity and reliability of the SERVQUAL scale is criticized (Cronin and Taylor, 1992). Moreover, the SERVQUAL model emphasizes merely on the functional features ignoring the technical ones and thus does not take into consideration the nature of higher education (Ladhari, 2009). Finally, although Kuo and Ye (2009) said that the SERVQUAL is good for assessing higher education service quality, they confirmed that the SERVPERF is more appropriate since it assesses actual perceptions whereas the SERVQUAL assesses the gaps between expected and perceived quality.

The most important models that are used to in the measurement of service quality in higher education are summarized in Table 2.1.

In this study, the HiEduQual is used to measure service quality of higher education institutions in the West Bank, Palestine from students’ viewpoints, as being main

customers of these institutions. This model is used, rather than the other models, due to three main reasons. First, this model is specifically developed to measure higher education service quality contrasted with the more general models such as the SERVQUAL and SERVPERF. Finally, the model is found to be highly reliable and valid.

Table 2.1: Service Quality Measurement Models Used in Higher Education

Authors	Year	Model
Teeroovengadum, Kamalanabhan, & Seebaluck	2016	HESQUAL
Icli & Anil	2014	HEDQUAL
Annamdevula & Bellamkonda	2014	HiEduQual
Senthilkumar & Arulraj	2011	SQM-HEI
Zineldin	2007	5Q
Abdullah	2006	HEdPERF
Cronin & Taylor	1992	SERVPERF
Parasuraman, Zeithaml, & Berry	1988	SERVQUAL

2.5 Concept of Student Satisfaction

According to Mukhtar et al. (2015), satisfaction refers to the difference between perceptions and expectations. Saif (2014) defined satisfaction as the state of pleasure that is felt when an individual realizes his or her needs and wants. Ilyas and Arif (2013) described satisfaction as the feeling by the individual from experiencing an outcome that achieved his or her anticipations.

Kotler and Keller (2012) say that satisfaction denotes the sensation of pleasure or displeasure from comparing perceived and expected outcome. Customer satisfaction refers to the consumers' experience with a service in comparison with his or her prior expectations (Zeithaml et al., 2009).

Customers will be satisfied if services are in line with their anticipations (Petruzzellis et al., 2006). Similarly, an individual will be satisfied when he or she realizes his or her anticipations. Thus, it is a deliberate achievement that results in the feeling of happiness (Rad & Yarmohammadian, 2006).

It is also defined as the outcome that originates from customer comparison between what is expected and what is actually obtained (Aydin et al., 2005). Furthermore, satisfaction is the feeling resulting from fulfilling an anticipated outcome (Hon, 2002).

Customer satisfaction refers to the overall evaluation of whether a good or a service meets needs and anticipations of a customer. If needs and anticipations are not met, the result is dissatisfaction with this product or service (Zeithmal & Bitner, 2000).

As Oliver (1999) explains, satisfaction is the feeling that consuming the good or using the service fulfils consumer's wants or needs in a pleasurable way. He also defines it as the consumer's feeling of pleasure as opposed to displeasure as a result of his or her consumption. Earlier in 1989, Oliver and Swan defined satisfaction as an overall sentimental reaction that emerges when a customer experiences a given product or service.

To emphasize the importance of customer satisfaction, a number of slogans are made such as "Customer is Always Right", "Customer is Our Priority", "Customer is the King", and "Customer First".

In higher education context, the concept of satisfaction is critically important since many studies confirm that student satisfaction affects many student-related variables such as student motivation (e.g. Annamdevula & Bellamkonda, 2016), student commitment (Moore & Bowden-Everson, 2012), university image (Helgesen & Nesset, 2007), and student loyalty (Moore & Bowden-Everson, 2012; Ueda & Nojima, 2012).

Furthermore, student satisfaction is the feeling subsequent to the experience and performance of the educational services throughout the period of study (Mukhtar et al., 2015).

As said by Wu et al. (2010), student satisfaction is the total of his or her opinions, beliefs, and behaviors resulting from combining all his or her experiences from using the educational system.

Carter (2014) emphasizes that student satisfaction is a variable consisting of three models: (1) customer-service model, (2) happy-productive model, and (3) investment model. The first model describes the outcome of the student due to his or her communication with the staff. The second model designates the emotional outcome of the student as being satisfied, motivated, and loyal. Finally, the third model views the student as an investor who looks at his or her money in terms of reward from investment in education.

Student satisfaction is also described as the overall feeling due to an assessment of an educational experience by the student (Elliott & Healy, 2001). In addition, student satisfaction refers to the positive attitude of student loyalty because of an educational system (Navarro et al., 2005). Consistent with this, student satisfaction is the students' behavior due to an assessment of educational experiences and outcomes (Elliot & Shin, 2002).

For the purpose of this study, student satisfaction is defined as the student's perceived feeling of pleasure toward his or her higher education institution due to an assessment of educational experience and outcome.

2.6 Determinants of Student Satisfaction

Much research has been conducted to examine the most important determinants of student satisfaction in the context of higher education. The most important of these determinants are briefly covered below.

According to Masserini et al. (2018), image of university is the key determining factor of student satisfaction in higher education. Consistent with this, Weerasinghe and Fernando (2018) determined university image as the most critical factor among all factors that affect student satisfaction at higher education institutions. The other factors are teachers, programs, admin staff, and university location. In addition, Alves and Raposo (2010) determined university image as the most significant influencer of student satisfaction.

Moreover, Nuamah (2017) said that student satisfaction is affected by many variables such as university facilities, communication with lecturers, courses, classrooms, and support services.

The type of university (public versus private) is found to be one of the factors that determines student satisfaction. Specifically, private university students in Bangladesh have a higher level of satisfaction in comparison with their counterparts of public universities (Mazumder, 2014).

Wilkins and Balakrishnan (2013) argued that student satisfaction with higher education is determined by three main variables: (1) quality of faculty members, (2) university resources, and (3) technology usage. However, Hanssen and Solvoll (2015) disagreed saying that student satisfaction does not rely on technology.

Butt and Rehman (2010) confirmed that several elements affect student satisfaction with higher education including experience of lecturers, environment, classroom facilities,

and courses with experience of lecturers being the most significant element. In 2010, Gruber et al. concluded that higher education student satisfaction in Germany depends on university services, perceived quality, location, and infrastructure.

Liang and Zhang (2009) identified food provided by university cafeterias as an important determinant of student satisfaction. In addition, Kusumandari (2006) identified five dimensions that largely contribute to students' satisfaction. These dimensions are: (1) learning process, (2) campus, (3) services, (4) facilities, and (5) security.

Finally, Mai (2005) found out that university impression, quality of education, lecturers' proficiency, offered subjects, IT services, and career prospects are the most significant causes of student satisfaction in the USA and the UK.

2.7 Concept of Student Loyalty

In spite of the increasing interest in studying the concept of student loyalty all over the world (e.g. Gulid, 2011; Ueda & Nojima, 2012), there is no general definition of this concept. Below are some of the most important definitions of loyalty, particularly in higher education arena.

As Temizer and Turkyilmaz (2012) explain, student loyalty in the context of higher education is defined as the student's desire to select the same service provider (i.e. higher education institution) over other providers for a specific need in the future.

The most precise definition of customer loyalty was provided by Oliver (1999) who viewed it as a strong obligation to repurchase a favored good or service constantly in the future, leading to repetitive brand purchase, regardless of any variables and marketing promotions that try to change this behavior. This definition has many elements such as "repurchase" obligation of a favored good or service that involves the behavioral intent

in the future. In addition, the author stressed the “same brand” purchase in spite of the influences and marketing promotions aiming to switch the behavior.

Similarly, loyalty is viewed as a sense of addiction to the products or services that have a direct effect on customers (Jones & Sasser, 1995)

This concept of loyalty is especially vital for higher education service providers to: (1) face budget problems (Nesset & Helgesen, 2009), (2) compete locally and regionally (Bergamo et al., 2012), (3) retain current students and attract them back after graduation (Mendez et al., 2009), (4) increase new students’ enrollment rate (Lin & Tsai, 2009), (5) enhance word of mouth attitude (Hennig-Thurau et al., 2001), and finally (6) improve profitability (Helgesen, 2006). This in turn enables these providers to succeed over the long-run (Mendez et al., 2009).

For the purpose of this study, student loyalty is broadly defined as a strong positive student intention to behave in a way that benefits his or her higher education institution during and after his or her graduation.

2.8 Determinants of Student Loyalty

Much empirical research has been carried out to investigate the determinants of student loyalty in the higher education context. The most important of these determinants are highlighted below.

Many researchers and academics concluded that students’ satisfaction is the main predictor of their loyalty in the higher education arena (e.g. Chandra et al., 2018; Shahsavar & Sudzina, 2017).

Orozco and Cavazos (2017) said that loyalty of students to their higher education institutions is highly influenced by commitment of these institutions and student involvement in creating the services. According to Ali et al. (2016), really loyal

customers not only rebuy the same brand but at the same time have a positive behavior toward the brand.

Rojas-Mendez et al. (2009) confirmed that commitment has a significant direct effect on student loyalty whereas other variables, including student satisfaction, indirectly affect it. In contrast, other researchers proved that students' satisfaction has a significant direct effect on their loyalty (e.g. Alves & Raposo, 2007; Helgesen & Nesset, 2007).

Brown and Mazzarol (2009) confirmed that perceived value and institutional image are essential causes of student loyalty in higher education institutions. Consistent with this, Alves and Raposo (2007) concluded that student satisfaction and image of university are the main drivers of student loyalty.

In addition, Helgesen and Nesset (2007) identified image of programs and university and student satisfaction as main determinants of student loyalty in the higher education settings.

Finally, student loyalty in this context is mostly affected by the components of long-run relationship quality including service quality, confidence, and commitment (Hennig-Thurau et al., 2001).

2.9 Dimensions of Student Loyalty

Many researchers, including Faizan et al. (2016) and Brown and Mazzarol (2009), identified four main dimensions to evaluate student loyalty in higher education: (1) endorsing the course or university, (2) keeping in touch with the university, (3) choosing the same university again to pursue higher education, and (4) joining the university alumni.

According to Fernandes et al. (2013), student loyalty involves three main dimensions: (1) favorable word-of-mouth behavior, (2) encouraging others to join the university, and (3) more interest to pursue higher studies in the same university.

Previously, Webb and Jagun (1997) had identified the three main dimensions of loyalty in higher education: (1) recommending university to other people, (2) saying favorable things about the university, and (3) willingness to return to the university to pursue education. In addition, Athiyaman (1997) determined two key behaviors of loyal students: (1) desire to talk favorably about the university, and (2) to deliver facts to possible applicants.

Reichheld (2003) confirms that loyalty makes consumers purchase extra products and services and extend the positive word of mouth message than less loyal customers.

Finally, student loyalty consists of behaviors such as: (1) good word-of-mouth toward the university, (2) endorsing the university to relatives and friends, and (3) selecting the university once more (Dado et al., 2012).

CHAPTER THREE

LITERATURE REVIEW

3.1 Overview

The most important previous studies are reviewed in this chapter. Then, some comments on these studies are presented.

3.2 Previous Studies

Masserini et al. (2019) examined the impact of higher education service quality and university image on students' satisfaction and loyalty. The quantitative research design is used. The primary data were gathered using an online survey that is directed to nearly 15,000 students who are studying at the University of Pisa. The structural equation modelling (SEM) technique was mainly used in data analysis.

The results indicated that the constructs of higher education services that affected students' satisfaction and loyalty were: (1) teaching, (2) lectures, and (3) courses. In addition, the results indicated that the image of university positively affected, directly and indirectly, students' satisfaction and loyalty.

In Indonesia, **Suyanto et al. (2019)** investigated the impact of quality services on student satisfaction and image of Gorontalo University. The researchers used the analytical quantitative research design.

Data were gathered, using a questionnaire, from 200 randomly selected students out of 3,726. Descriptive and quantitative statistics were utilized in data analysis. The key result indicated that quality services significantly affected both satisfaction of students and image of the university.

In Pakistan, **Damaris et al. (2019)** investigated the influence of service quality on students' satisfaction, with moderating variable of motivation. The researchers adopted

the analytical descriptive approach. The study population consists of all post-graduate students in Mercu Buana University, Jakarta whereas the study sample comprises 210 of those students. The HEdPERF is employed to assess service quality using a 5-point Likert scale. Correlations, factor analysis, and SEM are used in data analysis.

The findings reveal that academic aspects, access, and program issues positively affect student satisfaction with a mediation effect of motivation. In contrast, non-academic issues and reputation have no effect on students satisfaction.

Again in Indonesia, **Chandra et al. (2018)** explored the impact of service quality on student satisfaction and loyalty in the province of Riau. The quantitative research approach is employed. Data were randomly collected, using a questionnaire as data collection tool, from 1,000 students belonging to 13 higher education institutions in the region. Descriptive statistics including ANOVA and SEM were utilized in data analysis with the aid of SPSS and AMOS softwares.

The results revealed that higher education service quality has a significant direct effect on student satisfaction. Moreover, satisfaction of students positively affects their loyalty. Nevertheless, higher education service quality does not affect student loyalty.

In Ghana, **Banahene et al. (2018)** investigated the effect of service quality on academic achievement and student satisfaction in private universities. Learning attitudes are used as a mediating variable. The researchers adopted the analytical descriptive method. In order to collect the primary data, 421 students were purposively and conveniently chosen from six Ghanaian private universities. A survey was employed to collect primary data. Statistical techniques including factor analysis and SEM were utilized in data analysis with the aid of Stata and SPSS softwares.

The results indicate that the service quality dimensions, measured using the HEdPERF scale, positively affect students' satisfaction, learning attitudes, and academic performance. In addition, the results confirm that learning attitudes mediates the relationship between service quality from one hand and student satisfaction and academic performance from the other hand.

In Zambia, **Mwiya et al. (2017)** used the SERVPERF model to examine the effect of service quality on student satisfaction and word-of-mouth behavior. The analytical quantitative research approach was used. The necessary data were gathered, using a questionnaire, from 656 final-year students who were chosen based on stratified sampling according to faculties. Data were mainly analyzed using the techniques of factor analysis and regression analysis.

The results confirm that all of the service quality constructs significantly affect student satisfaction, which in turn affects word-of-mouth behavior.

Annamdevula and Bellamkonda (2016) proposed and tested a scale to measure the level of service quality from the viewpoint of higher education students in India. They also examined the effect of service quality on students' satisfaction, motivation, and loyalty.

The quantitative research design is adopted. The study population comprises all students who have finished a minimum of one year of education in one of seven public universities in Andhra Pradesh, India. The total sample is 2,565 students who are purposively selected from the entire population.

The findings confirmed the existence of a significant positive impact of service quality on students' satisfaction, motivation, and loyalty. The findings also confirmed that the

relationship between service quality from one hand and students' motivation and loyalty from the other hand is mediated by students' satisfaction.

Faizan et al. (2016) examined the impact of service quality of Malaysian public universities on foreign student satisfaction, university image, and loyalty. Data are collected through a survey. Convenience sampling procedure is used to choose 400 foreign students at three public universities in Kuala Lumpur. A total of 241 responses are considered valid for statistical analysis. Statistical tests such as SEM are used in data analysis.

The findings indicate that higher education service quality positively affects student satisfaction, which in turn positively affects university image. Finally, these two variables collectively affect student loyalty.

Also in Malaysia, **Mansori et al. (2014)** examined the impact of the SERVQUAL dimensions on undergraduate students' satisfaction and loyalty. The researchers collected the primary data, using a questionnaire, from a convenient sample of 460 students in various faculties in three private Malaysian universities. Data were analyzed using the technique of structural equation modelling.

The findings confirmed that the dimensions of the SERVQUAL have an impact on students' satisfaction. More specifically, the findings indicated that tangibility (i.e. physical facilities of university) has the most significant impact on students' satisfaction. The findings also showed that tangibility has the highest effect on students' loyalty (i.e. intent to pursue study in the same university and/or good word of mouth).

In the Palestinian context, **Koni et al. (2013)** used a modified SERVQUAL to assess the quality of services provided by two universities in the West Bank, Palestine. The quantitative research approach was used. Primary data were collected, using a

questionnaire, from a random sample of 375 students. Descriptive statistics such as frequencies, percentages, and means were used. Inferential statistics such as factor analysis and correlation were also utilized. Statistical analysis was carried out using the SPSS.

The results of factor analysis proved that a modified SERVQUAL, with 52 items grouped into five dimensions, is applicable for the purpose of assessing higher education service quality in the Palestinian context. In addition, the results confirmed that expectations exceeded perceptions in the five dimensions. Finally, the results indicated that students' satisfaction and students' loyalty are correlated.

In Serbia, **Dado et al. (2012)** investigated the associations between higher education service quality, satisfaction, and loyalty. The researchers used the quantitative research design. The sample consists of 293 students who study Engineering Management. The SERVQUAL model was employed to assess service quality. The primary data were analyzed using the SEM with the aid of LISREL statistical package.

The main findings of the study showed that students' loyalty is directly affected by higher education service quality and students' satisfaction. Moreover, students' loyalty was indirectly affected by higher education service quality through students' satisfaction.

Khan et al. (2011) examined the effect of higher education service quality on student satisfaction and motivation in Pakistan. The researchers used the analytical descriptive research design. The SERVQUAL model is adopted to measure service quality. The sample consisted of 495 students who were randomly selected from public universities. Data were collected using a survey. The primary data were analyzed using the structural equation modelling technique. AMOS software is used in data analysis.

The findings indicated that all of the SERVQUAL dimensions, excluding tangibles, have a significant positive influence on students' satisfaction. In addition, the findings confirmed that the degree of students' satisfaction positively affects their motivation to study.

Also in Pakistan, **Malik et al. (2010)** investigated the effect of higher education service quality dimensions on student satisfaction in the educational institutions of Punjab. The researchers adopted the analytical quantitative research methodology. Primary data were gathered from a sample consisting of 240 business students in the Gujranwala district. Data were analyzed using statistical tools such as descriptive statistics, correlation analysis, and structural equation modelling.

The results indicated that students were satisfied with the tangibility, reliability, assurance, and empathy dimensions of service quality while they were less satisfied with parking services, computer laboratories, cafeteria facilities, and complaint procedures.

