

**An Investigation of Airline Service Quality, Passenger
Satisfaction and Loyalty:**

The Case of Royal Jordanian Airline

by

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To My Coming Baby

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*An Investigation of Airline Service Quality, Passenger Satisfaction
and Loyalty:
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Fahed Salim Khatib

Summary

The primary objective of this thesis is to investigate the relationship between airline service quality, passenger satisfaction and passenger loyalty. This study identifies the main factors of airline service quality, passenger satisfaction and passenger loyalty and proposes a model examining the directional relationship among these three constructs. It is based on an empirical investigation of the data collected from 500 passengers with Royal Jordanian (RJ) airline during July and August 1996.

The data are analysed using a variety of statistical techniques. Factor analysis is used to identify the main factors of airline service quality and passenger loyalty. The segmentation of airline passengers according to their loyalty levels and psychographic characteristics is performed using cluster analysis techniques. LISREL 8 and path analysis techniques are used to investigate the relationships among the three constructs namely: service quality, passenger satisfaction and passenger loyalty.

The key findings of the study indicate that overall service quality is highly related to both passenger satisfaction and loyalty. The relationship between passenger satisfaction and loyalty toward a specific airline is less clear.

An approach to the identification of the dimensions (factors) of airline services based on the stages of providing services to passengers is introduced and a loyalty measure, covering both attitudinal and behavioural aspects of loyalty, is developed and used to examine the applicability of loyalty level in determining segments in the air passenger industry.

The contributions of this study to the existing literature in services marketing and consumer behaviour is assessed together with the contributions made to the air passenger industry itself. The limitations of the study are discussed and the potential for future research in the area is indicated.

TABLE OF CONTENTS

	Page NO.
Chapter One: Introduction	
1-1 Scope of the thesis	1
1-2 Statement of the problem	4
1-3 The research questions	7
1-4 The research objectives	8
1-5 Over view of the thesis	9
1-6 Significance of the Research	11
Chapter Two: Service Quality, Satisfaction and Loyalty in the Marketing of Services	17
2-1 Introduction	13
2-2 Service Quality	13
2-2-1 Classification of Quality Definitions	15
2-2-2 Quality Management	24
2-2-2.1 Approaches to Quality Management	25
2-2-2.2 The Introduction of TQM	27
2-2-2.3 TQM definitions	30
2-2-2.4 The Principles of TQM	34
2-2-2.5 Quality Management in Service Industry	36
2-2-3 Dimensions of Service Quality	40
2-2-4 SERVQUAL Scale	47
2-2-4.1 SERVQUAL Criticisms	51
2-3 Employee Importance to The Service Organisation	56
2-4 Satisfaction	60
2-4-1 Satisfaction Definition	60
2-4-2 Models of Consumer Satisfaction	64
2-4-2.1 Disconfirmation Models and their Components	65
2-4-2.2 Theories about the Disconfirmation Process	77
2-4-3 Service quality and Gap model	80
2-4-4 Conceptual differences between Consumer Satisfaction and Service Quality	81
2-5 Loyalty Behaviour	83
2-5-1 Loyalty Measurement	83
2-6 Summary	91

Chapter Three: Service Quality, Satisfaction, and Loyalty in Airline Services

3-1 Introduction	95
3-2 Airline & service Classifications	95
3-3 Airline Service Quality	101
3-3-1 Dimensions of Airline Service Quality	102
3-4 Employee Role in Airline Services	123
3-5 Passenger Satisfaction	124
3-6 Passenger Loyalty.	126
3-7 The Relationship between (service quality, passenger satisfaction and loyalty)	128
3-8 Travel Behaviour	135
3-9 Summary	140

Chapter Four: Research Methodology

4-1 Introduction	142
4-2 The theoretical model	142
4-3 Major constructs of the theoretical model	143
4-4 Theoretical linkage	144
4-5 Conceptual model	145
4-6 Research Hypotheses	146
4-7 Classification of statistical techniques	150
4-7-1 The T-test	151
4-7-2 Analysis of Variance (ANOVA)	152
4-7-3 Factor Analysis	152
4-7-4 Regression Analysis	155
4-7-5 Cluster Analysis	156
4-7-6 Linear Structural Equations (LISREL VIII)	156
4-8 The Treatment of Missing Values	166
4-9 Summary	167

Chapter Five: Research Design and Data Collection

5-1 Introduction	168
5-2 Sources of Data	168
5-3 Sample design and Data collection	171
5-3-1 Target Population	172
5-3-2 Sample Size	172
5-3-3 Sampling Mechanism	174
5-3-4 Administering the Questionnaire	176