3.3 Comments on Previous Studies

Most of the previous studies –as well as the current one– have the same objective. Specifically, they aim to investigate the impact of service quality on student satisfaction and loyalty. Moreover, all the previous studies used the analytical descriptive method. In addition, the previous studies employed the structural equation modelling technique. Finally, almost all the previous studies reached the same conclusion that service quality has a significant positive influence on satisfaction and loyalty.

This study uses, as previous studies, the analytical hypothesis testing approach, utilizing the structural equation modelling technique. However, this study is different from the previous studies in two main points. The first difference is that the HiEduQual model is

used to assess service quality of higher education services in the West Bank, Palestine unlike most previous studies that used the general model of the SERVQUAL. This model is selected since it is specifically designed to assess service quality of higher education, it is more relevant to the Palestinian environment, and it is highly reliable and valid. The other difference is that the current study is applied to students of higher education institutions in the West Bank, Palestine whereas the previous studies were applied to students of higher education institutions in other countries.

CHAPTER FOUR

METHODOLOGY

4.1 Overview

This chapter discusses the research methodology. More specifically, the research approach is identified, the population is defined, the sample size is determined, the unit of analysis is decided, the data collection method is discussed, the research instrument is described, the statistical analysis techniques are outlined, the statistical software packages are cited, and finally some ethical considerations are highlighted.

4.2 Research Design

As mentioned previously, the purpose of the study is to examine the effect of service quality as perceived by higher education students in the West Bank, Palestine on their satisfaction and loyalty.

In social sciences, studies are either quantitative, qualitative, or mixed. In the first type of studies, theories are usually developed and hypotheses formulated to be subsequently tested. Generally, these studies collect data through structured questionnaires. The second type of studies is normally conducted to have deeper understanding of the nature of the problem. Normally, qualitative studies generate data through interviews, open-ended questionnaires, observations, or from secondary data sources. Finally, mixed studies answer research questions by mixing both quantitative and qualitative research approaches (Sekaran & Bougie, 2016).

This study utilizes the quantitative hypothesis-testing empirical research design, where primary data on the main variables (i.e. students' demographic characteristics, level of service quality, level of students' satisfaction, and level of students' loyalty) are collected, using a convenient random sample, from students pursuing their education at

higher education institutions in the West Bank, Palestine through a structured questionnaire that is electronically distributed.

4.3 Population and Sample

The population of study is the total set of people, events, or things of interest to the researcher. On the other hand, the sample of the study is a subgroup of the whole population (Sekaran & Bougie, 2016).

The population of this study comprises all Master's students who are currently pursuing their higher education in any of the higher education institutions in the West Bank, Palestine. The total population is approximately 9,271 Master's students according to 2018/2019 statistics (Ministry of Education & Higher Education, 2018).

The required sample size is calculated using the formula of Thompson (2012):

$$n = \frac{N \times p(1-p)}{([N-1 \times (d^2 \div z^2)] + p(1-p))}$$

where:

n: Sample size.

N: Population size (9,091).

z: Confidence level at 95% (1.96).

d: Error proportion (5%).

p: Probability of picking a choice (50%).

Therefore, by substituting in the above equation, it is concluded that 369 students or more need to be surveyed to have a confidence level of 95% that the real value is within $\pm$5% of the estimated value.

4.4 Data Collection Method

Having developed the hypotheses of study, primary data have to be collected. The three main data collection methods are through observations, interviews, or questionnaires. Questionnaires could be personally managed, mail, or electronic ones (Sekaran & Bougie, 2016).

In the current study, the questionnaire instrument is utilized to collect data. The reason is that data are collected more efficiently in terms of time and cost using questionnaires than other data collection methods.

More specifically, questionnaires are electronically distributed, using Google Forms, to Master's students who are continuing their education at any of the higher education institutions in the West Bank, Palestine. Questionnaires are decided to be electronically distributed because they are easy to manage, can reach wherever, are not expensive, are fast to be distributed, and can be answered at respondents' convenience.

Of the questionnaires sent out, 271 are received within a period of approximately 7 weeks, from 18/03/2020 until 04/05/2020. All of these responses are valid for descriptive and inferential statistical analysis.

4.5 Research Instrument

To collect data, a fully-structured questionnaire is used. The HiEduQual model, developed by Annamdevula and Bellamkonda in 2016, is mostly used to develop the questionnaire, which starts with an introduction stating the main purpose of the study and ensuring the confidentiality of data.

The three parts of the questionnaire are described below:

Part One:

This part aims to collect data on students' characteristics. This part includes the following items:

1. Gender: (two categories).
2. Age: (four categories).
3. Place of residence: (three categories).
4. Household economic condition: (five categories).
5. Type of university: (three categories).
6. Academic discipline: (ten categories).
7. Academic year: (four categories).
8. GPA: (four categories).

Part Two:

This part aims to collect data on the level of higher education service quality in the West Bank, Palestine using the HiEduQual model. This part includes 31 items that belong to the following six dimensions:

1. Teaching: (eight items).
2. Administrative services: (six items).
3. Academic facilities: (seven items).
4. Campus infrastructure: (four items).
5. Support services: (four items).
6. Internationalization: (two items).

Part Three:

This part aims to collect data on students' experiences. More specifically, the first section of this part consists of six items that are intended to assess the level of students' satisfaction with the higher education services in the West Bank, Palestine.

The second section, which consists of nine items, aims to collect data on the level of students' loyalty towards their higher education institutions in the West Bank, Palestine. These items capture both students' intention and their positive behavior.

To better reflect students' evaluation of service quality and experiences (i.e. satisfaction and loyalty), a 7-point Likert scale that ranges from 1 (Very Low) to 7 (Very High) is used in the last two parts of the questionnaire. All items are positively phrased. Therefore, no items need to be reversed. Higher scores (i.e. moving from 1 to 7) indicate higher levels of service quality, student' satisfaction, and students' loyalty. The qualitative evaluation of the study variables is based on the scale shown in Table 4.1.

Table 4.1: Qualitative Evaluation of Study Variables

Interval Range	Qualitative Level
1 – 1.86	Very Low
1.87 – 2.73	Low
2.74 – 3.60	Somewhat Low
3.61 – 4.47	Acceptable
4.48 – 5.34	Somewhat High
5.35 – 6.21	High
6.22 – 7	Very High

A copy of the questionnaire is included in Appendix A.

4.6 Unit of Analysis

Unit of analysis is the level at which primary data are collected and then analyzed. It may be individuals, dyads, groups, organizations, countries, and so on (Sekaran & Bougie, 2016).

In this study, primary data are collected and analyzed at the level of individuals (i.e. Master's students who are pursuing their education at any of the higher education institutions in the West Bank, Palestine). More specifically, the researcher is interested in looking at the data collected from each individual and dealing with each student's response as an individual source of data. Therefore, the unit of analysis is the individuals who respond to the survey.

4.7 Data Analysis Techniques

Descriptive and inferential statistics are both utilized in data analysis. More specifically, descriptive statistics including frequencies and percentages are utilized to describe students' characteristics. Moreover, descriptive statistics including standard deviations and means are used to assess the levels of service quality, students' satisfaction, and students' loyalty.

On the other hand, inferential statistics are used to test the normality of data using the two well-known tests of Kolmogorov-Smirnov and Shapiro-Wilk. In addition, inferential statistics including the t-test and the ANOVA are utilized to test if there are significant differences in the levels of perceived service quality, students' satisfaction, and students' loyalty in case of normally distributed data. However, if data do not follow normal distribution, the equivalent nonparametric tests of Mann-Whiteny and Kruskal-Wallis are used instead.

Lastly, the structural equation modelling (SEM) technique is used to test the different relationships between the study variables (i.e. higher education service quality, students' satisfaction, and students' loyalty). In this context, it is worth mentioning that structural equation modelling (SEM) is a statistical technique that incorporates features of factor and regression analyses, allowing to instantaneously investigate relations between different constructs.

Structural equation modelling (SEM) can be conducted using two approaches. The first is known as CB-SEM, which depends on covariance. In contrast, the second is known as PLS-SEM, which is based on the notion of partial least squares.

The PLS-SEM technique, rather than the CB-SEM technique, is employed in this study for five main reasons. First, the PLS-SEM technique is applicable even if the sample size is small as opposed to the CB-SEM technique. Second, this technique does not require data to be normally distributed as compared to CB-SEM technique. Third, this technique can be used to evaluate both the measurement and structural models. Furthermore, this technique is suitable to investigate complex relationships among different variables. Finally, this technique has greater statistical power, compared to the CB-SEM technique, meaning that a given relationship is concluded to be significant when it is actually significant (Hair et al., 2011).

PLS-SEM analysis consists of two steps. The first is evaluating the measurement model (i.e. the relationships between the variables and their items). The second is evaluating the structural model (i.e. the relationships between the different variables). These two steps are carried out in the next chapter.

A hierarchal component model (HCM) is estimated in the next chapter. The reason is that higher education service quality is a complex variable and thus it is operationalized

at more than one level of abstraction. More specifically, higher education service quality is measured using six first-order constructs (i.e. six dimensions of HiEduQual).

Two approaches are used when modelling hierarchal component models (HCMs). The first is known as the repeated items approach in which all the items from the lower-order components (LOCs) are assigned to the higher-order components (HOCs) to form the higher-order components (HOCs) measurement model. Unfortunately, when using this approach, nearly all of the higher-order components (HOCs) variation is explained by the lower-order components (LOCs), giving an R^2 of nearly 1. Consequently, the path coefficients of the higher-order components (HOCs) will be small (and maybe zero) and not significant (Ringle et al., 2012)

To overcome this problem, the two-stage approach is applied. In the first stage, the latent variable scores of the LOCs are obtained and used in the next stage as manifest variables in the HOC measurement model. This approach can yield significant path coefficients.

The PLS-SEM primarily depends on the two procedures of bootstrapping and blindfolding. Using the bootstrapping procedure, different samples (normally 5,000) are randomly created with replacement from the data set and used in model estimation.

On the other hand, the blindfolding procedure is used to obtain the predictive relevance (Q^2) value for a specified omission distance (D). Blindfolding is a technique that deletes every d^{th} observation in the dependent variable's items and calculates the coefficients with the other observations (Henseler et al., 2009). The deleted observations are regarded as missing and dealt with as so when estimating the PLS-SEM. The calculated estimates are then used to forecast the deleted observations. The gap between the deleted observations and the forecasted ones is used in calculating the Q^2.

4.8 Statistical Analysis Softwares

After primary data are collected, they are coded, edited, and entered into the SPSS and Smart-PLS to be analyzed. More specifically, the SPSS is utilized to carry out descriptive statistics and some inferential statistics including the normality test, the Mann-Whitney test, and the Kruskal-Wallis test. In contrast, the Smart-PLS is utilized to examine the different relationships between higher education service quality, satisfaction, and loyalty using the PLS-SEM technique.

4.9 Ethical Considerations

Some ethical considerations are worth highlighting. First, the purpose of the study is explained to respondents at the questionnaire introduction. Furthermore, the collected primary data are treated as strictly confidential. In addition, no misrepresentations are intentionally made in reporting the results of the study. Finally, there is no conflict of interest between the researcher from one hand and any other party from the other hand.

CHAPTER FIVE

DATA ANALYSIS AND DISCUSSION

5.1 Overview

This chapter is devoted to analyzing the primary data already collected using both descriptive and inferential statistics.

5.2 Descriptive Statistics

In this part, students' characteristics, the level of higher education service quality, the level of students' satisfaction, and the level of students' loyalty are analyzed in a descriptive way.

5.2.1 Students' Profile

This section presents, in a descriptive way, students' characteristics in terms of gender, age, place of residence, economic condition, university type, academic discipline, academic year, and GPA as shown in Table 5.1.

Table 5.1: Students' Profile

Variable	Categories	Frequency	Percent (%)
Gender	Male	104	38.4
	Female	167	61.6
Age	Under 30	139	51.3
	30-40	111	41.0
	41-50	18	6.6
	Over 50	3	1.1
Place of residence	City	181	66.8
	Village	84	31.0
	Camp	6	2.2
Economic condition	Weak	8	3.0

Table 5.1: Students' Profile

Variable	Categories	Frequency	Percent (%)
	Average	71	26.2
	Good	105	38.7
	Very good	73	26.9
	Excellent	14	5.2
University type	Public	130	48.0
	Governmental	12	4.4
	Private	129	47.6
Academic discipline	Physical education	1	0.4
	Sharia	1	0.4
	Education	20	7.4
	Humanities	28	10.3
	Law / public administration	62	22.9
	Business and economics	93	34.3
	Physical sciences	10	3.7
	Engineering	20	7.4
	IT	17	6.3
	Medical sciences	19	7.0
Academic year	First	59	21.8
	Second	125	46.1
	Third	39	14.4
	Fourth	48	17.7
GPA	Acceptable	2	0.7
	Good	62	22.9
	Very good	120	44.3
	Excellent	87	32.1
Total sample size		271	100.0

5.2.2 Level of Higher Education Service Quality

In this section, the level of higher education service quality in the West Bank, Palestine is analyzed using descriptive statistics.

Dimension 1: Teaching and Course Materials (TC)

Descriptive statistics for the dimension of teaching and course materials at the higher education institutions in the West Bank, Palestine are shown in Table 5.2.

Table 5.2: Descriptive Statistics for Teaching and Course Materials

Item	Std. Deviation	Mean Value	Qualitative Level
Responsive and accessible teachers	1.333	5.27	Somewhat High
Following good teaching practices	1.475	4.83	Somewhat High
Following curriculum strictly	1.490	4.82	Somewhat High
Evaluating students' performance	1.632	4.54	Somewhat High
Treating all students in equal manner	1.823	4.38	Acceptable
Developing students' knowledge	1.694	4.80	Somewhat High
Sufficient academic staff	1.785	4.28	Acceptable
Collecting feedback	1.714	4.40	Acceptable
Total	1.781	4.67	Somewhat High

In this context, it is worth saying that the dimension of teaching and course materials measures the quality aspects related to instructors and study materials. More specifically, eight items are used to capture this dimension: (1) responsive and accessibility of teachers, (2) following good teaching practices, (3) following curriculum strictly, (4) periodically evaluating student's performance, (5) treating all students in an equal manner, (6) ability of courses to develop students' knowledge, (7) availability of academic staff, and (8) collecting feedback to provide better services.

The results indicate that the overall quality of teaching and course materials ranges between 4.7±1.8 so that approximately 68.2% of higher education students perceive that the overall quality of this dimension ranges between 2.9 (Somewhat Low) and 6.5 (Very High).

Dimension 2: Administrative Services (AS)

Descriptive statistics for the dimension of administrative services at the higher education institutions in the West Bank, Palestine are shown in Table 5.3.

Table 5.3: Descriptive Statistics for Administrative Services

Item	Std. Deviation	Mean Value	Qualitative Level
Providing error-free work	1.602	4.24	Acceptable
Providing service without delay	1.614	4.21	Acceptable
Courteousness and willingness to help	1.614	4.99	Somewhat High
Maintaining accurate records	1.470	4.87	Somewhat High
Accessibility during office hours	1.660	4.66	Somewhat High
Informing students promptly of changes	1.716	4.59	Somewhat High
Total	1.351	4.59	Somewhat High

In this context, it is worth saying that the dimension of administrative services measures the quality of aspects related to non-academic services. More specifically, six items are used to capture this dimension: (1) providing error-free work, (2) providing services without delay, (3) politeness and readiness to help, (4) maintaining accurate records, (5) accessibility during office hours, and (6) promptly informing students of any changes and decisions.

The results indicate that the overall quality of administrative services ranges between 4.6±1.4 so that nearly 68.2% of higher education students perceive that the overall quality of this dimension ranges between 3.2 (Somewhat Low) and 6 (High).

Dimension 3: Academic Facilities (AF)

Descriptive statistics for the dimension of academic facilities at the higher education institutions in the West Bank, Palestine are shown in Table 5.4.

Table 5.4: Descriptive Statistics for Academic Facilities

Item	Std. Deviation	Mean Value	Qualitative Level
Teaching aids	1.782	4.98	Somewhat High
Well-equipped labs	1.582	5.02	Somewhat High
Library with adequate academic resources	1.697	4.51	Somewhat High
E-library	1.714	4.59	Somewhat High
Convenient campus environment	1.742	4.99	Somewhat High
Adequate auditoriums	1.874	4.76	Somewhat High
Periodic maintenance of facilities	1.697	4.75	Somewhat High
Total	1.332	4.80	Somewhat High

In this context, it is worth saying that the dimension of academic facilities measures the quality of aspects related to academic amenities and services. More specifically, seven items are used to capture this dimension: (1) availability of teaching aids in classrooms, (2) availability of well-equipped computer and science labs, (3) presence of sufficient academic resources in libraries, (4) convenience of campus environment for studying, (5) availability of auditoriums, and (6) conducting periodic maintenance of academic facilities.

The results indicate that the overall quality of academic facilities ranges between 4.8±1.3 so that nearly 68.2% of higher education students perceive that the overall quality of this dimension ranges between 3.5 (Somewhat Low) and 6.1 (High).

Dimension 4: Campus Infrastructure (CI)

Descriptive statistics for the dimension of campus infrastructure at the higher education institutions in the West Bank, Palestine are shown in Table 5.5.

Table 5.5: Descriptive Statistics for Campus Infrastructure

Item	Std. Deviation	Mean Value	Qualitative Level
Sports and recreation facilities	1.827	4.37	Acceptable
Adequate hostel facilities	1.752	3.64	Acceptable
Hostels providing quality food	1.556	3.77	Acceptable
Safety and security measures	1.521	4.86	Somewhat High
Total	1.369	4.16	Acceptable

In this context, it is worth saying that the dimension of campus infrastructure measures the quality of aspects related to non-academic facilities. More specifically, four items are used to capture this dimension: (1) availability of sports and recreation facilities, (2) adequacy of hostel facilities, (3) hostels' delivery of quality food, and (4) university safety and security measures.

The results indicate that the overall quality of campus infrastructure ranges between 4.2±1.4 so that nearly 68.2% of higher education students perceive that the overall quality of this dimension ranges between 2.8 (Somewhat Low) and 5.6 (High).

Dimension 5: Support Services (SS)

Descriptive statistics for the dimension of support services at the higher education institutions in the West Bank, Palestine are shown in Table 5.6.