	Page No.
5-4 The Structure of the questionnaire	177
5-4-1 Questionnaire design and development	179
5-5 The Measurement Process	181
5-5-1 Measurement of service quality	181
5-5-2 Satisfaction measurement	189
5-5-3 Loyalty measurement	194
5-5-4 Measuring Psychographic Characteristics	198
5-6 Validity and Reliability	200
5-6-1 Validity	200
5-6-2 Reliability	203
5-7 General Assumptions	204
5-8 Summary	205
 Chapter Six: Data Analysis and Hypotheses Testing	
6-1 Introduction	206
6-6-1 Passenger Profile	208
6-2 Identifying the major dimensions of airline service quality	210
6-2-1 The Eight factor solution	210
6-2-2 The Three factor solution	215
6-2-3 The Nine factor solution	218
6-2-4 The Five factor solution	223
6-2-5 Airline Quality Factors	227
6-2-6 Scale and factor reliability	231
6-2-7 The influence of (flight class and purpose of flights) on passenger evaluation of service quality	232
6-3 Passenger Satisfaction	238
6-3-1 Passengers' satisfaction ratings	239
6-3-2 Satisfaction measures and importance of quality dimensions	240
6-3-3 The influence of (flight class and purpose of flights) on passenger satisfaction	243
6-4 Passenger Loyalty	245
6-4-1 Identifying the major dimensions of passenger loyalty	245
6-4-1.1 The Seven factor solution	245
6-4-1.2 The Two factor solution	246

	Page No.
6-4-1.3 The Four factor solution	247
6-4-1.4 The Three factor solution	248
6-4-1.5 Loyalty factors	250
6-4-2 Appropriateness of loyalty as a basis for market segmentation	251
6-4-3 Validating and describing the loyalty clusters	253
6-4-4 Socio-demographic characteristics of the loyalty clusters	259
6-4-5 Loyalty measures and dimensional importance	260
6-5 Travel Behaviour	262
6-5-1 Travel habits	262
6-5-1.1 The role of the travel agent in airline travel industry	262
6-5-1.2 Frequent and non frequent passengers' ratings of "service quality, satisfaction, and loyalty" of the RJ airline	262
6-5-2 The influence of psychographic characteristics of passengers and purpose of flights on choice selection of an airline	266
6-5-3 The influence of psychographic characteristics of passengers and their nationalities on choice selection of an airline	269
6-5-4 The relationship between sex of passengers and their evaluation of service quality; satisfaction and loyalty	272
6-6 Convergent Validity of the Measurement Scale	272
6-6-1 Convergent validity of quality scale	273
6-6-2 Convergent validity of satisfaction scale	274
6-6-3 Convergent validity of loyalty scale	274
6-7 The Relationship between Service quality, Passenger Satisfaction and Loyalty	277
6-7-1 Linear structural relations analysis of service quality-satisfaction-loyalty model	277
6-7-2 Simultaneous fit of the proposed and final models	279
6-8 Market Segmentation	286
6-8-1 Purpose of the flight segmentation	286
6-8-2 Nationality Segmentation	292
6-8-3 Psychographic segmentation	296
6-8-4 Appropriateness of loyalty measures as market segmentation	301
6-9 Concluding remarks	303

	Page No.
Chapter Seven	305
7-1 Introduction	305
7-2 Summary of the Results	305
7-2-1 Dimensions of airline service quality	305
7-2-2 Results related to passenger satisfaction	308
7-2-3 Loyalty factors	308
7-2-4 Market segmentation	309
7-2-5 Links between airline service quality, passengers' satisfaction and loyalty	317
7-2-6 Other findings of the study	319
7-2-7 Summary of the hypotheses testing results	322
7-3 Contribution of the study	323
7-3-1 Theoretical contributions	323
7-3-2 Practical contributions	328
7-4 Recommendations	331
7-4-1 General recommendations	331
7-4-2 Recommendations to RJ airline	333
7-5 Direction for future research	336
7-6 Limitations	337
References	339
Appendix I: Royal Jordanian Airline	379
Appendix II: Questionnaire	381
Appendix III: Pilot Study	394
Appendix IV: Description of Variables' Definitions	399
Appendix V: Items Used to Measure Airline service Quality	401
Appendix VI: Respondent Rating of Service Quality Items	402
Appendix VII: Assumptions of Using Statistical Tests	403
Appendix VIII: Measurement Model Results (LISREL 8)	406

List of Tables

		Page No.
Table 2-1	Examples of service definitions	14
Table 2-2	Different approaches to define quality	18
Table 2-3	Approaches to quality management	26
Table 2-4	Evolution of quality movement	29
Table 2-5	TQM definitions	32
Table 2-6	Rules for service quality	39
Table 2-7	Quality measurement techniques and their effectiveness	41
Table 2-8	Dimensions of service quality	43
Table 2-9	Categories of quality dimensions	46
Table 2-10	SERVQUAL Battery	47
Table 2-11	Gaps in Parasuraman, Zeithaml and Berry service quality model	48
Table 2-12	Parasuraman, Zeithaml and Berry dimensions of service quality	48
Table 2-13	Parasuraman, Zeithaml and Berry reduced dimensions of service quality	49
Table 2-14	Examples of previous studies that applied SERVQUAL	52
Table 2-15	Summary of different criticisms on SERVQUAL	54
Table 2-16	Parasuraman et al. response to different criticisms	55
Table 2-17	Examples of satisfaction definitions as a post purchase evaluation judgement	63
Table 2-18	Characteristics of comparison standards	72
Table 2-19	Disconfirmation theories	78
Table 2-20	Satisfaction constructs	79
Table 2-21	Differences between service quality and consumer satisfaction	82
Table 2-22	Loyalty dimensions	90
Table 3-1	Important classification schemes of services	99
Table 3-2	Airline service flow variables and their definitions	103
Table 3-3	Airlines service quality measures	106
Table 3-4	Jones & Cocke measures of airline service quality	107
Table 3-5	Measures of airlines' image in the Middle East	108
Table 3-6	Measures of product importance and product performance	109
Table 3-7	Airline service quality dimensions	114
Table 3-8	Attributes used to evaluate airline services	117