Table 5.6: Descriptive Statistics for Support Services

Item	Std. Deviation	Mean Value	Qualitative Level
Adequate amenities	1.668	4.79	Somewhat High
Cultural and extracurricular activities	1.618	4.40	Acceptable
Counseling services	1.669	4.39	Acceptable
Medical services	1.671	3.96	Acceptable
Total	1.371	4.39	Acceptable

In this context, it is worth saying that the dimension of support services measures the quality of aspects related to non-administrative and non-academic services. Specifically, four items are used to capture this dimension: (1) adequate amenities, (2) cultural and extracurricular activities, (3) counseling services, and (4) medical services.

The results indicate that the overall quality of support services ranges between 4.4±1.4 so that nearly 68.2% of higher education students perceive that the overall quality of this dimension ranges between 3 (Somewhat Low) and 5.8 (High).

Dimension 6: Internationalization (IN)

Descriptive statistics for the dimension of internationalization at the higher education institutions in the West Bank, Palestine are shown in Table 5.7.

Table 5.7: Descriptive Statistics for Internationalization

Item	Std. Deviation	Mean Value	Qualitative Level
Conducting international activities	1.632	4.56	Somewhat High
Having teachers from abroad	1.767	4.36	Acceptable
Total	1.439	4.46	Acceptable

In this context, it is worth saying that the dimension of internationalization measures the quality of aspects related to international collaboration. More specifically, two items are

used to capture this dimension: (1) conducting international activities, and (2) having foreign teachers.

The results indicate that the overall quality of internationalization ranges between 4.5±1.4 so that nearly 68.2% of higher education students perceive that the overall quality of this dimension ranges between 3 (Somewhat Low) and 5.9 (High).

Summary of HiEduQual Dimensions

Descriptive statistics for the HiEduQual dimensions at the higher education institutions in the West Bank, Palestine are summarized in Table 5.8.

Table 5.8: Descriptive Statistics for Dimensions of Service Quality

Dimension	Std. Deviation	Mean Value	Qualitative Level
Teaching and course materials	1.179	4.67	Somewhat High
Administrative services	1.351	4.59	Somewhat High
Academic facilities	1.333	4.80	Somewhat High
Campus infrastructure	1.369	4.16	Acceptable
Support services	1.371	4.39	Acceptable
Internationalization	1.440	4.46	Acceptable
Total	1.025	4.57	Somewhat High

The results indicate that the overall quality of higher education services in the West Bank, Palestine ranges between 4.6±1 so that nearly 68.2% of higher education students perceive that the overall quality of services provided by the higher education institutions ranges between 3.6 (Somewhat Low) and 5.6 (High). More specifically, academic facilities, teaching and course materials, and administrative services are the three dimensions with the highest levels of service quality among the six dimensions of

the HiEduQual. On the other hand, campus infrastructure, support services, and internationalization are the three dimensions with the lowest levels of quality.

To examine if the overall level of students' perceived service quality varies due to their characteristics, the Mann-Whitney and Kruskal-Wallis tests are used since service quality data are not normally distributed as shown in Table 5.9. It is important to recall that data follow normal distribution if $p > 0.05$ and vice versa. The results indicate that service quality data are not normally distributed since p is less than 0.05.

Table 5.9: Normality Test: Level of Service Quality

Kolmogorov-Smirnov			Shapiro-Wilk		
Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
0.060	271	0.021	0.985	271	0.008

Level of Higher Education Service Quality by Gender

To examine if the level of students' perceived service quality varies due to their gender, the Mann-Whitney test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of higher education service quality) between two independent groups (males and females) while data are not normally distributed.

The median ranks of higher education service quality by gender are shown in Table 5.10. The results show that the median rank of males is higher than that of females.

Table 5.10: Median Ranks of Service Quality by Gender

Gender	Sample Size	Median Rank	Sum of Ranks
Male	104	149.97	15,597.00
Female	167	127.30	21,259.00

To formally test if these differences are statistically significant, the output of the Mann-Whitney test is shown in Table 5.11. The results show that the level of perceived service quality significantly varies between males and females at the 0.05 level, where males have higher perceptions of service quality than females do.

Table 5.11: Mann-Whitney Test: Service Quality by Gender

Item	Value
Mann-Whitney U	7231.000
Wilcoxon W	21259.000
Z	-2.316
Significance	0.021

Level of Higher Education Service Quality by Age

To examine if the level of students' perceived service quality varies due to their age, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of higher education service quality) between more than two independent groups (four age groups) while data are not normally distributed.

The median ranks of students' perceived level of service quality by age are shown in Table 5.12.

Table 5.12: Median Ranks of Service Quality by Age

Age	Sample Size	Median Rank
Under 30	139	129.36
30–40	111	145.22
41–50	18	140.22
Over 50	3	77.17

The results show that students who are 30-40 years of age have the highest median rank whereas students who are above 50 years of age have the lowest median rank.

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.13.

Table 5.13: Kruskal-Wallis Test: Service Quality by Age

Item	Value
Sample size	271
Test statistic (Chi-square)	4.278
df	3
Significance	0.233

The results indicate that the level of perceived service quality does not significantly vary according to the different age groups at the 0.05 level.

Level of Higher Education Service Quality by Location

To examine if the level of students' perceived service quality varies due to their location, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of higher education service quality) between more than two independent groups (three location groups) while data are not normally distributed.

The median ranks of higher education service quality by location are shown in Table 5.14. The results show that students who live in cities have the highest median rank, students who live in camps have the lowest median rank, and students who live in villages have a median rank between them.

Table 5.14: Median Ranks of Service Quality by Location

Location	Sample Size	Median Rank
City	181	140.13
Village	84	130.68
Camp	6	85.75

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.15.

Table 5.15: Kruskal-Wallis Test: Service Quality by Location

Item	Value
Sample size	271
Test statistic (Chi-square)	3.357
df	2
Significance	0.187

The results indicate that the level of students' perceived service quality does not significantly vary between the different location groups at the 0.05 level.

Level of Higher Education Service Quality by Economic Condition

To examine if the level of students' perceived service quality varies due to households' economic condition, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of higher education service quality) between more than two independent groups (five economic condition groups) while data are not normally distributed.

The median ranks of higher education service quality by households' economic condition are shown in Table 5.16. The results show that students with good

households' economic condition have the highest median rank whereas students with average households' economic condition have the lowest median rank.

Table 5.16: Median Ranks of Service Quality by Economic Condition

Economic Condition	Sample Size	Median Rank
Weak	8	142.75
Average	71	122.09
Good	105	143.04
Very good	73	137.65
Excellent	14	141.25

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.17.

Table 5.17: Kruskal-Wallis Test: Service Quality by Economic Condition

Item	Value
Sample size	271
Test statistic (Chi-square)	3.239
df	4
Significance	0.519

The results indicate that the level of students' perceived service quality does not significantly vary between the different economic condition groups at the 0.05 level.

Level of Higher Education Service Quality by University Type

To examine if the level of students' perceived service quality varies due to university type, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of higher education

service quality) between more than two independent groups (three university types) while data are not normally distributed.

The median ranks of higher education service quality by university type are shown in Table 5.18. The results show that students joining public universities have the lowest median rank, students joining governmental universities have the highest median rank, and students joining private universities have median ranks between these two extremes.

Table 5.18: Median Ranks of Service Quality by University Type

University Type	Sample Size	Median Rank
Public	130	119.63
Governmental	12	171.50
Private	129	149.20

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.19.

Table 5.19: Kruskal-Wallis Test: Service Quality by University Type

Item	Value
Sample size	271
Test statistic (Chi-square)	11.795
df	2
Significance	0.003

The results show that the level of students' perceived service quality significantly varies between the three types of universities at the 0.05 level. To examine among which university types the true differences are, the output of the multiple comparisons test is shown in Table 5.20.

Table 5.20: Multiple Comparisons: Service Quality by University Type

Group 1	Group 2	Test Statistic	Sig.	Adj. Sig.
Public	Private	-29.571	0.002	0.007*

* Only significant difference is displayed.

The results indicate that the level of students' perceived service quality significantly varies between students joining public and private universities at the level of 0.05, where the second group of students has a higher level of perceived service quality than the first one does.

Level of Higher Education Service Quality by Academic Discipline

To examine if the level of students' perceived service quality varies due to academic discipline, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of higher education service quality) between more than two independent groups (ten academic disciplines) while data are not normally distributed.

The median ranks of higher education service quality by academic discipline are shown in Table 5.21. The results show that medical sciences students have the highest median rank, sharia students have the lowest median rank, while students of other academic disciplines have median ranks between these two extremes.

Table 5.21: Median Ranks of Service Quality by Academic Discipline

Academic Discipline	Sample Size	Median Rank
Physical education	1	60.50
Sharia	1	10.50
Education	20	119.40
Humanities	28	132.79

Table 5.21: Median Ranks of Service Quality by Academic Discipline

Academic Discipline	Sample Size	Median Rank
Law / public administration	62	139.88
Business and economics	93	138.87
Physical sciences	10	88.95
Engineering	20	110.18
IT	17	154.79
Medical sciences	19	177.21

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.22.

Table 5.22: Kruskal-Wallis Test: Service Quality by Academic Discipline

Item	Value
Sample size	271
Test statistic (Chi-square)	16.722
df	9
Significance	0.053

The results show that the level of students' perceived service quality does not significantly vary between the ten academic disciplines at the 0.05 level.

Level of Higher Education Service Quality by Academic Year

To examine if the level of students' perceived service quality varies due to academic year, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of higher education service quality) between more than two independent groups (four academic years) while data are not normally distributed.

The median ranks of higher education service quality by academic year are shown in Table 5.23. The results show that students of first academic year have the highest median rank while students of third academic year have the lowest median rank.

Table 5.23: Median Ranks of Service Quality by Academic Year

Academic Year	Sample Size	Median Rank
First	59	152.49
Second	125	143.24
Third	39	103.56
Fourth	48	123.22

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.24.

Table 5.24: Kruskal-Wallis Test: Service Quality by Academic Year

Item	Value
Sample size	271
Test statistic (Chi-square)	11.639
df	3
Significance	0.009

The results show that the level of students' perceived service quality significantly varies between the different academic years at the 0.05 level. To examine among which academic years the true differences are, the output of the multiple comparisons test is shown in Table 5.25.

Table 5.25: Multiple Comparisons: Service Quality by Academic Year

Group 1	Group 2	Test Statistic	Sig.	Adj. Sig.
Third	First	48.927	0.002	0.015*
Third	Second	39.680	0.006	0.035*

* Only significant differences are displayed.

The results show that the level of students' perceived service quality significantly varies between students of third academic year and students of first academic year at the 0.05 level, where the second group has a higher level of perceived service quality than the first one does.

Similarly, the level of students' perceived service quality significantly varies between students of third academic year and students of second academic year at the 0.05 level, where the second group has a higher level of perceived service quality than the first one does.

Level of Higher Education Service Quality by GPA

To examine if the level of students' perceived service quality varies due to their GPA, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of higher education service quality) between more than two independent groups (four GPA levels) while data are not normally distributed.

The median ranks of higher education service quality by students' GPA are shown in Table 5.26. The results show that students with excellent GPA have the highest median rank while students of very good GPA have the lowest median rank.

Table 5.26: Median Ranks of Service Quality by GPA

Academic Year	Sample Size	Median Rank
Acceptable	2	128.25
Good	62	129.19
Very good	120	126.88
Excellent	87	153.61

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.27.

Table 5.27: Kruskal-Wallis Test: Service Quality by GPA

Item	Value
Sample size	271
Test statistic (Chi-square)	6.510
df	3
Significance	0.089

The results indicate the level of students' perceived service quality does not significantly vary between the four different GPA groups at the 0.05 level.

To summarize, the level of students' perceived service quality in the West Bank, Palestine significantly varies due to gender, university type, and academic year.

5.2.3 Level of Students' Satisfaction

In this section, the level of higher education students' satisfaction in the West Bank, Palestine is analyzed using descriptive statistics as shown in Table 5.28. The results indicate that the overall level of higher education students' satisfaction with the higher education services in the West Bank, Palestine ranges between 4.6 ± 1.3 so that nearly

68.2% of higher education students have an overall level of satisfaction that ranges between 3.3 (Somewhat Low) and 5.9 (High).

Table 5.28: Descriptive Statistics for Students' Satisfaction

Item	Std. Deviation	Mean Value	Qualitative Level
Satisfaction with academic services	1.590	4.61	Somewhat High
Satisfaction with administrative services	1.525	4.50	Somewhat High
Satisfaction with support services	1.557	4.39	Acceptable
Satisfaction with equipment and facilities	1.587	4.58	Somewhat High
Satisfaction with maintenance	1.623	4.53	Somewhat High
Satisfaction with overall quality of services	1.520	4.68	Somewhat High
Total	1.333	4.55	Somewhat High

To examine if the overall level of students' satisfaction with higher education services in the West Bank, Palestine varies due to their characteristics, the Mann-Whitney and Kruskal-Wallis tests are used since students' satisfaction data are not normally distributed as shown in Table 5.29.

Table 5.29: Normality Test: Level of Students' Satisfaction

Kolmogorov-Smirnov			Shapiro-Wilk		
Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
0.091	271	0.000	0.972	271	0.000

As said previously, data follow normal distribution if the p-value is greater than 0.05 and vice versa. The results indicate that students' satisfaction data are not normally distributed since the p-value is less than 0.05.

Level of Students' Satisfaction by Gender

To examine if the level of students' satisfaction varies due to their gender, the Mann-Whitney test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' satisfaction) between two independent groups (males and females) while data are not normally distributed.

The median ranks of students' satisfaction by gender are shown in Table 5.30. The results show that the median rank of males are higher than that of females.

Table 5.30: Median Ranks of Students' Satisfaction by Gender

Gender	Sample Size	Median Rank	Sum of Ranks
Male	104	150.02	15,602.50
Female	167	127.27	21,253.50

To formally test if these differences are statistically significant, the output of the Mann-Whitney test is shown in Table 5.31.

Table 5.31: Mann-Whitney Test: Student's Satisfaction by Gender

Item	Value
Mann-Whitney U	7,225.500
Wilcoxon W	21,253.500
Z	-2.327
Significance	0.020

The results show that the level of students' satisfaction significantly varies between males and females at the 0.05 level, where male students are more satisfied than female students.

Level of Students' Satisfaction by Age

To examine if the level of students' satisfaction varies due to their age, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' satisfaction) between more than two independent groups (four age groups) while data are not normally distributed.

The median ranks of students' satisfaction by age are shown in Table 5.32. The results show that students who are 30-40 years of old have the highest median rank whereas students who are above 50 years of age have the lowest median rank.

Table 5.32: Median Ranks of Students' Satisfaction by Age

Age	Sample Size	Median Rank
Under 30	139	128.79
30–40	111	147.75
41–50	18	129.94
Over 50	3	71.67

To formally test if the differences in the level of students' satisfaction due to their age are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.33. The results indicate that the level of students' satisfaction does not significantly vary between the different age groups at the 0.05 level.

Table 5.33: Kruskal-Wallis Test: Students' Satisfaction by Age

Item	Value
Sample size	271
Test statistic (Chi-square)	5.811
df	3
Significance	0.121

Level of Students' Satisfaction by Location

To examine if the level of students' satisfaction varies due to their location, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' satisfaction) between more than two independent groups (three location groups) while data are not normally distributed.

The median ranks of students' satisfaction by location are shown in Table 5.34. The results show that students who live in cities have the highest median rank, students who live in camps have the lowest median rank, and students who live in villages have median ranks in between.

Table 5.34: Median Ranks of Students' Satisfaction by Location

Location	Sample Size	Median Rank
City	181	138.58
Village	84	130.99
Camp	6	128.33

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.35. The results indicate that the level of students' satisfaction does not significantly vary between the different location groups at the 0.05 level.

Table 5.35: Kruskal-Wallis Test: Students' Satisfaction by Location

Item	Value
Sample size	271
Test statistic (Chi-square)	0.598
df	2
Significance	0.741

Level of Students' Satisfaction by Economic Condition

To examine if the level of students' satisfaction varies due to their households' economic condition, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' satisfaction) between more than two independent groups (five economic condition groups) while data are not normally distributed.

The median ranks of students' satisfaction by households' economic condition are shown in Table 5.36. The results show that students with good households' economic condition have the highest median rank whereas students with very good households' economic condition have the lowest median rank.

Table 5.36: Median Ranks of Students' Satisfaction by Economic Condition

Economic Condition	Sample Size	Median Rank
Weak	8	136.44
Average	71	134.15
Good	105	142.99
Very good	73	128.27
Excellent	14	132.96

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.37.

Table 5.37: Kruskal-Wallis Test: Students' Satisfaction by Economic Condition

Item	Value
Sample size	271
Test statistic (Chi-square)	1.609
df	4
Significance	0.807

The results indicate that the level of students' satisfaction does not significantly vary between the different economic condition groups at the 0.05 level.

Level of Students' Satisfaction by University Type

To examine if the level of students' satisfaction varies due to university type, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' satisfaction) between more than two independent groups (three university types) while data are not normally distributed.

The median ranks of students' satisfaction by university type are shown in Table 5.38. The results show that students joining public universities have the lowest median rank, students joining private universities have the highest median rank, and students joining governmental universities have median ranks between these two extremes.

Table 5.38: Median Ranks of Students' Satisfaction by University Type

University Type	Sample Size	Median Rank
Public	130	113.51
Governmental	12	155.92
Private	129	156.81

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.39.

Table 5.39: Kruskal-Wallis Test: Students' Satisfaction by University Type

Item	Value
Sample size	271
Test statistic (Chi-square)	20.624
df	2
Significance	0.000

The results indicate that the level of students' satisfaction significantly varies between the three types of universities at the 0.001 level. To examine among which university types the true differences are, the output of the multiple comparisons test is shown in Table 5.40.

Table 5.40: Multiple Comparisons: Students' Satisfaction by University Type

Group 1	Group 2	Test Statistic	Sig.	Adj. Sig.
Public	Private	-43.306	0.000	0.000*

* Only significant difference is displayed.

The results show that the level of students' satisfaction significantly varies between students joining public and private universities at the level of 0.001, where the first group is less satisfied than the second one.

Level of Students' Satisfaction by Academic Discipline

To examine if the level of students' satisfaction varies due to academic discipline, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' satisfaction) between more than two independent groups (ten academic disciplines) while data are not normally distributed.

The median ranks of students' satisfaction by academic discipline are shown in Table 5.41. The results show that medical sciences students have the highest median rank, sharia students have the lowest median rank, while students of other academic disciplines have median ranks between these two extremes.