	Page No.
Table 3-9	Attributes of airline services 119
Table 3-10	Pre-flight, in-flight and Post-flight services 120
Table 4-1	Research Hypotheses 147
Table 4-2	Research objectives, Hypotheses and appropriate statistical tests 148
Table 5-1	Weekly RJ flights to different destinations 176
Table 5-2	Selected flights on the 8-Weeks of collecting the data 177
Table 5-3	The structure of the questionnaire 179
Table 5-4	A review of the major scales used to measure service quality 184
Table 5-5	Scale to measure overall service quality 188
Table 5-6	Attributes used to measure airline service quality 188
Table 5-7	Scales for measuring item and overall satisfaction 191
Table 5-8	Questions to measure encounter satisfaction 194
Table 5-9	Questions to measure overall passenger satisfaction 194
Table 5-10	Loyalty dimensions 197
Table 5-11	Loyalty measurement 198
Table 5-12	Psychographic characteristics 199
Table 6-1	Respondent profile 209
Table 6-2	PAF oblique rotation pattern matrix for the 40-item pool (8-factor solution) 212
Table 6-3	The content of the 8-factors 213
Table 6-4	Service quality factors (8-factor solution) 215
Table 6-5	Three-factor solution 216
Table 6-6	The content of the three-factor solution 218
Table 6-7	Nine-factor solution 219
Table 6-8	Contents of the 9-factor solution 222
Table 6-9	PAF oblique rotation pattern matrix (5-factor solution) 224
Table 6-10	Content of the 5-factor solution 225
Table 6-11	Comparisons between all factor solutions 227
Table 6-12	Reliability coefficients 231
Table 6-13	Results of ANOVA test for (H 2, 3) 232
Table 6-14	Relationship between flight class and service quality dimensions 233
Table 6-15	Relationship between purpose of the flight and service quality dimensions 235

		Page No.
Table 6-16	Questions to measure encounter and overall satisfaction	239
Table 6-17	Ratings for satisfaction measures	240
Table 6-18	Multiple regression analysis of satisfaction measures with underlying dimensions of service quality	242
Table 6-19	Results of ANOVA test for hypothesis 4,5	243
Table 6-20	Seven factor solution for loyalty factors	246
Table 6-21	Two factor solution for loyalty	247
Table 6-22	The content of the 2-factor solution	247
Table 6-23	Four factor solution for loyalty	248
Table 6-24	The three-factor solution for loyalty	249
Table 6-25	Loyalty factors	251
Table 6-26	Characteristics of passenger clusters	252
Table 6-27	ANOVA test of Satisfaction, quality and loyalty in the three passenger clusters	254
Table 6-28	MANOVA test of overall significance	255
Table 6-29	ANOVA results of the relationship between loyalty variables and the three loyalty clusters	257
Table 6-30	Passenger characteristics in the three loyalty clusters	258
Table 6-31	Socio-demographic characteristics for passengers in the three clusters	259
Table 6-32	Multiple regression analysis of loyalty variables with underlying dimensions of service quality	261
Table 6-33	Profile of frequent and non-frequent travellers across demographic variables	263
Table 6-34	The relationship between number of flights and passenger evaluation to service quality, satisfaction and loyalty	264
Table 6-35	ANOVA results for hypotheses 7,8,9	265
Table 6-36	Relationship between psychographic characteristics and purpose of flights	267
Table 6-37	Relationship between psychographic characteristics and passengers nationality	270
Table 6-38	T-test for equality of means	272
Table 6-39	Service quality (SQAVG) scores by overall quality categories	273
Table 6-40	Analysis of variance between service quality and overall quality categories	274

		Page No.
Table 6-41	Differences among categories of overall service quality	274
Table 6-42	Average satisfaction scores by overall satisfaction categories	274
Table 6-43	Analysis of variance between average satisfaction and overall satisfaction	275
Table 6-44	Differences among categories of overall satisfaction	275
Table 6-45	Passenger loyalty scores and overall loyalty categories	276
Table 6-46	Analysis of variance between passenger loyalty and overall loyalty categories	276
Table 6-47	Differences among categories of overall loyalty	276
Table 6-48	Summary of the results for structural model (proposed and final models)	279
Table 6-49	Purpose of the flight segmentation	288
Table 6-50	Purpose of the flight segmentation	290
Table 6-51	Nationality segmentation	293
Table 6-52	Nationality segmentation	295
Table 6-53	Psychographic clusters	296
Table 6-54	ANOVA results for the relationship between psychographic characteristics and the three clusters	297
Table 6-55	Influence of psychographic characteristics on the three clusters	298
Table 6-56	Socio-demographic variables in the three psychographic clusters	300
Table 6-57	Loyalty levels in the three clusters of passengers	302
Table 7-1	Passengers' segments and recommended strategies	316
Table 7-2	Research results	322
Table 7-3	Applications of the statistical analysis used in this research and their contributions to existed literature.	326

LIST OF FIGURES

Fig. 1-1	The Structure of the Thesis	11
Fig. 2-1	Classification of definitions quality	16
Fig. 2-2	Quality definitions and airline services	17
Fig. 2-3	Summary of quality approaches	23
Fig. 2-4	Changes that accompany the introduction of total quality service	38
Fig. 2-5	Steps used in developing the service quality scale	50
Fig. 2-6	Conceptual model of service quality as suggested by previous literature	51
Fig. 2-7	Disconfirmation model	66
Fig. 2-8	Conceptual model of consumer satisfaction	76
Fig. 2-9	Continuum of perceived service quality	80
Fig. 2-10	Gap model	81
Fig. 2-11	Conceptual model of consumer loyalty as suggested by previous literature	89
Fig. 3-1	Understanding the nature of the service act	97
Fig. 3-2	The service process matrix	98
Fig. 3-3	Total transportation service offering	104
Fig. 3-4	Important quality factors in air travel	111
Fig. 3-5	Model of service quality	112
Fig. 3-6	Factors influencing airline service quality	122
Fig. 3-7	Factors influencing passenger loyalty	127
Fig. 4-1	The theoretical model	142
Fig. 4-2	The conceptual model	145
Fig. 5-1	questionnaire development	180
Fig. 6-1	The structure of chapter Six	207
Fig. 6-2	Factor scree-plot (Quality)	223
Fig. 6-3	Factor scree plot (Loyalty)	248
Fig. 6-4	The final model	278
Fig. 6-5a	Q-Plot for the proposed model	281
Fig. 6-5b	Q-Plot for the final model	282
Fig. 7-1	Descriptive of loyalty segments	311
Fig. 7-2	Various strategies suitable for loyalty segments	313

Chapter One

Introduction

1-1	Scope of the thesis
1-2	Statement of the problem
1-3	The research questions
1-4	The research objectives
1-5	Overview of the thesis
1-6	Significance of the Research

1-1 Scope of the thesis

The topic of service quality is one that has gained much attention in recent research literature. This attention is due to the recognition that quality is important in the attainment and maintenance of market share and return on investment goals for an organisation (Anderson and Zeithaml 1984, Philips et al. 1983).

The service sector has grown at a phenomenal rate. The last 15 years have seen a dramatic upsurge of interest in services, as academics and practitioners alike have realised the profound structural shift toward services in every advanced economy. This increasing interest in services is not surprising when one realises that services now account for over 74% of the United States' GDP (Henkoff 1994) and the percent of employment in the service sector has grown in every developed country in the last 25 years (Godbout 1993). Similar increases are seen in all of the industrialised countries of North America, Asia, Europe and Australia (Oliver et al. 1997). Coinciding with the explosive growth of this economic sector, increasing emphasis has been placed on the continued development of knowledge related to service organisations, particularly the role service quality plays in creating a satisfied and loyal customer.

Customer service has become a major area of interest for both practitioners and academics. The managerial press extols the critical role of providing quality service, and academics are struggling with the problems of measuring and understanding how customers form service evaluations. The importance of service quality in any service industry cannot be disputed. Recent political, economic, and technological changes affecting the transportation industry in particular have made service quality a major concern for airlines and passengers alike (Ostrowski et al. 1993).

Since deregulation in the late 70s, air-passenger industry has changed considerably, the number of flights has increased, additional airports have opened, tickets are more affordable, and airline traffic continues to grow. However many argue that service offered to passengers show little or no

improvement (Barnett et al. 1992). Regardless of the perspective taken, one fact stands clear: competition is ever increasing, or as Bob Crandall, CEO of American Airlines, aptly stated, “this business is intensely, vigorously, bitterly, savagely competitive” (Zellner 1992). Basically, a major element in this competitive battle is about the quality of services, and how to maintain passengers.

There are many evolving changes in world transport. These changes have taken many forms, for example:

- The global economy: it is expected that three parts of the world; America, Asia, and Europe will dominate the commercial arena in the future. Therefore, service companies like airlines should be where the business is, and, more importantly, they should be able to offer customers what they want.
- Companies are developing into global organisations: either as multinationals or by forming strategic alliances. Airlines are not isolated from this development. The existence of a monopoly governing domestic air routes is no longer beneficial, and the rules are changing. Therefore, competition is expected to be especially harsh within the business sector where price is concerned. Airlines that survive must be able to deliver a total travel programme (i.e. offering non-stop flights, hotels, leisure programmes, financial services, etc..) through a world-wide information system. It is believed that passengers are now looking for more than cheap tickets; they ask for more comprehensive services (Berry and Parasuraman 1994).

Excellent service is a profitable strategy because it results in more new customers, more business with existing customers, fewer lost customers, more insulation from price competition and fewer mistakes requiring the performance of services. It also results in lower marketing costs because extra marketing money does not have to be spent convincing customers to buy despite the firm's poor service record.