Table 5.41: Median Ranks of Students' Satisfaction by Academic Discipline

Academic Discipline	Sample Size	Median Rank
Physical education	1	77.00
Sharia	1	8.50
Education	20	111.55
Humanities	28	124.88
Law / public administration	62	136.24
Business and economics	93	144.20
Physical sciences	10	96.05
Engineering	20	98.23
IT	17	162.09
Medical sciences	19	184.45

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.42.

Table 5.42: Kruskal-Wallis Test: Students' Satisfaction by Academic Discipline

Item	Value
Sample size	271
Test statistic (Chi-square)	23.181
df	9
Significance	0.006

The results show that the level of students' satisfaction significantly varies between the ten academic disciplines at the 0.05 level. To examine among which academic disciplines the true differences are, the output of the multiple comparisons test is shown in Table 5.43.

Table 5.43: Multiple Comparisons: Students' Satisfaction by Academic Discipline

Group 1	Group 2	Test Statistic	Sig.	Adj. Sig.
Engineering	Medical Sciences	-86.222	0.001	0.026*

* Only significant difference is displayed.

The results show that the level of students' satisfaction significantly varies between engineering students and medical sciences students at the level of 0.05, where the first group is less satisfied than the second one.

Level of Students' Satisfaction by Academic Year

To examine if the level of students' satisfaction varies due to academic year, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' satisfaction) between more than two independent groups (four academic years) while data are not normally distributed.

The median ranks of students' satisfaction by academic year are shown in Table 5.44. The results show that students of first academic year have the highest median rank while students of third academic year have the lowest median rank.

Table 5.44: Median Ranks of Students' Satisfaction by Academic Year

Academic Year	Sample Size	Median Rank
First	59	145.43
Second	125	144.04
Third	39	111.58
Fourth	48	123.30

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.45.

Table 5.45: Kruskal-Wallis Test: Students' Satisfaction by Academic Year

Item	Value
Sample size	271
Test statistic (Chi-square)	7.234
df	3
Significance	0.065

The results indicate that the level of students' satisfaction does not significantly vary between the different academic years at the 0.05 level.

Level of Students' Satisfaction by GPA

To examine if the level of students' satisfaction varies due to their GPA, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' satisfaction) between more than two independent groups (four GPA levels) while data are not normally distributed.

The median ranks of students' satisfaction by their GPA are shown in Table 5.46. The results show that students with good GPA have the highest median rank while students with very good GPA have the lowest median rank.

Table 5.46: Median Ranks of Students' Satisfaction by GPA

GPA	Sample Size	Median Rank
Acceptable	2	132.00
Good	62	133.09
Very good	120	126.05
Excellent	87	151.90

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.47.

Table 5.47: Kruskal-Wallis Test: Students' Satisfaction by GPA

Item	Value
Sample size	271
Test statistic (Chi-square)	5.618
df	3
Significance	0.132

The results indicate that the level of students' satisfaction does not significantly vary between the four different GPA groups at the 0.05 level.

To summarize, the level of higher education students' satisfaction in the West Bank, Palestine varies due to gender, university type, and academic discipline.

5.2.4 Level of Students' Loyalty

In this section, the level of students' loyalty towards their higher education institutions in the West Bank, Palestine is analyzed using descriptive statistics as shown in Table 5.48.

The results indicate that the overall level of students' loyalty towards their higher education institutions in the West Bank, Palestine ranges between 4.9 ± 1.5 so that nearly 68.2% of higher education students have an overall level of loyalty towards their institutions that ranges between 3.4 (Somewhat Low) and 6.4 (Very High).

More specifically, higher education students exhibit the highest levels of loyalty in terms of taking care of their institutions, saying positive things about their institutions, and being interested in keeping in touch with these institutions.

Table 5.48: Descriptive Statistics for Students' Loyalty

Item	Std. Deviation	Mean Value	Qualitative Level
Pursuing higher studies at university	1.955	4.58	Somewhat High
Recommending university to others	1.774	4.77	Somewhat High
Encouraging others to study at university	1.742	4.80	Somewhat High
University of first choice	1.971	4.40	Acceptable
Proud to be associated with university	1.650	4.93	Somewhat High
Taking care of university	1.510	5.37	High
Saying positive things about university	1.512	5.15	Somewhat High
Selecting university again	1.933	4.60	Somewhat High
keeping in touch with university	1.628	5.14	Somewhat High
Total	1.455	4.86	Somewhat High

To examine if the overall level of students' loyalty towards their higher education institutions in the West Bank, Palestine varies due to their characteristics, the Mann-Whitney and Kruskal-Wallis tests are used since students' loyalty data are not normally distributed as shown in Table 5.49.

Table 5.49: Normality Test: Level of Students' Loyalty

Kolmogorov-Smirnov			Shapiro-Wilk		
Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
0.081	271	0.000	0.959	271	0.000

Again, data follow normal distribution if the p-value is greater than 0.05 and vice versa. The results indicate that students' loyalty data are not normally distributed since the p-value is less than 0.05.

Level of Students' Loyalty by Gender

To examine if the level of students' loyalty varies due to their gender, the Mann-Whitney test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' loyalty) between two independent groups (males and females) while data are not normally distributed.

The median ranks of students' loyalty by gender are shown in Table 5.50. The results show that the median rank of females are higher than that of males.

Table 5.50: Median Ranks of Students' Loyalty by Gender

Gender	Sample Size	Median Rank	Sum of Ranks
Male	104	131.13	13,637.00
Female	167	139.04	23,219.00

To formally test if these differences are statistically significant, the output of the Mann-Whitney test is shown in Table 5.51.

Table 5.51: Mann-Whitney Test: Student's Loyalty by Gender

Item	Value
Mann-Whitney U	8,177.000
Wilcoxon W	13,637.000
Z	-0.808
Significance	0.419

The results indicate that the level of students' loyalty does not significantly vary between males and females at the 0.05 level.

Level of Students' Loyalty by Age

To examine if the level of students' loyalty varies due to their age, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an

interval dependent variable (level of students' loyalty) between more than two independent groups (four age groups) while data are not normally distributed.

The median ranks of students' loyalty by age are shown in Table 5.52. The results show that students who are 30-40 years of old have the highest median rank whereas students who are above 50 years of age have the lowest median rank.

Table 5.52: Median Ranks of Students' Loyalty by Age

Age	Sample Size	Median Rank
Under 30	139	128.09
30–40	111	149.79
41–50	18	122.11
Over 50	3	75.33

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.53.

Table 5.53: Kruskal-Wallis Test: Students' Loyalty by Age

Item	Value
Sample size	271
Test statistic (Chi-square)	7.222
df	3
Significance	0.065

The results indicate that the level of students' loyalty does not significantly vary between the different age groups at the 0.05 level.

Level of Students' Loyalty by Location

To examine if the level of students' loyalty varies due to their location, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means

of an interval dependent variable (level of students' loyalty) between more than two independent groups (three location groups) while data are not normally distributed.

The median ranks of students' loyalty by location are shown in Table 5.54. The results show that students who live in cities have the highest median rank, students who live in camps have the lowest median rank, and students who live in villages have median rank in between.

Table 5.54: Median Ranks of Students' Loyalty by Location

Location	Sample Size	Median Rank
City	181	142.56
Village	84	123.92
Camp	6	107.33

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.55. The results indicate that the level of students' loyalty does not significantly vary between the different location groups at the 0.05 level.

Table 5.55: Kruskal-Wallis Test: Students' Loyalty by Location

Item	Value
Sample size	271
Test statistic (Chi-square)	4.071
df	2
Significance	0.131

Level of Students' Loyalty by Economic Condition

To examine if the level of students' loyalty varies due to their households' economic condition, the Kruskal-Wallis test is used. This test is selected since we are interested in

comparing the means of an interval dependent variable (level of students' loyalty) between more than two independent groups (five economic condition groups) while data are not normally distributed.

The median ranks of students' loyalty by households' economic condition are shown in Table 5.56. The results show that students with good households' economic condition have the highest median rank whereas students with an average households' economic condition have the lowest median rank.

Table 5.56: Median Ranks of Students' Loyalty by Economic Condition

Economic Condition	Sample Size	Median Rank
Weak	8	141.06
Average	71	128.39
Good	105	145.89
Very good	73	129.39
Excellent	14	132.00

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.57.

Table 5.57: Kruskal-Wallis Test: Students' Loyalty by Economic Condition

Item	Value
Sample size	271
Test statistic (Chi-square)	2.934
df	4
Significance	0.569

The results indicate that the level of students' loyalty does not significantly vary between the different economic condition groups at the 0.05 level.

Level of Students' Loyalty by University Type

To examine if the level of students' loyalty varies due to university type, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' loyalty) between more than two independent groups (three university types) while data are not normally distributed.

The median ranks of students' loyalty by university type are shown in Table 5.58. The results show that students joining governmental universities have the highest median rank, students joining public universities have the lowest median rank, and students joining private universities have a median rank between these two extremes.

Table 5.58: Median Ranks of Students' Loyalty by University Type

University Type	Sample Size	Median Rank
Public	130	123.57
Governmental	12	173.33
Private	129	145.06

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.59.

Table 5.59: Kruskal-Wallis Test: Students' Loyalty by University Type

Item	Value
Sample size	271
Test statistic (Chi-square)	7.726
df	2
Significance	0.021

The results indicate that the level of students' loyalty significantly vary between the three university types at the 0.05 level. To examine among which university types the true differences are, the output of the multiple comparisons test is shown in Table 5.60.

Table 5.60: Multiple Comparisons: Students' Loyalty by University Type

Group 1	Group 2	Test Statistic	Sig.	Adj. Sig.
Public	Private	9,738.000	0.012	0.037*

* Only significant difference is displayed.

The results indicate that the level of students' loyalty significantly varies between students joining public and private universities at the level of 0.05, where the second group is more loyal to their higher education institutions than the first one.

Level of Students' Loyalty by Academic Discipline

To examine if the level of students' loyalty varies due to academic discipline, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' loyalty) between more than two independent groups (ten academic disciplines) while data are not normally distributed.

The median ranks of students' loyalty by academic discipline are shown in Table 5.61. The results show that medical sciences students have the highest median rank, sharia students have the lowest median rank, while students of other academic disciplines have median ranks between these two extremes.

Table 5.61: Median Ranks of Students' Loyalty by Academic Discipline

Academic Discipline	Sample Size	Median Rank
Physical education	1	42.00
Sharia	1	33.00
Education	20	137.18
Humanities	28	139.36
Law / public administration	62	143.18
Business and economics	93	137.40
Physical sciences	10	87.85
Engineering	20	111.83
IT	17	147.35
Medical sciences	19	150.53

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.62.

Table 5.62: Kruskal-Wallis Test: Students' Loyalty by Academic Discipline

Item	Value
Sample size	271
Test statistic (Chi-square)	10.468
df	9
Significance	0.314

The results indicate that the level of students' loyalty does not significantly vary between the ten academic disciplines at the 0.05 level.

Level of Students' Loyalty by Academic Year

To examine if the level of students' loyalty varies due to academic year, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' loyalty) between more than two independent groups (four academic years) while data are not normally distributed.

The median ranks of students' loyalty by academic year are shown in Table 5.63. The results show that students of first academic year have the highest median rank while students of third academic year have the lowest median rank.

Table 5.63: Median Ranks of Students' Loyalty by Academic Year

Academic Year	Sample Size	Median Rank
First	59	153.40
Second	125	135.18
Third	39	122.87
Fourth	48	127.42

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.64. The results indicate that the level of students' loyalty does not significantly vary between the different academic years at the 0.05 level.

Table 5.64: Kruskal-Wallis Test: Students' Loyalty by Academic Year

Item	Value
Sample size	271
Test statistic (Chi-square)	4.596
df	3
Significance	0.204

Level of Students' Loyalty by GPA

To examine if the level of students' loyalty varies due to their GPA, the Kruskal-Wallis test is used. This test is selected since we are interested in comparing the means of an interval dependent variable (level of students' loyalty) between more than two independent groups (four GPA levels) while data are not normally distributed.

The median ranks of students' loyalty by their GPA are shown in Table 5.65. The results show that students with excellent GPA have the highest median rank while students with acceptable GPA have the lowest median rank.

Table 5.65: Median Ranks of Students' Loyalty by GPA

GPA	Sample Size	Median Rank
Acceptable	2	127.75
Good	62	132.56
Very good	120	133.03
Excellent	87	142.75

To formally test if these differences are statistically significant, the output of the Kruskal-Wallis test is shown in Table 5.66. The results indicate that the level of students' loyalty does not significantly vary between the four different GPA groups at the 0.05 level.

Table 5.66: Kruskal-Wallis Test: Students' Loyalty by GPA

Item	Value
Sample size	271
Test statistic (Chi-square)	0.960
df	3
Significance	0.811

To summarize, the level of students' loyalty towards their higher education institutions in the West Bank, Palestine varies due to university type.

5.3 Inferential Statistics

In the second part, the measurement model is evaluated, the hypotheses of study are tested, and then the estimated structural model is evaluated.

5.3.1 Evaluation of Measurement Model

Before testing the hypotheses that are already developed using the PLS-SEM technique, it is necessary first to evaluate the measurement model.

In this context, it is important to say that when the repeated items approach is used to estimate the hierarchical component model (HCM), the variation in higher education service quality is totally explained by its six lower-order components (LOCs), giving an R^2 value of exactly 1. Thus, the path coefficients of the higher order components (HOCs) can not be estimated using this approach (Ringle et al., 2012).

To overcome this problem, the two-stage process proposed by Becher et al. (2012) is applied. But before discussing the two-stage process, it is necessary to say that the sample size of study (i.e. 271 observations) is enough to apply the PLS-SEM technique according to the 10 times rule of thumb (Barclay et al., 1995), which requires minimum observations to be 10 times the maximum number of arrowheads pointing at a variable anywhere in the path model.

First Stage of Measurement Model

The scores of latent variables regarding the lower-order constructs are obtained in the first stage while the higher-order construct (service quality) is not present in the model. These scores are used as manifest variables for the higher-order construct in the second stage.

To evaluate the first stage of the measurement model, convergent validity and discriminant validity are both evaluated since the measures in this stage are reflective in nature.

Convergent Validity

Convergent validity is the extent to which multiple items that are used in the measurement of a given concept are consistent. Three tests are usually used to evaluate convergent validity in the PLS-SEM context: (1) factor loading, (2) average variance extracted (AVE), and (3) composite reliability. Each of these is discussed below.

Factor loading indicates the proportion of item variation that is explained by the latent variable. Factor loading ranges between 0 and 1. Usually, items with factor loadings less than 0.70 are deleted from the measurement model. However, researchers frequently obtain weaker factor loadings in social sciences (i.e. below 0.70). Instead of automatically removing an item when its loading is below 0.70, the effect of item removal should be carefully examined on the composite reliability.

Usually, items that have factor loadings in the 0.40-0.70 range should be deleted if this causes the composite reliability (CR) or the average variance extracted (AVE) to increase above the proposed minimum values of 0.70 and 0.50, respectively. However, items with factor loadings less than 0.40 should automatically be deleted.

Average variance extracted (AVE) is similar to the proportion of variance explained in factor analysis. Its value varies between 0 and 1. According to Baggozi and Yi (1988), AVE has to be above 0.50 to have adequate convergent validity.

Finally, composite reliability (CR) normally has the same interpretation as Cronbach Alpha. It has values that ranges between 0 and 1, where higher values indicate higher

reliability levels. More specifically, values in the range of 0.60-0.70 are acceptable in exploratory research.

Convergent validity assessment of the first stage of the measurement model is shown in Table 5.67. The results indicate that all items that capture the different constructs are ensured to have factor loadings according to the previously-mentioned criteria before the structural equation model is estimated.

In addition, the results indicate that each of the different constructs has an AVE value exceeding the minimum threshold of 0.50.

Finally, each of the different constructs has CR value higher than the minimum acceptable level of 0.70.

Therefore, it is concluded that the convergent validity of the first stage of the measurement model is established according to the above three criteria.

Table 5.67: Convergent Validity of First Stage of Measurement Model

Construct	Item	Loading	AVE	CR
Teaching & course materials	TC1	0.758	0.538	0.902
	TC2	0.802		
	TC3	0.686		
	TC4	0.760		
	TC5	0.720		
	TC6	0.817		
	TC7	0.579		
	TC8	0.718		
Administrative services	AS1	0.830	0.701	0.934
	AS2	0.848		

Table 5.67: Convergent Validity of First Stage of Measurement Model

Construct	Item	Loading	AVE	CR
	AS3	0.856		
	AS4	0.817		
	AS5	0.831		
	AS6	0.841		
Academic facilities	AF1	0.828	0.598	0.912
	AF2	0.802		
	AF3	0.671		
	AF4	0.700		
	AF5	0.793		
	AF6	0.767		
	AF7	0.837		
Campus infrastructure	CI1	0.822	0.670	0.890
	CI2	0.871		
	CI3	0.804		
	CI4	0.775		
Support services	SS1	0.710	0.690	0.898
	SS2	0.912		
	SS3	0.861		
	SS4	0.828		
Internationalization	IN1	0.845	0.718	0.836
	IN2	0.849		
Students' satisfaction	ST1	0.856	0.726	0.941

Table 5.67: Convergent Validity of First Stage of Measurement Model

Construct	Item	Loading	AVE	CR
	ST2	0.799		
	ST3	0.902		
	ST4	0.818		
	ST5	0.824		
	ST6	0.908		
Students' loyalty	LY1	0.766	0.706	0.956
	LY2	0.913		
	LY3	0.910		
	LY4	0.695		
	LY5	0.886		
	LY6	0.772		
	LY7	0.885		
	LY8	0.892		
	LY9	0.818		

Discriminant Validity

Discriminant validity is the degree to which a construct is really different from the others empirically. Therefore, discriminant validity ensures that a construct is distinct and captures phenomena not captured by other constructs. Typically, two criteria of discriminant validity are used. They are the cross loadings and the Fornell-Larcker criterion.

The cross loadings approach requires the loadings of an item on its assigned construct to be higher than its loadings on all other constructs in the model. The discriminant

validity evaluation of the first stage of the measurement model using cross loadings is shown in Table 5.68.