Passengers' expectations concerning the quality of service they receive have increased in recent years, and airlines are working very hard to meet these

expectations. This means that airline management must have a good understanding of the ways in which passengers assess service quality.

In recent years, managers have found themselves having to redefine their corporate philosophies in the face of foreign competition and rising production costs. One of the results of that soul searching was a realisation that domestic goods and services were, in many cases, shoddy by world standards. This led, in turn, to a commitment on the part of many firms to make quality their number one concern. However, one industry that has had a particularly difficult time embracing this concept is the airline industry. One reason for this is that air transport is not provided by the airline alone; it is really a joint effort involving the airlines and the government. Unfortunately, since the airline is the one entity the customer comes into direct contact with, it is, by default, blamed for the ills of the entire system despite management's best efforts and intentions. The biggest problem is that there is no consensus among the users and providers of air transport as to what quality means in the airline industry. This study examines the issue from the standpoint of the passenger, since it is considered the main element of "passenger-management-government" chain that affects the airline industry.

Efforts to understand consumer travel behaviour have become more dynamic in recent years. Currently with the increasing demand for air travel in Jordan and the surrounding area, Royal Jordanian (RJ) airline is confronted with the need to obtain better understanding of consumer air travel. To push for better service for air travellers appears to have some promise as a possible vehicle for improving consumer satisfaction. Thus, the airline's role in implementing this marketing goal is crucial.

The evidence in the existing literature on the marketing of services has identified the critical roles of service quality and customer satisfaction in the formation of consumers' loyalty (Taylor and Baker 1994). However, despite the great strides made in recent years, our understanding of the specific nature of the relationship between service quality and consumer satisfaction, as well as how

these two concepts affect consumer loyalty, continues to perplex marketing scholars (Gronroos 1993, Rust and Oliver 1994). There is still disagreement about the relationship between service quality and consumer satisfaction; are they the same, or are they two different concepts? (cf. Cooper et al. 1989, Bolton and Drew 1991, Cronin and Taylor 1992).

Quality and satisfaction are extremely important concepts to academic researchers, particularly in service marketing, and to practitioners as a means of creating competitive advantages and customer loyalty. However, they have not been consistently defined and differentiated from each other in the literature. These inconsistencies result in conceptual difficulties and confusions which stunt the progress of theoretical development in the area. Customer loyalty has long been a topic of interest in the areas of consumer behaviour, sociology and marketing, receiving a variety of interpretations and definitions from each respective discipline.

This study will attempt to analyse service quality within the airline industry and to determine potential areas of improvement within the passenger / airline relationship. In addition, the role of service quality in passenger satisfaction and loyalty will be examined to determine the linkage between these concepts.

1-2 Statement of the problem

Very little work has been done concerning service quality, consumer satisfaction and loyalty in developing countries. The situation in Jordan is not so different to that of the rest of the developing countries.

A service is an act rather than a specific item, and its quality will be judged not only on the outcome (technical quality) but also on the process by which the service is delivered (functional quality) (Gronroos 1982, Downen and Schneider 1988). There are many important characteristics of services that fundamentally separate them from products.

- **Intangibility:** Services are often intangible, they lack precise form which makes testing them for quality in advance of sale impossible.
- **Variability:** Services are heterogeneous, which means that performance often varies across time, location and customer.
- **Inseparability:** Production and consumption of the services occur simultaneously, which makes the consumer an integral part of the process.
- **Perishability:** Services cannot be stored for later use, eg. airline seats cannot be reclaimed. More discussion about these characteristics will be given in chapter two (section 2-2).

The unique characteristics of service contribute to the complexities involved in assessing and managing service quality; they complicate both the consumers' assessments of service quality and the providers' ability to control it. Service quality has been increasingly identified as a major factor in differentiating service offerings and building competitive advantage. Most services involve direct contact between the customer and the service provider. This means that in addition to task proficiency; interpersonal skills like courtesy, friendliness, tolerance, and pleasantness are important dimensions of quality, particularly in high contact services where front line employees have a major influence on customer satisfaction (Hobson et al. 1984, Hostage 1975, Wehrenbeer 1987). It has been said that for every complaint a business receives, there are twenty-six other customers who feel the same way, but do not air their feelings to the company (Headley and Choi 1992). One satisfied customer usually tells two or three people, while the dissatisfied customer tells ten or more people. Therefore, to improve service quality, one must listen to the customer, since quality is ultimately defined by customer perceptions. Also, companies must listen to the front-line service employees in order to understand what they see as important and how they perceive the customer.

Transport firms are recognising that service quality can serve as a strategic tool to enhance the "Value" of the "total transport service offering" in the eyes of customers, to differentiate the service offering from that of competitors and to foster customer satisfaction. This shows how important service quality is, and what effect it has in achieving passenger satisfaction and loyalty.

Airlines are a major transport provider. A new competitive environment has been emerged where price wars, frequent flyer programmes and other innovative marketing initiatives have become the industry norm. Therefore, airlines have been forced to introduce service development and enhancement strategies to remain competitive (Kaynak et al. 1994). The development of the consumer-orientated marketing concept by the airline industry has been a response to changed environmental conditions, from a seller's market to that of a buyer's market.