Table 5.68: Cross Loadings of First Stage of Measurement Model

Item	TC	AS	AF	CI	SS	IN	ST	LY
TC1	**0.758**	0.327	0.394	0.229	0.337	0.306	0.420	0.365
TC2	**0.802**	0.385	0.411	0.295	0.404	0.379	0.463	0.423
TC3	**0.686**	0.394	0.367	0.148	0.321	0.276	0.325	0.263
TC4	**0.760**	0.424	0.449	0.281	0.368	0.320	0.419	0.318
TC5	**0.720**	0.314	0.372	0.238	0.300	0.327	0.435	0.370
TC6	**0.817**	0.444	0.498	0.350	0.448	0.383	0.561	0.476
TC7	**0.579**	0.405	0.388	0.194	0.341	0.370	0.397	0.385
TC8	**0.718**	0.388	0.409	0.271	0.376	0.338	0.493	0.402
AS1	0.499	**0.830**	0.367	0.225	0.418	0.307	0.479	0.390
AS2	0.442	**0.848**	0.362	0.246	0.367	0.270	0.513	0.366
AS3	0.436	**0.856**	0.484	0.315	0.390	0.353	0.598	0.454
AS4	0.411	**0.817**	0.439	0.305	0.444	0.377	0.525	0.445
AS5	0.416	**0.831**	0.422	0.309	0.484	0.321	0.520	0.429
AS6	0.444	**0.841**	0.453	0.364	0.485	0.342	0.576	0.439
AF1	0.490	0.414	**0.828**	0.531	0.444	0.473	0.649	0.480
AF2	0.494	0.380	**0.802**	0.490	0.459	0.417	0.582	0.399
AF3	0.441	0.439	**0.671**	0.385	0.432	0.357	0.463	0.458
AF4	0.449	0.410	**0.700**	0.452	0.478	0.443	0.485	0.423
AF5	0.366	0.364	**0.793**	0.556	0.483	0.484	0.571	0.441
AF6	0.380	0.366	**0.767**	0.504	0.481	0.427	0.609	0.490
AF7	0.448	0.384	**0.837**	0.601	0.544	0.453	0.695	0.481
CI1	0.318	0.248	0.587	**0.822**	0.546	0.559	0.541	0.403

Table 5.68: Cross Loadings of First Stage of Measurement Model

Item	TC	AS	AF	CI	SS	IN	ST	LY
CI2	0.214	0.246	0.500	**0.871**	0.546	0.469	0.480	0.367
CI3	0.213	0.183	0.464	**0.804**	0.488	0.406	0.396	0.300
CI4	0.363	0.426	0.559	**0.775**	0.618	0.487	0.592	0.496
SS1	0.301	0.326	0.496	0.597	**0.710**	0.438	0.512	0.372
SS2	0.490	0.443	0.577	0.595	**0.912**	0.625	0.609	0.532
SS3	0.467	0.537	0.479	0.506	**0.861**	0.573	0.609	0.524
SS4	0.377	0.389	0.490	0.587	**0.828**	0.616	0.537	0.443
IN1	0.380	0.373	0.510	0.554	0.644	**0.845**	0.573	0.477
IN2	0.407	0.295	0.448	0.456	0.511	**0.849**	0.540	0.527
ST1	0.665	0.500	0.593	0.459	0.576	0.571	**0.856**	0.697
ST2	0.483	0.764	0.491	0.409	0.565	0.529	**0.799**	0.640
ST3	0.568	0.656	0.626	0.533	0.645	0.600	**0.902**	0.655
ST4	0.425	0.389	0.736	0.642	0.540	0.559	**0.818**	0.480
ST5	0.426	0.413	0.747	0.621	0.578	0.522	**0.824**	0.497
ST6	0.538	0.552	0.680	0.564	0.589	0.575	**0.908**	0.681
LY1	0.475	0.415	0.435	0.331	0.408	0.461	0.596	**0.766**
LY2	0.505	0.473	0.491	0.414	0.518	0.542	0.651	**0.913**
LY3	0.493	0.461	0.492	0.398	0.495	0.512	0.630	**0.910**
LY4	0.272	0.344	0.417	0.424	0.399	0.428	0.488	**0.695**
LY5	0.453	0.441	0.555	0.452	0.547	0.550	0.633	**0.886**
LY6	0.385	0.387	0.522	0.418	0.434	0.509	0.587	**0.772**
LY7	0.417	0.454	0.522	0.416	0.498	0.509	0.617	**0.885**
LY8	0.444	0.434	0.468	0.440	0.500	0.507	0.617	**0.892**
LY9	0.479	0.392	0.521	0.442	0.479	0.450	0.589	**0.818**

The results indicate that items capturing the different constructs load high on their own construct but lower on the other constructs. Therefore, the analysis of cross-loadings indicates that the discriminant validity of the first stage of the measurement model is established.

The second criterion of evaluating discriminant validity is the Fornell-Larcker criterion. This criterion compares the square root of AVE values with the construct correlations. Specifically, the square root of each construct's AVE should be greater than its highest correlation with any other construct. The logic of this criterion is that a variable has more variance with its associated items than with any other variable.

The discriminant validity evaluations of the first stage of the measurement model using the Fornell-Larcker criterion is shown in Table 5.69.

The diagonal entries are the square root of each construct's AVE. The other entries are the correlations between the constructs. It is obvious that the square root of each construct's AVE is larger than its correlation with other constructs. Thus, the discriminant validity is established.

Table 5.69: Fornell-Larcker Criterion of First Stage of Measurement Model

	TC	AS	AF	CI	SS	IN	ST	LY
TC	**0.733**							
AS	0.526	**0.837**						
AF	0.565	0.506	**0.773**					
CI	0.351	0.354	0.654	**0.819**				
SS	0.499	0.516	0.614	0.682	**0.831**			
IN	0.465	0.394	0.565	0.596	0.681	**0.847**		
ST	0.610	0.642	0.756	0.630	0.684	0.657	**0.852**	
LY	0.522	0.504	0.586	0.493	0.568	0.592	0.717	**0.841**

To conclude, the convergent and discriminant validities of the first stage of the measurement model are both established. The results of the first stage of measurement model are shown in Figure 5.1.

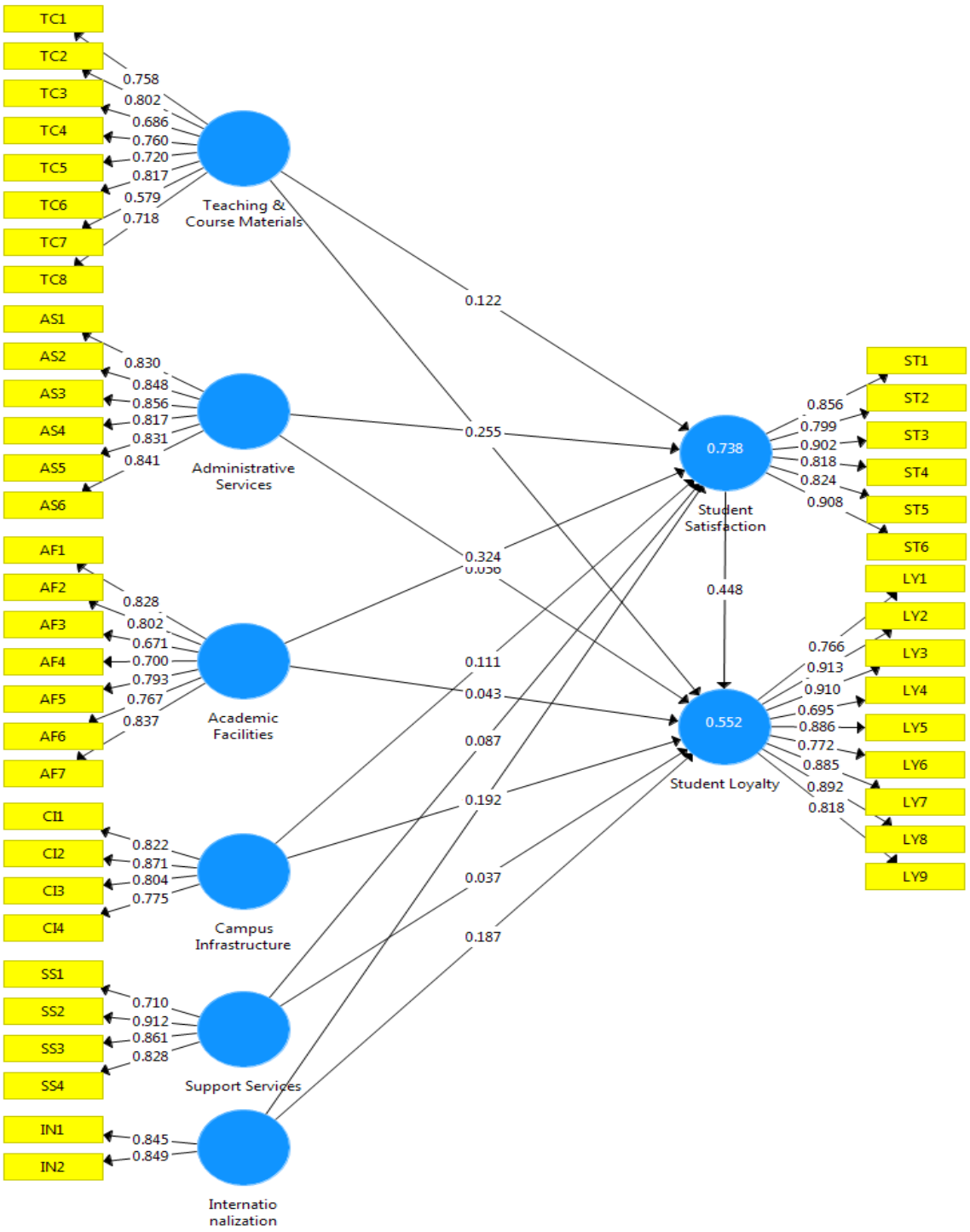

Figure 5.1: Results of First Stage of Measurement Model

Second Stage of Measurement Model

The scores of the lower-order components (LOCs), obtained previously, are used in the second stage as manifest variables in the higher-order component (HOC) measurement model.

Convergent validity, discriminant validity, collinearity, and item weights are used in the evaluation of the second stage of the measurement model as shown in the following pages.

Convergent Validity

The convergent validity evaluation of the second stage of the measurement model is shown in Table 5.70. The results show that all items that capture the different constructs have factor loadings according to the previously-mentioned criteria before the structural equation model is estimated.

In addition, the results indicate that each of the two reflective constructs (i.e. students' satisfaction and students' loyalty) has AVE that exceeds the minimum acceptable level of 0.50. Specifically, the two constructs of students' satisfaction and students' loyalty have AVE values of 0.726 and 0.706, respectively.

Finally, each of the two reflective constructs has a composite reliability (CR) that is more than the threshold of 0.70. Specifically, students' satisfaction has composite reliability of 0.941 and students' loyalty has composite reliability of 0.956.

Therefore, the convergent validity of the second stage of the measurement model is established according to the above three criteria.

Table 5.70: Convergent Validity of Second Stage of Measurement Model

Construct	Item	Loading	AVE	CR
Service quality	TC	0.726		
	AS	0.739		
	AF	0.860		
	CI	0.718		
	SS	0.802		
	IN	0.797		
Students' satisfaction	ST1	0.860	0.726	0.941
	ST2	0.805		
	ST3	0.904		
	ST4	0.811		
	ST5	0.817		
	ST6	0.909		
Students' loyalty	LY1	0.767	0.706	0.956
	LY2	0.913		
	LY3	0.910		
	LY4	0.694		
	LY5	0.886		
	LY6	0.772		
	LY7	0.885		
	LY8	0.891		
	LY9	0.817		

Discriminant Validity

The discriminant validity evaluation of the second stage of the measurement model using cross loadings is shown in Table 5.71.

Table 5.71: Cross Loadings of Second Stage of Measurement Model

Item	Service Quality	Students' Satisfaction	Students' Loyalty
TC	**0.726**	0.612	0.523
AS	**0.739**	0.646	0.505
AF	**0.860**	0.752	0.586
CI	**0.718**	0.626	0.493
SS	**0.802**	0.684	0.568
IN	**0.797**	0.657	0.592
ST1	0.802	**0.860**	0.698
ST2	0.720	**0.805**	0.641
ST3	0.711	**0.904**	0.655
ST4	0.781	**0.811**	0.480
ST5	0.706	**0.817**	0.497
ST6	0.707	**0.909**	0.681
LY1	0.550	0.600	**0.767**
LY2	0.633	0.655	**0.913**
LY3	0.615	0.634	**0.910**
LY4	0.488	0.489	**0.694**
LY5	0.645	0.636	**0.886**
LY6	0.580	0.587	**0.772**
LY7	0.611	0.621	**0.885**
LY8	0.595	0.620	**0.891**
LY9	0.588	0.590	**0.817**

The results indicate that items capturing different constructs load high on their own construct but lower on the others. Therefore, the analysis of cross loadings indicates that the discriminant validity of the second stage of the measurement model is established.

The discriminant validity evaluation of the second stage of the measurement model using the Fornell-Larcker criterion is shown in Table 5.72.

Table 5.72: Fornell-Larcker Criterion of Second Stage of Measurement Model

	1	2	3
1 Service quality	**Formative**		
2 Students' satisfaction	0.85	**0.85**	
3 Students' loyalty	0.70	0.72	**0.84**

The diagonal entries are the square root of each construct's AVE. The other entries are the correlations between the constructs. The results show that the square root of each construct's AVE is larger than its correlation with other constructs. Thus, the discriminant validity is established.

To conclude, the convergent validity and discriminant validity of the second stage of the measurement model are both established.

Collinearity Assessment

Formative measurement models need to be evaluated in terms of collinearity. Collinearity is normally evaluated using the variance inflation factor (VIF). In this regard, VIF is the extent to which the standard error inflated as a result of collinearity. In the PLS-SEM context, a VIF of 5 and above is a sign of potential collinearity (Hair et al., 2011).

The collinearity evaluation of the formative measure of the second stage of the measurement model using the VIF is shown in Table 5.73.

The results show that all of the items that capture higher education service quality (i.e. formative measure) have values of VIF that are well below 5. Therefore, it is concluded that there is no collinearity problem in the second stage of the measurement model.

Table 5.73: Collinearity Assessment of Formative Measure

Item	VIF	Result
	Service quality	
TC	1.759	Acceptable
AS	1.625	Acceptable
AF	2.417	Acceptable
CI	2.399	Acceptable
SS	2.764	Acceptable
IN	2.089	Acceptable

Item Weights

Item weights are used to examine if a dimension contributes to forming a given measure or not. Item weights of higher education service quality are evaluated as shown in Table 5.74.

Table 5.74: Item Weights of Higher Education Service Quality

	Original Sample	Sample Mean	Standard Deviation	T Statistic	P Value
TC → SQ	0.172	0.172	0.054	3.166	0.002
AS → SQ	0.279	0.278	0.054	5.132	0.000
AF → SQ	0.327	0.325	0.067	4.888	0.000
CI → SQ	0.100	0.099	0.066	1.511	0.131
SS → SQ	0.105	0.105	0.073	1.444	0.149
IN → SQ	0.291	0.289	0.062	4.662	0.000

The results indicate that the four HiEduQual dimensions of teaching and course materials, administrative services, academic facilities, and internationalization have significant weights at the 0.05 level. This means that these four dimensions contribute to

forming the construct of higher education service quality. On the other hand, campus infrastructure and support services do not have significant weights. Therefore, these two dimensions are not important in forming this construct.

The results of the second stage of the measurement model are shown in Figure 5.2.

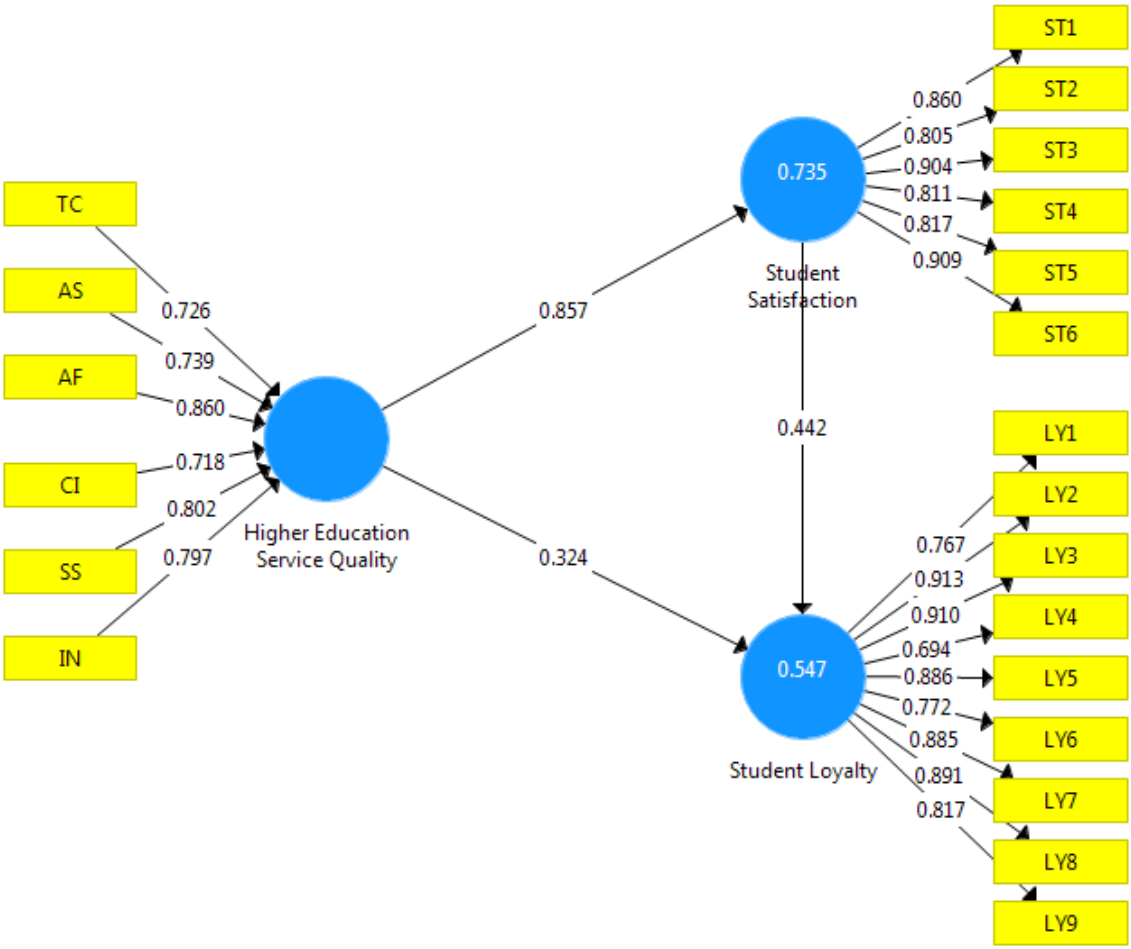

Figure 5.2: Results of Second Stage of Measurement Model

5.3.2 Testing Hypotheses

Having evaluated the measurement model, it is time to test the hypotheses that were previously developed using the PLS-SEM technique.

Recall that the hypotheses to be tested are:

H_1: Higher education service quality positively affects student satisfaction with higher education services in the West Bank, Palestine.

H_2: Higher education service quality positively affects student loyalty towards higher education institutions in the West Bank, Palestine.

H_3: Student satisfaction with higher education services in the West Bank, Palestine positively affects student loyalty.

To test each of the above hypotheses, the PLS-SEM is run by drawing 5,000 bootstrap samples. The output of the bootstrapping procedure is shown in Table 5.75.

Table 5.75: Path Analysis

Path	Std. Beta	Std. Error	T-Value	P-Value
Service quality → Students' satisfaction	0.857	0.016	52.743	0.000
Service quality → Students' loyalty	0.324	0.082	3.973	0.000
Students' satisfaction → Students' loyalty	0.443	0.084	5.254	0.000

The results of Table 5.75 indicate that the coefficient of the path between higher education service quality and students' satisfaction is 0.857. This coefficient is significant at the 0.05 level. In addition, the coefficient has a positive sign, meaning that higher education service quality positively affects students' satisfaction. Thus, the hypothesis that service quality of higher education services in the West Bank, Palestine positively affects students' satisfaction is accepted.

This conclusion is the same as those of many previous studies that confirmed the existence of direct positive impact of higher education service quality on students' satisfaction (e.g. Annamdevula & Bellamkonda, 2016; Banahene et al., 2018; Chandra

et al., 2018; Damaris et al., 2019; Faizan et al., 2016; Masserini et al., 2019; Mwiya et al., 2017; Suyanto et al., 2019).

Similarly, the coefficient of the path between higher education service quality and students' loyalty is 0.324. This positive coefficient is significant at the 0.001 level, indicating that higher education service quality has a direct positive effect on students' loyalty. Thus, the hypothesis that service quality of higher education in the West Bank, Palestine positively affects their loyalty is accepted.

This conclusion is in agreement with those of many previous studies including Masserini et al. (2019), Annamdevula and Bellamkonda (2016), and Dado et al. (2012) who all concluded that higher education service quality has a direct positive effect on students' loyalty.

Finally, the coefficient of the path between students' satisfaction and students' loyalty is 0.443. This coefficient is significant at the 0.001 level. Moreover, the coefficient has a positive sign, which means that students' satisfaction has a positive direct effect on students' loyalty. Thus, the hypothesis that students' satisfaction at higher education institutions in the West Bank, Palestine positively affects their loyalty is accepted.

This result is in accordance with the results of many empirical studies that concluded the existence of significant effect of student's satisfaction on their loyalty (e.g. Chandra et al., 2018; Dado et al., 2012; Faizan et al., 2016).

In order to test if there is an indirect effect of higher education service quality, through students' satisfaction, on their loyalty, the potential indirect effect is analyzed as shown in Table 5.76.

Table 5.76: Indirect Effect of Higher Education Service Quality

Path	Std. Beta	Std. Error	T-Value	P-Value
Service quality → Students' loyalty	0.379	0.082	5.284	0.000*

* Significant at $P \leq 0.001$.

The results of Table 5.76 indicate that higher education service quality has an indirect positive effect on students' loyalty ($\beta = 0.379, P \leq 0.001$) through students' satisfaction. This result is in line with those of Annamdevula and Bellamkonda (2016) and Dado et al. (2012).

The total effect of higher education service quality on students' loyalty is shown in Table 5.77. Results indicate that higher education service quality has a direct positive effect on students' satisfaction with a coefficient of 0.324 and an indirect positive effect, through students' satisfaction, with a coefficient of 0.379. Therefore, the total effect has a coefficient of 0.703.

Table 5.77: Total Effect of Higher Education Service Quality

Path	Direct Effect	Indirect Effect	Total Effect
Service quality → Students' loyalty	0.324	0.379	0.703

Summary of Hypotheses Testing

To summarize, all of the three hypotheses are accepted. The results of hypotheses testing are summarized in Table 5.78.

Table 5.78: Summary of Hypotheses Testing

Hypothesis	Path	Decision
H_1	Higher education service quality → Students' satisfaction	Accepted
H_2	Higher education service quality → Students' loyalty	Accepted
H_3	Students' satisfaction → Students' loyalty	Accepted

The results of the estimated partial least squares structural equation model (PLS-SEM) are summarized in Figure 5.3.

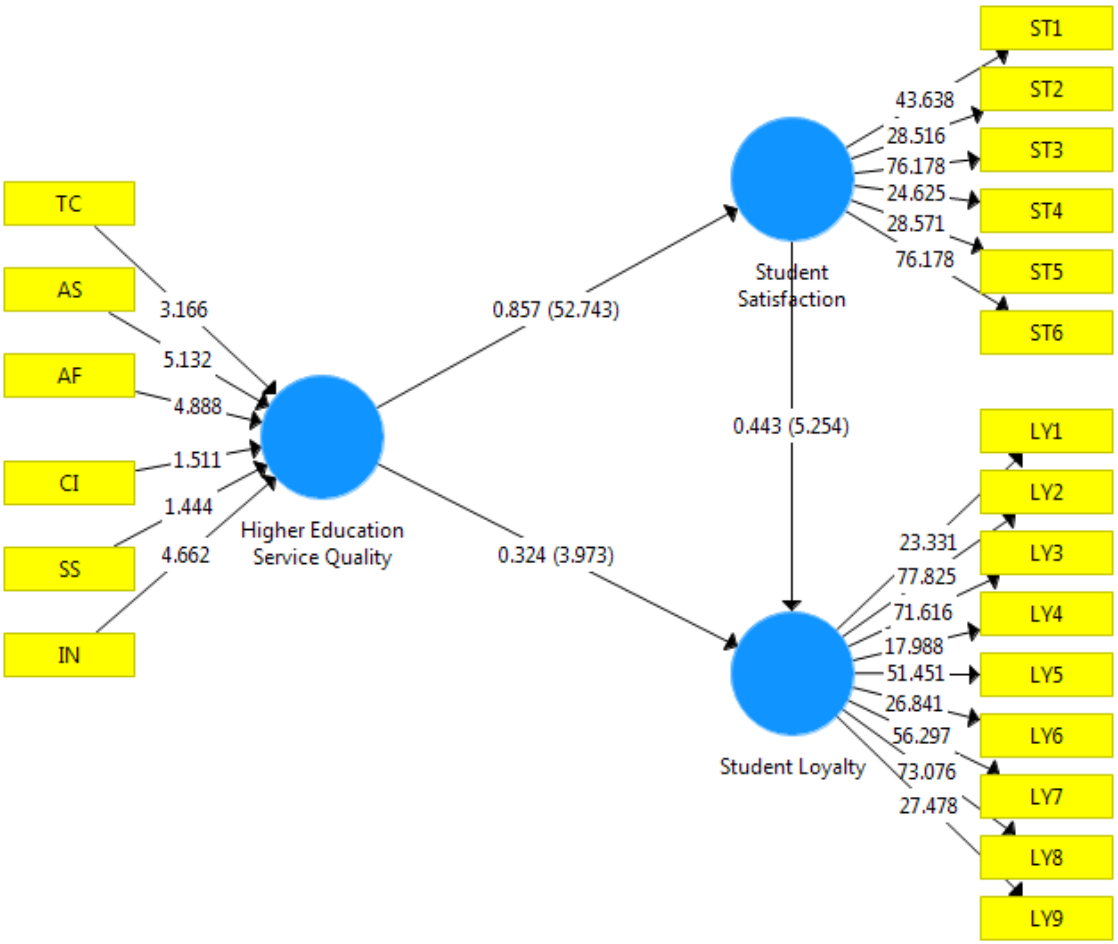

Figure 5.3: Results of Estimaled Structural Model

5.3.3 Evaluation of Structural Model

Having estimated the PLS-SEM, it is necessary now to evaluate the model that is already estimated. Typically, three main criteria are used in this context. These criteria are discussed in the following pages.

Coefficient of Determination (R^2)

The coefficient of determination (R^2) is a main criterion in the evaluation of the PLS-SEM. This coefficient measures the percentage of dependent variable variance that is explained by one or more independent variable (Hair et al., 2010).

The threshold of the coefficient of determination (R^2) depends on the research context (Hair et al., 2010). However, an R^2 value of 0.10 is suggested as a minimum level (Falk & Miller, 1992). According to Cohen (1988), R^2 values of dependent variables are assessed as follows: (1) substantial (0.26), (2) moderate (0.13), and (3) weak (0.02).

The R^2 for the dependent variables of the estimated PLS-SEM is shown in Table 5.79.

Table 5.79: R^2 Evaluation

Dependent Variable	R^2	Result
Students' satisfaction	0.735	Substantial
Students' loyalty	0.547	Substantial

Results of Table 5.79 indicate that students' satisfaction has an R^2 value of 0.735. This means that roughly 74% of the variation in students' satisfaction is explained by the independent variable (i.e. higher education service quality). This R^2 value is considered more than the minimum acceptable level according to Falk and Miller (1992) and substantial according to Cohen (1988).

Similarly, students' loyalty has an R^2 of 0.547, indicating that approximately 55% of the variance in students' loyalty is explained by the two independent variables (i.e. service

quality and students' satisfaction). This value of R^2 is also considered more than the minimum acceptable level according to Falk and Miller (1992) and substantial according to Cohen (1988).

Effect Size (f^2)

Another criterion used in the evaluation of the PLS-SEM is the effect size (f^2). It shows the relative effect of a particular independent variable on the dependent variable as a result of variations in the R^2 (Chin, 1998).

Effect size (f^2) values above 0.35, in the 0.15-0.35 range, in the 0.02-0.15 range, and below 0.02 are considered large, medium, small, and with no effect, respectively (Cohen, 1988).

The effect size (f^2) of the estimated PLS-SEM is shown in Table 5.80.

Table 5.80: f^2 Evaluation

Path	f^2	Result
Service quality → Students' satisfaction	2.769	Large
Service quality → Students' loyalty	0.062	Small
Students' satisfaction → Students' loyalty	0.115	Small

Results of Table 5.80 indicate that higher education service quality has a large effect size of 2.769 on students' satisfaction. Moreover, higher education service quality has a small effect size of 0.062 on students' loyalty. Finally, students' satisfaction has a small effect size of 0.115 on students' loyalty.

Predictive Relevance (Q^2)

In addition to evaluating R^2 and f^2, it is also necessary to evaluate the predictive capability of the estimated PLS-SEM. This is carried out using the predictive relevance (Q^2) test.

The predictive relevance (Q^2) is calculated using the cross-validated redundancy approach. A value of Q^2 above zero indicates that the model has predictive relevance. In contrast, a value below zero means that the model lacks predictive relevance (Fornell & Cha, 1994).

The predictive relevance (Q^2) of the estimated PLS-SEM using the cross-validated redundancy approach is shown in Table 5.81.

Table 5.81: Q^2 Evaluation

Dependent Variable	SSO	SSE	Q^2 (1–SSE/SSO)
Students' satisfaction	2,439.000	1,507.218	0.382
Students' loyalty	1,626.000	769.626	0.527

In Table 5.81, SSO is the sum of squared observations, SSE is the sum of squared errors, and (1–SSE/SSO) is the Q^2 value, which is used to evaluate the predictive relevance of the PLS-SEM. The results indicate that each of the dependent variables has Q^2 value above zero. More specifically, students' satisfaction has Q^2 value of 0.382 whereas students' loyalty has Q^2 value of 0.527. Since these Q^2 values exceed zero, the estimated PLS-SEM has predictive relevance.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Overview

In this chapter, the conclusions of the study are presented, the necessary recommendations are given, future research directions are discussed, and finally the limitations of the study are stated.

6.2 Conclusions

The key conclusions are summarized below:

1. The HiEduQual proved to be an excellent scale to assess the level of higher education service quality in the Palestinian context.
2. The overall quality of higher education services in the West Bank, Palestine ranges between 4.6±1 so that nearly 68.2% of higher education students perceive that this quality ranges between 3.6 (Somewhat Low) and 5.6 (High).
3. Academic facilities, teaching and course materials, and administrative services are the three dimensions with the highest levels of service quality among the six dimensions of higher education service quality. On the other hand, campus infrastructure, support services, and internationalization are the three dimensions with the lowest levels of quality.
4. The level of students' perceived higher education service quality in the West Bank, Palestine significantly varies due to gender, university type, and academic year.
5. The four dimensions of teaching and course materials, administrative services, academic facilities, and internationalization contribute to forming the construct of higher education service quality in the West Bank, Palestine. On the other hand,

the two dimensions of campus infrastructure and support services are not important in forming this construct.

6. The overall level of higher education students' satisfaction with the higher education services in the West Bank, Palestine ranges between 4.6±1.3 so that nearly 68.2% of higher education students have an overall level of satisfaction that ranges between 3.3 (Somewhat Low) and 5.9 (High).
7. The level of students' satisfaction with higher education services in the West Bank, Palestine significantly varies due to gender, university type, and academic discipline.
8. The overall level of students' loyalty towards their higher education institutions in the West Bank, Palestine ranges between 4.9±1.5 so that nearly 68.2% of higher education students have an overall level of loyalty towards their institutions that ranges between 3.4 (Somewhat Low) and 6.4 (Very High).
9. The level of students' loyalty towards their higher education institutions in the West Bank, Palestine significantly varies due to university type.
10. Higher education service quality in the West Bank, Palestine positively affects students' satisfaction.
11. Higher education service quality in the West Bank, Palestine positively affects, directly and indirect via customer satisfaction, students' loyalty.
12. Students' satisfaction at higher education institutions in the West Bank, Palestine positively affects their loyalty.

6.3 Recommendations

On the basis of the above conclusions, the following recommendations are given:

1. Higher education institutions in the West Bank, Palestine should periodically measure the quality level of the services they provide because unless these services are measured, no improvements can be made.
2. Higher education institutions should put more and more efforts on improving campus infrastructure, including sports and recreation facilities, hostel facilities, and safety and security measures, since this dimension is one of the three dimensions with the lowest levels of quality.
3. Higher education institutions in the West Bank, Palestine should focus on improving support services, including amenities (e.g. book stores, cafeterias, ATMs, and parking services), extracurricular services, counselling services, as well as medical services, since this dimension is one of the three dimensions with the lowest levels of quality.
4. Higher education institutions in the West Bank, Palestine should improve aspects related to the internationalization dimension by cooperating with their counterparts in the rest of the world to carry out more international activities (e.g. partnerships and fellowships) and bring foreign lecturers.
5. Public higher education institutions should exert more and more efforts to improve the quality of their services since students joining these institutions have a lower level of perceived service quality as compared to students joining private higher education institutions.
6. Since the results indicate that students joining public universities have a lower level of perceived service quality than that of students joining private universities, public universities should take more and more measures to improve their services.

7. The government should financially support higher education institutions in the West Bank, Palestine so that they can invest more and more in improving the quality of different dimensions of higher education services.

6.4 Future Research Directions

Future researchers are recommended to assess the quality of higher education services from viewpoints of stakeholders other than the students (e.g. employers). In addition, future researchers are encouraged to examine the different relationships among service quality, students' motivation to study, and academic performance.

6.5 Limitations of Study

The following limitations to the study are worth mentioning:

1. The findings of the study depend on the views of a convenient random sample of Master's students in the West Bank, Palestine. Therefore, special attention should be given to generalizability of the results.
2. Due to declaring the emergency state in Palestine because of Coronavirus pandemic, the researcher was able to have 271 observations instead of the required sample size of 369 observations. However, this sample size is statistically more than enough to carry out structural equation modelling (SEM).
3. Only one physical education student and one Sharia student participated in the study by responding to the questionnaire of the study. Therefore, special attention should be given when generalizing the results of the study to these two academic disciplines.

REFERENCES

Abdullah, F. (2006), The Development of HEdPERF: A New Measuring Instrument of Service Quality for the Higher Education Sector, International Journal of Consumer Studies, 30(6), 569–581.

Abili, K., Thani, F., & Afarinandehbin, M. (2012), Measuring University Service Quality by Means of SERVQUAL Method, Asian Journal on Quality, 13, 204–211.

Abu Hasan, H., & Ilias, A. (2008), Service Quality and Student Satisfaction: A Case Study at Private Higher Education Institutions, International Business Research, 1(3), 163–175.

Afridi, S., Khattak, A., & Khan, A. (2016), Measurement of Service Quality Gap in the Selected Private Universities/Institutes of Peshawar Using SERVQUAL Model, City University Research Journal, 6(1), 61–69.

Ahmed, I., Nawaz, M., Ahmad, Z., Ahmad, Z., Shaukat, M., Usman, A., & Ahmed, N. (2010), Does Service Quality Affect Students Performance? Evidence from Institutes of Higher Learning, African Journal of Business Management, 4(12), 2527–2533.

Alexandris, K., Dimitriadis, N., & Markate, D. (2002), Can Perceptions of Service Quality Predict Behavioral Intentions? An Exploratory Study in the Hotel Sector in Greece, Managing Service Quality, 12(4), 224–231.

Ali, F., Kim, W., Li, J., & Jeon, H. (2016), Make It Delightful: Customers' Experience, Satisfaction and Loyalty in Malaysian Theme Parks, Journal of Destination Marketing and Management.

Alves, H., & Raposo, M. (2007), Conceptual Model of Student Satisfaction in Higher Education, Total Quality Management and Business Excellence, 18(5), 571–588.

Alves, H., & Raposo, M. (2007). Conceptual Model of Student Satisfaction in Higher Education, Total Quality Management, 18(5), 571–588.

Alves, H., & Raposo, M. (2010), The Influence of University Image on Student Behavior, International Journal of Educational Management, 24(1), 73–85.