Airline passengers are becoming more sophisticated about flying and therefore have higher expectations. The homogeneity of airline services forces customer service quality to emerge as a principal factor in the design of a competitive strategy. Therefore, the benefits of offering a quality service (e.g., increase in first time customer volume, repeat business, the ability to charge higher prices that yield better profit margins and a reduction of marketing effort) are worth striving for.

The success of an airline hinges upon its knowledge of its customers and its ability to devise marketing campaigns to suit the preferences of those market segments it chooses to target. This needs a careful identification of the most important attributes (dimensions) of their services that can satisfy passenger needs and an understanding of how to provide them in the best way to achieve passenger loyalty.

The direction of causality between service quality and consumer satisfaction is an important unresolved issue. There is a lack of consensus in the literature and among researchers about the causal link between the two concepts. Therefore, one of the objectives of this study is to discuss this relationship in airline services and connect these two concepts with passenger loyalty. This will be a major contribution to the area of service quality.

Royal Jordanian (RJ) airline is part of the air travel market. It operates in a region where tourism is growing, also it faces a high level of competition from other airlines. One way in which RJ could remain in the market and gain more passengers is to ensure its service quality is of an extremely high standard. This is indeed one of the main challenges that faces Royal Jordanian airline. Thus, providing appropriate and convincing answers from the marketing point of view requires certain investigation and evaluation of some specific questions. These are explored in section 1-3.

1-3 The research questions

The main focus of the research will be concentrated on finding answers to the following questions:

- 1- What are the main factors (dimensions) that can be used to measure airline service quality?
- 2- What is the nature of the relationship between:
 - airline service quality and passenger satisfaction.
 - airline service quality and passenger loyalty.
 - passenger satisfaction and passenger loyalty.
- 3- What influence does the quality of airline services have on passenger satisfaction and loyalty?.
- 4- Do passengers from different demographic categories:
 - view airline service quality differently?
 - differ in their degree of loyalty toward a specific airline?

5. Do passengers exhibiting different psychographic and lifestyle characteristics:
 - view the airline service quality differently ?
 - differ in their satisfaction and loyalty toward a specific airline ?
6. What are the factors (dimensions) that determine passenger loyalty toward a specific airline?

1-4 The research objectives

The major concern of this research is to investigate the passengers' perceptions of the Royal Jordanian (RJ) airline service quality and its influence on their satisfaction and loyalty. Therefore, the main objectives of this research are:

1. To identify the main attributes (dimensions) of airline service quality.
2. To identify the nature of relationships between service quality, passenger satisfaction and loyalty.
3. To investigate the influence of both service quality and passenger satisfaction on loyalty behaviour, in particular to determine whether consumers actually purchase a ticket from an airline that has the highest level of perceived service quality or from one that they are most "satisfied" with.
4. To identify the influence of demographic variables on passenger' perception of service quality and passengers' loyalty.
5. To determine whether consumer-based variables in such categories as activities, interests, opinions and lifestyle could be used for segmenting passengers on the basis of their service quality expectations.
6. To suggest effective marketing strategies that can be offered, based on the analysis of the relationship between service quality, consumer satisfaction, and loyalty.

This research will provide RJ airline with a better understanding of their passengers and will aid them in developing a strategy which can best serve the

passengers and the RJ airline. These are the main objectives which should be achieved through this research. The objectives are highly related and indivisible. They are all concerned with examining three phenomena: the perception of airline service quality, passenger satisfaction and passenger loyalty.

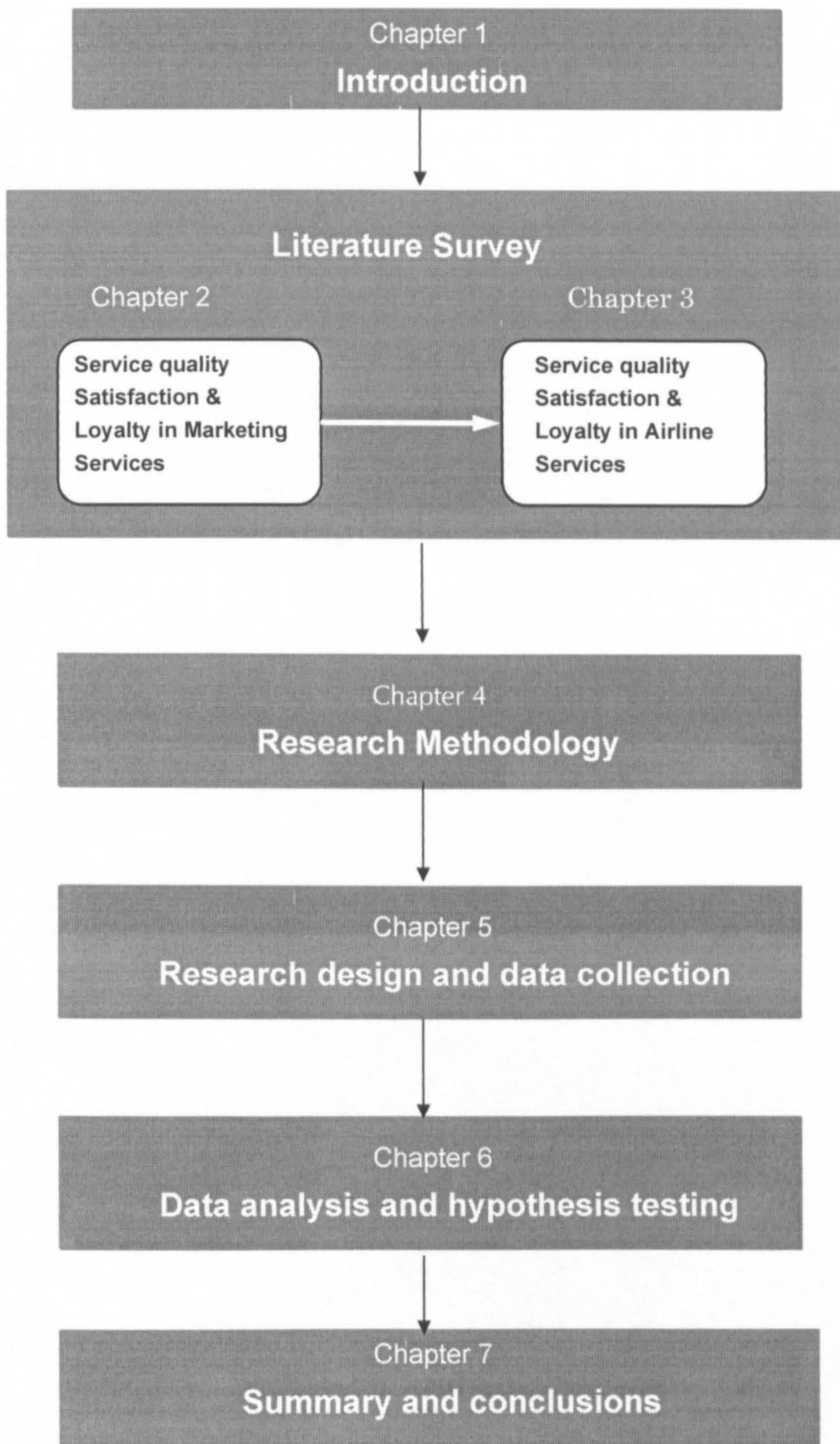
1-5 Over view of the thesis

This study is organised in seven chapters. The first chapter presents an examination of the statement of the problem, the research questions and the study objectives. A brief idea about Royal Jordanian airline on which the field work was conducted will be presented in Appendix I. The second chapter discusses the subjects of service quality, customer satisfaction and customer loyalty. The purpose of this chapter is to examine the factors or elements that can identify these three concepts. Chapter three contains the theoretical background to the three concepts in the airline literature. This facilitates the development of the conceptual model of all the elements that can measure airline service quality, passenger satisfaction and loyalty. The fourth chapter discusses the theory and methodology. It discusses the theoretical model, the major constructs, the conceptual model, the research hypotheses and the statistical methods that will be used in this study. The fifth chapter describes the research design and data collection. The data were collected in a field survey of passengers' perception of airline service quality, passenger satisfaction and passenger loyalty. To do that it was necessary to develop various measures, construct a questionnaire and administer it to a sample of passengers with RJ airline. Findings of the empirical work are presented in chapter six. This chapter presents an aggregate analysis of the data and the statistical findings of the survey. In chapter seven the various strands of the thesis are drawn together, the contribution, implications, limitations and the direction for future research are also clarified.

Figure 1-1 summarises the structure of this thesis.

Fig. 1-1

The Structure of the Thesis



1-6 Significance of the Research

The potential contribution of this study can be summarised in terms of the following aspects:

- It examines the relevant literature in order to explain and develop a better understanding of service quality focusing on the main quality factors that may affect passenger satisfaction and loyalty. The theoretical contribution of the study comes from the attempt to integrate service quality, consumer satisfaction and consumer loyalty into air transport industry, where the literature shows a contradictory view regarding the relationship between service quality and consumer satisfaction.
- The study develops a framework (theoretical and conceptual model) that identifies the main elements of each construct and examines possible causal relationships between the three concepts based on the discussion and review of the related studies in service quality, customer satisfaction and loyalty literature. Although the major objective of this study is to identify the main factors of service quality, and the links between quality and both passenger satisfaction and loyalty, the study shows also a comprehensive measurement to identify loyalty factors. Other aspects will also be discussed such as: the influence of passengers' characteristics on their evaluation of service quality, satisfaction levels and degree of loyalty. Also different segmentation approaches to identify airline passenger market will be examined.
- The significance of this research is that it demonstrates and tests empirically the existence of these different relationships between the three concepts: service quality, passenger satisfaction and loyalty.
- The study tests and determines the main factors that identify airline service quality and passenger loyalty and finally, it attempts to clarify passengers

travel behaviour through analysing the three concepts in the literature of marketing and behaviour. Through this analysis different marketing concepts will be investigated like: socio-economic demographic variables, passenger segmentation based on the degree of loyalty, psychographic characteristics, nationality and purpose of trips and finally the effect of different psychographic characteristics on passenger evaluation to quality and their degree of loyalty.