Anderson, C., & Zeithaml, C. (1984), Stage of the Product Life Cycle, Business Strategy, and Business Performance, Academy of Management Journal, 27, 5–24.

Angell, R., Heffernan, T., & Megicks, P. (2008), Service Quality in Postgraduate Education, Quality Assurance in Education, 16(3), 236–254.

Annamdevula, S., & Bellamkonda, R. (2016), Effect of Student Perceived Service Quality on Student Satisfaction, Loyalty and Motivation in Indian University, Journal of Service Management, 11(2), 488–517.

Annamdevula, S., & Bellamkonda, R. (2014), HiEduQual: An Instrument for Measuring the Critical Factors of Students' Perceived Service Quality, Management Science and Engineering, 8(2), 103–109.

Annamdevula, S., & Bellamkonda, R. (2016), The Effects of Service Quality on Student Loyalty: The Mediating Role of Student Satisfaction, Journal of Service Management, 11(2), 446–462.

Baidoo, F., Oduro-Awuakye, G., & Oduro-Okyere, T. (2015), Influence of Service Quality Delivery in the SMES of the Motor Vehicle Repair Service Industry in Ghana, Africa Journal of Applied Research, 1(1), 240–452.

Banahene, S., Kraa1, J., & Kasu, P. (2018), Impact of HEdPERF on Students' Satisfaction and Academic Performance in Ghanaian Universities: Mediating Role of Attitude towards Learning, Open Journal of Social Sciences, 6, 96–119.

Barclay, D., Higgins, C., & Thompson, R. (1995), The Partial Least Squares Approach to Causal Modeling: Personal Computer Adoption and Use as Illustration, Technology Studies, 2, 285–309.

Becker, J., Klein, K, & Wetzels, M. (2012), Hierarchical Latent Variable Models in PLS-SEM: Guidelines for Using Reflective-Formative Type Models, Long-range Planning, 45, 359–394.

Bennett, R. (2003), Determinants of Undergraduate Student Drop Out Rates in a University Business Studies Department, Journal of Further and Higher Education, 27(2), 123–141.

Bergamo, F., Giuliani, A., Camargo, S., Zambaldi, F., & Ponchio, M. (2012), Student Loyalty Based on Relationship Quality: An Analysis on Higher Education Institutions, Brazilian Business Review, 9(2), 26–46.

Bloemer, J. & Ruyter, K. (1998), On the Relationship between Store Image, Store Satisfaction and Store Loyalty, European Journal of Marketing, 32(5), 499–513.

Bowden, J. (2011), Engaging the Student as a Customer: A Relationship Marketing Approach, Marketing Education Review, 21(3), 211–228.

Brady, M., & Cronin, J. (2001), Some New Thoughts on Conceptualizing Perceived Service Quality: A Hierarchical Approach, Journal of Marketing, 65(3), 34–49.

Brady, M., Cronin, J., & Brand, R. (2002), Performance-Only Measurement of Service Quality: A Replication and Extension, Journal of Business Research, 55, 27–31.

Brown, R., & Mazzarol, T. (2009), The Importance of Institutional Image to Student Satisfaction and Loyalty within Higher Education, Higher Education, 57(1), 81–95.

Butt, B., & Rehman, K. (2010), A Study Examining the Student Satisfaction in Higher Education, Procedia Social and Behavioral Science, 2, 5446–5450.

Buttle, F. (1996), SERVQUAL: Review, Critique, Research Agenda, European Journal of Marketing, 30, 8–32.

Calvo-Porral, C., Lévy-Mangin, J., & Novo-Corti, I. (2013), Perceived Quality in Higher Education: An Empirical Study, Marketing Intelligence and Planning, 31(6), 601–619.

Calvo-Porral, C., Lévy-Mangin, J., & Novo-Corti, I. (2013), Perceived Quality in Higher Education: An Empirical Study, Marketing Intelligence and Planning, 31(6), 601–619.

Cardona, M., & Bravo, J. (2012), Service Quality Perceptions in Higher Education Institutions: The Case of a Colombian University, Estudios Gerenciales, 28, 23–29.

Carrillat, F., Jaramillo, F. & Mulki, J. (2007), The Validity of the SERVQUAL and SERVPERF Scales: A Meta-Analytic View of 17 Years of Research across Five Continents, International Journal of Service Industry Management, 18(5), 472–490.

Carter, P. (2014), A Case Study of Student Satisfaction, Kyushu Sangyo University.

Caruana, A. (2002), Service Loyalty: The Effects of Service Quality and the Mediating Role of Customer Satisfaction, European Journal of Marketing, 36(7), 811–828.

Carvalho, S. & Mota, M. (2010), The Role of Trust in Creating Value and Student Loyalty in Relational Exchanges between Higher Education Institutions and Their Students, Journal of Marketing for Higher Education, 20(1), 145–165.

Chandra, T., Martha, N., Chandra, S., & Priyono, P. (2018), The Effect of Service Quality on Student Satisfaction and Student Loyalty: An Empirical Study, Journal of Social Studies Education Research, 9(3), 109–131.

Chandra, T., Ng, M., Chandra, S., & Priyono, B. (2018), The Effect of Service Quality on Student Satisfaction and Student Loyalty: An Empirical Study, Journal of Social Studies Education Research, 9(3), 109–131.

Chen, J., & Aritejo, B. (2008), Service Quality and Customer Satisfaction Measurement of Mobile Value-Added Services: A Conceptual Review, International Journal of Mobile Communications, 6(2), 165–176.

Chen, Y. (2016), An Empirical Study on the Student Experience of Higher Education Service Quality in Taiwan, International Journal of Management Sciences, 6(12), 582–594.

Chong, Y., & Ahmed, P. (2012), An Empirical Investigation of Students' Motivational Impact upon University Service Quality Perception: A Self-Determination Perspective, Quality in Higher Education, 18(1), 37–41.

Chua, C. (2004), Perception of Quality in Higher Education, Proceedings of the Australian Universities Quality Forum, Toronto, Canada.

Clemes, M., Cohen, D., & Wang, Y. (2013), Understanding Chinese University Students' Experiences: An Empirical Analysis, Asia Pacific Journal of Marketing and Logistics, 25(3), 391–427.

Clewes, D. (2003), A Student-Centered Conceptual Model of Service Quality in Higher Education, Quality in Higher Education, 9(1), 69–85.

Covington, M. (2000), Goal Theory, Motivation and School Achievement: An integrative Review, Annual Review of Psychology, 51(1), 171–200.

Cronin, J. & Taylor, S. (1992), Measuring Service Quality: A Reexamination and Extension, Journal of Marketing, 56(3), 55–68.

Cronin, J., & Taylor, S. (1992), Measuring Service Quality: A Reexamination and Extension, Journal of Marketing, 56(3), 55–88.

Cuthbert, P. (1996), Managing Service Quality in HE: Is SERVQUAL the Answer? Part 1, Managing Service Quality, 6(2), 11–16.

Dabholkar, P. (1995), A Contingency Framework for Predicting Causality between Customer Satisfaction and Service Quality, Advances in Consumer Research, 22, 101–108.

Dabholkar, P., Shepherd, C. & Thrope, D. (2000), A Comprehensive Framework for Service Quality: An Investigation of Critical Conceptual and Measurement Issues through a Longitudinal Study, Journal of Retailing, 76(2), 131–139.

Dado, J., Taborecka-Petrovicova, J., Cuzovic, S., & Rajic, T. (2012), An Empirical Examination of the Relationships between Service quality, Satisfaction and Behavioral Intentions in Higher Education Setting, Serbian Journal of Management, 7(2), 203–218.

Damaris, A., Surip, N., & Setyadi, A. (2019), Analysis Service on Student Satisfaction with Motivation as Moderating Variable, International Journal of Economics and Business Administration, 7(2), 118–130.

Dericks, G., Thompson, E., Roberts, M., & Phua, F. (2019), Determinants of PhD Student Satisfaction: The Roles of Supervisor, Department, and Peer Qualities, Assessment and Evaluation in Higher Education, 44(7), 1053–1068.

Dib, H., & Mokhles, A. (2013), The Impact of Service Quality on Student Satisfaction and Behavioral Consequences in Higher Education Services, International Journal of Economy, Management, and Social Sciences, 2(6), 285–290.

Eccles, J. & Wigfield, A. (2002), Motivational Beliefs, Values, and Goals, Annual Review Psychology, 53(1), 109–132.

Elliott, K., & Healy, M. (2001), Key Factors Influencing Student Satisfaction Related to Recruitment and Retention, Journal of Marketing for Higher Education, 1–11.

Eshghi, A., Roy, S., & Ganguli, S. (2008), Service Quality and Customer Satisfaction: An Empirical Investigation in Indian Mobile Telecommunications Services, The Marketing Management Journal, 18, 119–144.

Faizan, A., Yuan, Z., Kashif, H., & Pradeep, K. (2016), Does Higher Education Service Quality Affect Student Satisfaction, Image and Loyalty? A Study of International Students in Malaysian Public Universities, Quality Assurance in Education, 24(1), 70–94.

Fernandes, C., Ross, K., Meraj, M. (2013), Understanding Student Satisfaction and Loyalty in the UAE HE Sector, International Journal of Educational Management, 27, 613–630.

Galbraith, M. (1990), Attributes and Skills of an Adult Educator, Krieger Publishing Company.

Gounaris, S., Stathakopoulos, V., & Athanassopoulos, A. (2003), Antecedents to Perceived Service Quality: An Exploratory Study in the Banking Industry, The International Journal of Bank Marketing, 21(4/5), 168–190.

Gronholdt, L., Martensen, A. & Kristensen, K. (2000), The Relationship between Customer Satisfaction and Loyalty: Cross-Industry Differences, Total Quality Management, 11(4), 509–514.

Gronroos, C. (1983), Strategic Management and Marketing in the Service Sector, Marketing Science Institute.

Gruber, T., Fub, S., Voss, R., & Gläser-Zikuda, M. (2010), Examining Student Satisfaction with Higher Education Services: Using a New Measurement Tool, International Journal of Public Sector Management, 23(2), 105–123.

Gulid, N. (2011), Student Loyalty toward Master's Degree Business Administration Curriculum at Srinakharinwirot University, American Journal of Business Education, 4(8), 49–56.

Hair, J., Hult, G., Ringle, C., & Sarstedt, M. (2017), A Primer on Partial Least Squares Structural Equation Modeling, 2nd Edition, Thousand Oaks: Sage.

Hanaysha, J., Abdullah, H., & Warokka, A. (2011), Service Quality and Students' Satisfaction at Higher Learning Institutions: The Competing Dimensions of Malaysian Universities' Competitiveness, Journal of Southeast Asian Research, 1–10.

Hanssen, T., & Solvoll, G. (2015), The Importance of University Facilities for Student Satisfaction at a Norwegian University, Facilities, 33(13/14), 744–759.

Harvey, L. & Williams, J. (2010), Fifteen Years of Quality in Higher Education, Quality in Higher Education, 16(1), 3–36.

Helgesen, O. & Nesset, N. (2007), Images, Satisfaction and Antecedents: Drivers of Student Loyalty? A Case Study of a Norwegian University College, Corporate Reputation Review, 10(1), 38–59.

Helgesen, O. (2006), Are Loyal Customers Profitable? Customer Satisfaction, Customer Loyalty and Customer Profitability at the Individual Level, Journal of Marketing Management, 22, 245–266.

Helgesen, O., & Nesset, E. (2007), Images, Satisfaction, and Antecedents: Drivers of Student Loyalty: A Case Study of a Norwegian University College, Corporate Reputation Review, 10(1), 38–59.

Hennig-Thurau, T., Langer, M. & Hansen, U. (2001), Modeling and Managing Student Loyalty: An Approach Based on the Concept of Relationship Quality, Journal of Service Research, 3(4), 331–344.

Hennig-Thurau, T., Langer, M., & Hansen, U. (2001), Modeling and Managing Student Loyalty: An Approach Based on the Concept of Relationship Quality, Journal of Service Research, 3(331).

Hon, W. (2002), Applying Customer Satisfaction Theory to Community College Planning of Student Services, Insight in Student Services, 2, 1–15.

Huili, Y. & Jing, Y. (2012), Empirical Research and Model Building about Customer Satisfaction Index on Postgraduate Education Service Quality, Canadian Social Science, 8(1), 108–111.

Icli, G., & Anil, N. (2014), The HEDQUAL Scale: A New Measurement Scale of Service Quality for MBA Programs in Higher Education, South African Journal of Business Management, 45, 31–43.

Ilyas, M., & Arif, S. (2013), Quality of Work-Life Model for Teachers of Private Universities, Quality Assurance in Education, 282–298.

Jiewanto, A., Laurens, C., & Nelloh, L. (2012), Influence of Service Quality, University Image, and Student Satisfaction toward WOM Intention: A Case Study on Universitas Pelita Harapan Surabaya, Procedia - Social and Behavioral Sciences, 40(1), 16–23.

Khan, M., Ahmed, I., & Nawaz, M. (2011), Students' Perspective of Service Quality in Higher Learning Institutions: An Evidence Based Approach, International Journal of Business and Social Science, 2(11), 159–164.

Khodayari, F., & Khodayari, B. (2011), Service Quality in Higher Education, Interdisciplinary Journal of Research in Business, 1, 38–46.

Khoo, S., Ha, H., & McGregor, S. (2015), Service Quality and Student/Customer Satisfaction in the Private Tertiary Education Sector in Singapore, Journal of Service Management, 26(2), 430–444.

Kline, R. (2005), Principles and Practice of Structural Equation Modeling, 2nd Edition, Guilford, New York.

Koni, A., Zainal, K., & Ibrahim, M. (2013), An Assessment of the Services Quality of Palestine Higher Education, International Education Studies, 6(2), 33–48.

Kotler, P., & Amstrong, G. (2006), Principles of Marketing, 11th Edition, New Jersey, Pearson Prentice Hall.

Kotler, P., & Keller, K. (2012), Marketing Management, NJ: Prentice Hall.

Kusumandari, R. (2006), Factors That Affect Postgraduate Student Satisfaction at Muhammadiyah University, Surakarta, Master Thesis in Management, Postgraduate Program, Muhammadiyah University, Surakarta, Indonesia.

Ladhari, R. (2009), A Review of Twenty Years of SERVQUAL Research, International Journal of Quality and Service Sciences, 1(2), 172–198.

Lagrossen, S., Seyyed-Hashemi, R., & Leitner, M. (2004), Examination of the Dimensions of Quality in Higher Education, Quality Assurance in Education, 12(2), 61–69.

Landrum, H., Prybutok, V., & Zhang, X. (2007), A Comparison of Magal's Service Quality Instrument with SERPERF, Information and Management, 14(1), 104–113.

Lee, H., Lee, Y., & Yoo, D. (2000), The Determinants of Perceived Service Quality and Its Relationship with Satisfaction, Journal of Services Marketing, 14, 217–231.

Lehtinen, U. & Lehtinen, J. (1982), Service Quality: A study of Quality Dimensions, Service Management Institute, 5, 25-32.

Liang, X., & Zhang, S. (2009), Investigation of Customer Satisfaction with Student Food Service: An Example of Student Cafeteria in NHH, International Journal of Quality and Service Sciences, 1(1), 113–124.

Lim, P. & Tang, N. (2000), A Study of Patients' Expectations and Satisfaction in Singapore Hospitals, International Journal of Health Care Quality Assurance, 13, 290–299.

Lim, P., & Tang, N. (2000), A Study of Patients' Expectations and Satisfaction in Singapore Hospitals, International Journal of Health Care Quality Assurance, 13, 290–299.

Lin, C. & Tsai, Y. (2008), Modelling Educational Quality and Student Loyalty: A Quantitative Approach Based on the Theory of Information Cascades, Quality and Quantity, 42, 397–415.

Lovelock, C. & Wright, L. (2002), Principles of Service Marketing and Management, New Jersey: Prentice Hall.

Mahapatra, S. & Khan, M. (2007), A Framework for Analyzing Quality in Education Settings, European Journal of Engineering Education, 32(2), 205–217.

Mai, L. (2005), A Comparative Study between UK and US: The Student Satisfaction in Higher Education and its Influential Factors, Journal of Marketing Management, 21, 859–878.

Malik, M., Danish, R., & Usman, A. (2010), The Impact of Service Quality on Students' Satisfaction in Higher Education Institutes of Punjab, Journal of Management Research, 2(2), 1–11.

Mansori, S., Vaz, A., & Ismail, Z. (2014), Service Quality, Satisfaction and Student Loyalty in Malaysian Private Education, Asian Social Science, 10(7), 57–66.

Mansori, S., Vaz, A., & Ismail, Z. (2014), Service Quality, Satisfaction and Student Loyalty in Malaysian Private Education, Asian Social Science, 10(7), 57–66.

Marzo-Navarro, M., Pedraja-Iglesias, M., & Rivera-Torres, M. (2005), A New Management Element for Universities: Satisfaction with the Courses Offered, International Journal of Educational Management, 19(6), 505–526.

Masserini, L., Bini, M., & Pratesi, M. (2019), Do Quality of Services and Institutional Image Impact Students' Satisfaction and Loyalty in Higher Education? Social Indicators Research, 146, 91–115.

Mazumder, Q. (2014), Analysis of Quality in Public and Private Universities in Bangladesh and USA, International Journal of Evaluation and Research in Education, 3(2), 99–108.

Mendez, J., Vasquez-Parraga, A., Kara, A., & Cerda-Urrutia, A. (2009), Determinants of Student Loyalty in Higher Education: A Tested Relationship Approach in Latin America, Latin American Business Review, 10, 21–39.

Meyer, D. & Turner, J. (2006), Re-conceptualizing Emotion and Motivation to Learn in Classroom Contexts, Educational Psychology Review, 18(4), 377–390.

Ministry of Education and Higher Education (2018), Higher Education Statistical Yearbook, Ramallah, Palestine

Moore, D. & Bowden-Everson, J. (2012), An Appealing Connection: The Role of Relationship Marketing in the Attraction and Retention of Students in an Australian Tertiary Context, Asian Social Science, 8(4), 65–80.

Mosahab, R., Mahamad, O. & Ramayah, T. (2010), Service Quality, Customer Satisfaction and Loyalty: A Test of Mediation, International Business Research, 3(4), 72–80.

Muhammed, E., Rizwan, Q., & Ali, U. (2010), The Impact of Service Quality on Student's Satisfaction in Higher Education Institutes of Punjab, Journal of Management Research, 2(2), 1–11.

Mukhtar, U., Anwar, S., Ahmed, U., & Baloch, M. (2015), Factors Affecting the Service Quality of Public and Private Sector Universities Comparatively: An Empirical Investigation, Arts, Science and Commerce, 132–142.

Mwiya, B., Bwalya, J., Siachinji, B., Sikombe, S., Chanda, H., Chawala, M. (2017), Higher Education Quality and Student Satisfaction Nexus: Evidence from Zambia, Creative Education, 8, 1044–1068.

Navarro, M., Iglesias, M., & Torres, P. (2005), A New Management Element for Universities: Satisfaction with the Offered Courses, International Journal of Educational Management, 19(6), 505–526.

Nek Kamal, Y., Azman, I., Zubrina, R., & Salomawati, I. (2010), Service Quality Dimensions, Perceived Value and Customer Satisfaction: ABC Relationship Model Testing, International Business Education Journal, 2(1), 1–18.

Nesset, E. & Helgesen, O (2009), Modelling and Managing Student Loyalty: A Study of a Norwegian University College, Scandinavian Journal of Educational Research, 53(4), 327–345.

Nuamah, P. (2017), International Students' Satisfaction: Assessing the Determinants of Satisfaction, Higher Education for the Future, 4(1), 44–59.

O'Neill, M. & Palmer, A. (2004), Importance-Performance Analysis: A Useful Tool for Directing Continuous Quality Improvement in Higher Education, Quality Assurance in Education, 12(1), 39–52.

Oldfield, B. & Baron, S. (2000), Student Perceptions of Service Quality in a UK University Business and Management Faculty, Quality Assurance in Education, 8(2), 85–95.

Oliveira, O. and Ferreira, E. (2009), Adaptation and Application of the SERVQUAL Scale in Higher Education, POMS 20th Annual Conference, Orlando, FL.

Oliver, R. (1999), Whence Consumer Loyalty? Journal of Marketing, 63, 33–44.

Oliver, R. (1999), Whence Consumer Loyalty? Journal of Marketing, 63, 33–44.

Orozco, C., & Cavazos, J. (2017), Students' Loyalty in Higher Education: The Roles of Affective Commitment, Service Co-creation and Engagement, Journal of Management, 33(57), 96–110.

Parasuraman, A., Zeithaml, V., & Berry, L. (1988), SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality, Journal of Retailing, 64(1), 12–40.

Pariseau, S. & McDaniel, J. (1997), Assessing Service Quality in Schools of Business, International Journal of Quality and Reliability Management, 14(3), 204–218.

Peng, P. & Samah, A. (2006), Measuring Students' Satisfaction for Quality Education in an E-Learning University, Unitar E-Journal, 2(1), 11–21.

Petruzzellis, L., D'Uggento, A., & Romanazzi, S. (2006), Student Satisfaction and Quality of Service in Italian Universities, Managing Service Quality, 349–364.

Psomas, E., Psomas, E., Antony, J., & Antony, J. (2017), Total Quality Management Elements and Results in Higher Education Institutions: The Greek Case, Quality Assurance in Education, 25(2), 206–223.

Psomas, E., Psomas, E., Antony, J., & Antony, J. (2017), Total Quality Management Elements and Results in Higher Education Institutions: The Greek Case, Quality Assurance in Education, 25(2), 206-223.

Quinn, A., Lemay, G., Larsen, P., & Johnson, D. (2009), Service Quality in Higher Education, Total Quality Management, 20(2), 139–152.

Rad, A., & Yarmohammadian, M. (2006), A Study of Relationship between Managers' Leadership Style and Employees' Job Satisfaction, Leadership in Health Services, 11–26.

Randheer, K. (2015), Service Quality Performance Scale in Higher Education: Culture as a New Dimension, International Business Research, 8(3), 29–41.

Reichheld, F. (2003), The One Number You Need to Grow, Harvard Business Review 81(12), 46–54.

Ringle, C., Sarstedt, M., & Straub, D. (2012), Editor's Comments: A Critical Look at the Use of PLS-SEM in MIS Quarterly, MIS Quarterly, 36, 13–14.

Rohini, R., & Mahadevappa, B. (2006), Service Quality in Bangalore Hospitals: An Empirical Study, Journal of Services Research, 6(1), 59–85.

Rowley, J. (1996), Measuring Quality in Higher Education, Quality in Higher Education, 2(3), 237–255.

Ryan, M., & Deci, E. (2000), Intrinsic and Extrinsic Motivation: Classic Definitions and New Directions, Contemporary Educational Psychology, 25, 54–67.

Saadati, S. (2012), The Measurement Education Services Quality Payam Noor University of Garmsar Using of SERVQUAL Model, Journal of Basic and Applied Scientific Research, 2, 6337–6343.

Saif, N. (2014), The Effect of Service Quality on Student Satisfaction: A Field Study for Health Services Administration Students, International Journal of Humanities and Social Science, 172–181.

Schee, B. (2011), Students as Consumers: Programming for Brand Loyalty, Services Marketing Quarterly, 32, 32–43.

Sekaran, U., & Bougie, R. (2016), Research Methods for Business, A Skill Building Approach, 7th Edition, John Wiley & Son, Inc.

Senthilkumar, N. & Arulraj, A. (2011), SQM-HEI: Determination of Service Quality Measurement of Higher Education in India, Journal of Modeling in Management, 6(1), 60–78.

Shan, L., Li, Y., Ding, D., Wu, Q., Liu, C., & Jiao, M. (2016), Patient Satisfaction with Hospital Inpatient Care: Effects of Trust, Medical Insurance, and Perceived Quality of Care, Plos One, 11(10), 1–18.

Silva, D., Moraes, G., Makiya, I., & Cesar, F. (2017), Measurement of Perceived Service Quality in Higher Education Institutions: A Review of HEdPERF Scale Use, Quality Assurance in Education, 25, 415–439.

Sultan, P. & Wong, H. (2012), Antecedents and Consequences of Service Quality in a Higher Education Context: A Qualitative Research Approach, Quality Assurance in Education, 21(1), 70–95.

Suyanto, M., Usu, I., & Moodoeto, M., The Role of Service Quality on Building Student Satisfaction, American Journal of Economics, 9(1), 17–20.

Teeroovengadum, V., Kamalanabhan, T., & Seebaluck, A. (2016), Measuring Service Quality in Higher Education: Development of a Hierarchical Model (HESQUAL), Quality Assurance in Education, 24(2), 244–258.

Teeroovengadum, V., Nunkoo, R., Gronroos, C., Kamalanabhan, T., & Seebaluck, A. (2019), Higher Education Service Quality, Student Satisfaction and Loyalty: Validating the HESQUAL Scale and Testing an Improved Structural Model, Quality Assurance in Education, 27(4), 427–445.

Telford, R. & Masson, R. (2005), The Congruence of Quality Values in Higher Education, Quality Assurance in Education, 13(2), 107–119.

Thomas J., Page, J., & Spreng, R. (2002), Difference Scores versus Direct Effect in Service Quality Measurement, Journal of Service Research, 4, 184–192.

Thomas, (2011), What Drives Student Loyalty in Universities? An Empirical Model from India, International Business Research, 4(2), 183–192.

Thompson, S. (2012), Sampling, 3rd Edition, John Wiley & Son, Inc.

Trivellas, P. & Dargenidou, D. (2009), Organizational Culture, Job Satisfaction and Higher Education Service Quality: The Case of Technological Educational Institute of Larissa, The TQM Journal, 21(4), 382–399.

Tsuji, Y., Bennett, G. & Zhang, J. (2007), Consumer Satisfaction with an Action Sports Event, Journal Sport Marketing Quarterly, 16(4), 199–208.

Twaissi, N., & Al-Kilani, M. (2015), The Impact of Perceived Service Quality on Students Intentions in Higher Education in a Jordanian Government University, International Business Research, 8, 81–92.

Ueda, Y. & Nojima, M. (2012), Effect of Student Attitudes on University Loyalty and University Cooperation: An Empirical Study in Japan, International Journal of Management, 29(1), 133–142.

Viraiyan, T., Kamalanabhan T., & Keshwar, S. (2016), An Analysis of Higher Education Service Quality in Mauritius Using HESQUAL, International Journal of Business Research, 16(2), 89–104.

Webb, D., & Jagun, A. (1997), Customer Care, Customer Satisfaction, Value, Loyalty and Complaining Behavior: Validation in a UK University Setting, Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior, 1, 139–151.

Weerasinghe, I., & Fernando, R. (2018), Critical Factors Affecting Students' Satisfaction with Higher Education in Sri Lanka, Quality Assurance in Education, 26(1), 115–130.

Wilkins, S., & Balakrishnan, M. (2013), Assessing Student Satisfaction in Transnational Higher Education, International Journal of Educational Management, 27(2), 143–156.

Yaghmaie, F., Mahfouzpour, S., Alavi Majd, H., & Jafarian, B (2007), Development and Measuring Psychometric Properties of "Clients Satisfaction Questionnaire" of Community Health Centers, Pejouhandeh Quarterly Research Journal, 12(5), 447–452.

Yavas, U., Benkenstein, M. & Stuhldreier, U. (2004), Relationships between Service Quality and Behavioral Outcomes, The International Journal of Bank Marketing, 22(2), 144–157.

Yoon, S., Suh, H. (2004), Ensuring IT Consulting SERVQUAL and User Satisfaction: A Modified Measurement Tool, Information Systems Frontiers, 6(4), 341–351.

Yunus, N., Ishak, S. & Razak, A. (2010), Motivation, Empowerment, Service Quality and Polytechnic Students' Level of Satisfaction in Malaysia, International Journal of Business and Social Science, 1(1), 120–128.

Zeithaml, V., Bitner, M. & Gremler, D. (2009), Services Marketing: Integrating Customer Focus across the Firm, 5th Edition, McGraw-Hill, Boston, MA.

Zeithaml, V., Parasuraman, A., & Berry, L. (1990), Delivering Quality Service: Balancing Customer Perceptions and Expectations, New York: The Free Press.

Zineldin, M. (2007), The Quality of Higher Education and Student Satisfaction Self-Assessment and Review Process a Term Philosophy and 5Qs Model, Paper Presented at 2nd International Conference Education, Economics, and Law, Traditions and Innovations, Vaxjo University, Sweden.

Zineldin, M. (2007), The Quality of Higher Education and Student Satisfaction Self-Assessment and Review Process A TRM Philosophy and 5Qs Model, Paper Presented at Second International Conference Education, Economics, and Law: Traditions and Innovations, Växjö University, Sweden.

APPENDIX A: QUESTIONNAIRE

The researcher is carrying out a study titled "**The Influence of Students' Perceived Service Quality on Their Satisfaction and Loyalty at Palestinian Higher Education Institutions**" in partial fulfilment of the requirements of Master's degree in Quality Management from the Arab American University.

The information you provide will help the researcher better understand the quality of services provided by these institutions and the impact of this service quality on student-related variables such as satisfaction. Answering the questionnaire does not take more than 10 minutes. Your answers will be kept strictly confidential.

Thank you.

Researcher

Wafa Sheikh

Part One: Students' Characteristics

1. Gender:

1. Male
2. Female

2. Age:

1. Under 30
2. 30–40
3. 41–50
4. Over 50

3. Location:

1. City
2. Village
3. Camp

4. Household economic condition:

1. Weak
2. Average
3. Good
4. Very good
5. Excellent

5. Type of university in which you are currently studying:

1. Public
2. Governmental
3. Private

6. Academic discipline:

1. Physical education
2. Sharia
3. Education
4. Humanities
5. Law / public administration
6. Business and economics
7. Physical sciences
8. Engineering
9. IT
10. Medical Sciences

7. Academic year:

1. First year
2. Second year
3. Third year
4. Fourth year

8. GPA:

1. Acceptable
2. Good
3. Very good
4. Excellent

Part Two: Education Quality						
Please rate the quality of education in your university by putting the most appropriate response number for you beside each item, using the scale below:						
Very Low (1)	**Low (2)**	**Somewhat Low (3)**	**Acceptable (4)**	**Somewhat High (5)**	**High (6)**	**Very High (7)**
Dimension 1: Teaching and Course Materials (TC)						
TC1: Teachers are responsive and accessible.						
TC2: Teachers follow good teaching practices.						
TC3: Teachers follow curriculum strictly.						
TC4: Teachers continuously evaluate student's performance.						
TC5**:** Teachers treat all students in equal manner.						
TC6**:** Course content develops students' knowledge.						
TC7**:** College has sufficient academic staff.						
TC8**:** College collects feedback to provide better services.						
Dimension 2: Administrative Services						
AS1: Admin staff provide error-free work.						
AS2: Admin staff provide service without delay.						
AS3: Admin staff are courteous and willing to help.						
AS4: Admin staff maintain accurate records.						
AS5: Admin staff are accessible during office hours.						
AS6: Admin staff inform students promptly of changes.						
Dimension 3: Academic Facilities						
AF1: Classrooms are equipped with teaching aids.						
AF2: Computer/science labs are well equipped.						

Part Two: Education Quality						
Please rate the quality of education in your university by putting the most appropriate response number for you beside each item, using the scale below:						
Very Low (1)	**Low (2)**	**Somewhat Low (3)**	**Acceptable (4)**	**Somewhat High (5)**	**High (6)**	**Very High (7)**
AF3: Library has adequate academic resources.						
AF4: Library is electronically equipped (i.e. E-library).						
AF5: Campus environment is convenient to study well.						
AF6: University has adequate auditoriums.						
AF7: University conducts periodic maintenance of academic facilities.						
Dimension 4: Campus Infrastructure						
CI1: University has sports and recreation facilities.						
CI2: University has adequate hostel facilities.						
CI3: University hostels provide quality food.						
CI4: University has safety and security measures.						
Dimension 5: Support Services						
SS1: University has adequate amenities.						
SS2: University organizes cultural and extracurricular activities.						
SS3: University provides counseling services.						
SS4: University provides good medical services.						
Dimension 6: Internationalization						
IN1: University promotes international activities.						
IN2: University has teachers from abroad.						

Part Three: Students' Experiences						
Please rate the degree to which you agree or disagree with each of the following statements, using the scale below:						
Strongly Disagree (1)	**Disagree (2)**	**Slightly Disagree (3)**	**Neutral (4)**	**Slightly Agree (5)**	**Agree (6)**	**Strongly Agree (7)**
Students' Satisfaction (ST)						
ST1: I am satisfied with the quality of academic services.						
ST2: I am satisfied with the quality of administrative services.						
ST3: I am satisfied with the quality of support services.						
ST4: I am satisfied with the quality of equipment and facilities.						
ST5: I am satisfied with the overall maintenance of the university.						
ST6: I am satisfied with the quality of services provided by my university.						
Students' Loyalty (LY)						
LY1: If a program of my interest is available, I prefer to pursue higher studies in the same university.						
LY2: I recommend my university to other people.						
LY3: I encourage other people to study at this university.						
LY4: This university was my first choice for my studies.						
LY5: I feel proud to be associated with this university.						
LY6: I take care of my university.						
LY7: I often say positive things about my university.						
LY8: I would select this university again if starting from the beginning.						
LY9: I am interested in keeping in touch with my university.						

Thank You

الملخص

الهدف الرئيس لهذه الدراسة هو فحص تأثير جودة الخدمات المدركة للطلبة على رضاهم وولائهم في مؤسسات التعليم العالي في الضفة الغربية، فلسطين. ولتحقيق هذا الهدف، تم استخدام تصميم البحث الكمي من خلال اختبار الفرضيات. ومن خلال استبانة إلكترونية، تم جمع البيانات الأولية من عينة من 271 طالباً ممن يكملون حالياً دراساتهم العليا في الضفة الغربية، فلسطين.

تتكون الاستبانة، التي تعتمد على نموذج (HiEduQual) من ثلاثة أجزاء. يهدف الجزء الأول إلى جمع بيانات عن خصائص الطلبة. ويهدف الجزء الثاني إلى جمع بيانات عن جودة الخدمات المدركة للطلبة. وأخيراً، يهدف الجزء الثالث، والذي يتكون من قسمين، إلى جمع بيانات عن تجارب طلبة التعليم العالي بما في ذلك رضاهم وولاؤهم. وتم استخدام مقياس ليكرت المتدرج من 7 درجات في الجزأين الأخيرين من الاستبانة. وتم استخدام الإحصاءات الوصفية، والاحصاءات الاستدلالية غير المعلمية، ونمذجة المعادلات الهيكلية في تحليل البيانات بالاستعانة ببرنامج (SPSS) وبرنامج (Smart-PLS).

وتظهر النتائج أن المستوى العام لجودة خدمات التعليم العالي يتراوح ما بين 3.6 (منخفض إلى حد ما) و5.6 (مرتفع). إضافةً إلى ذلك، تظهر النتائج أن المستوى العام لرضا طلبة التعليم العالي عن خدمات التعليم العالي يتراوح ما بين 3.3 (منخفض) و5.9 (مرتفع). وتظهر النتائج أيضاً أن المستوى العام لولاء الطلبة تجاه مؤسساتهم يتراوح ما بين 3.4 (منخفض) و6.4 (مرتفع جداً).

علاوةً على ذلك، تظهر النتائج أن مقياس (HiEduQual) ممتاز لغرض تقييم مستوى جودة خدمات التعليم العالي في الحالة الفلسطينية. وتشير النتائج أيضاً إلى أن أبعاد التدريس والمساقات، والخدمات الإدارية، والمرافق الأكاديمية، والتدويل تسهم في تكوين مفهوم جودة خدمات التعليم العالي. وأخيراً، يؤكد نموذج المعادلات الهيكلية الذي تم تقديره أن جودة خدمات التعليم العالي

تؤثر بشكل إيجابي على رضا الطلبة وولائهم. كما أن رضا الطلبة، بدوره، يؤثر بشكل إيجابي على ولائهم.

وتم تقديم بعض التوصيات التي من بينها أهمية تقييم مستوى جودة خدمات التعليم العالي على أساس دوري، والحاجة إلى إيلاء المزيد والمزيد من الاهتمام بجودة هذه الخدمات، وخاصةً أبعاد البنية التحتية للحرم الجامعي، والخدمات المساندة، والتدويل لتعزيز رضا الطلبة وولائهم.