This research is of special significance to Royal Jordanian Airline (RJ). It addresses an issue that has never been addressed by the RJ before. It is anticipated that the results of this study will be especially beneficial to RJ as they are now preparing for privatisation and developing of new marketing and managerial strategies as part of this process.

Chapter Two

Service Quality, Satisfaction and Loyalty in the Marketing of Services

2-1 Introduction

2-2 Service Quality

2-2-1 Classification of Quality Definitions

2-2-2 Quality Management

2-2-3 Dimensions of Service Quality

2-2-4 SERVQUAL Scale

2-2-4.1 SERVQUAL Criticisms

2-3 Employee Importance to The Service Organisation

2-4 Satisfaction

2-4-1 Satisfaction Definition

2-4-2 Models of Consumer Satisfaction

2-4-2.1 Disconfirmation Models and their Components

2-4-2.2 Theories about the Disconfirmation Process

2-4-3 Service quality and Gap model

2-4-4 Conceptual differences between Consumer Satisfaction and Service Quality

2-5 Loyalty Behaviour

2-5-1 Loyalty Measurement

2-6 Summary

2-1 Introduction

In order to facilitate a proper understanding of the research project it is essential to clarify the main elements related to the conceptual frame of reference to be used in this research.

The purpose of this chapter is to give a clear definition of the three main concepts: service quality, consumer satisfaction and loyalty. A thorough search of the previous literature will be made to examine the main factors or elements that can identify these concepts. Then the links between these concepts will be clarified. Therefore, different issues will be covered in this chapter such as the classifications of quality definitions, a review of quality management and the main dimensions of service quality, a description of the role of employees in service organisations, the main definitions of consumer satisfaction, different schools of thought or approaches of both the disconfirmation paradigm and gap model, and finally, the concept of passenger loyalty. Both attitudinal and behavioural measures of loyalty will be reviewed to suggest a battery that can be used to measure consumer loyalty.

2-2 Service Quality

The service sector is by nature very heterogeneous and incorporates very different operations (Silvestro et al. 1992). Service quality and services marketing are increasingly important topics for marketers because of the world transition to a service economy, heightened global competition and a growing awareness that services are different. Service quality is also more frequently recognised as a viable marketing strategy for firms to achieve service differentiation and consumer satisfaction (Levitt 1981, Parasuraman et al. 1985). To understand the concept of service quality we must first define a service. Table (2-1) summarises different examples of “service” definitions.

Table (2-1)
Examples of Service Definitions

Service is a "deed, act or performance". Levitt (1972) wrote : "the concept of service evokes, from the opaque recesses of the mind, time-worn images of personal ministrations and attendance, it refers generally to deeds one individual performs gallantly, and selflessness, or of obedience, subordinations, and subjugation" (Berry 1980, p. 43).

Service is "a social act that takes place in direct contact between the customer and representatives of the service company" (Norman 1984, p.18).

Service is the " assistance one party provides a second party that is expected as part of a contractual relationship"(Delmar and Sheldon 1988, p.17).

Service is " actions performed within a relationship" (Lindquist and Persson 1992).

General agreement now exists among scholars that services marketing is different and perhaps more difficult to analyse than retail marketing because of four well documented features of services. The main attributes of services are:

- **Intangibility** (Shostack 1977, Berry 1980, Lovesick 1981, Zeithaml et al. 1990).
- **Inseparability** (Regan 1963, Gronroos 1978, George 1977, Carman and Langeard 1980, Upah 1980, Uhl and Upah 1980, Booms et al. 1981).
- **Heterogeneity or Variability** (Booms and Bitner 1981).
- **Perishability** (Bateson 1977).

These characteristics have different influences on services. Services are **intangible** therefore, the service output cannot be verified and tested for quality prior to sale. This creates difficulties in consumer evaluation and therefore, customers rely on factors associated with the service delivery to shape quality perceptions (Langeard et al. 1981, Schneider and Bowen 1985). Intangibility allows for more than one kind of reality to be found in a service market. The reality of a service output is less stable than that of tangible goods and varies according to the mind of the beholder (Shostack 1981). Voss et al. (1985) argue that it is the intangible aspects of the service which are most difficult to measure

and conclude that as a result service quality tends not to be measured. The **inseparability** characteristic describes the simultaneous production and consumption of the service product. Services are not manufactured and tested for quality prior to customer consumption. Consumers are involved in consumption as well as production, and play an active role in determining the quality ultimately received. Services are **heterogeneous** and therefore, performance can vary within employees as skills and moods change. Often different individuals provide a different service (Zeithaml 1984). So, controlling the variability of customer contact employees becomes extremely important. **Perishability** means that service cannot be saved or stored (Bessom and Jackson 1975, Thomas 1978), hence service businesses frequently find it difficult to synchronise supply and demand. Therefore, in order to solve this problem, the supplier must use strategies which enable him to cope with fluctuating demand and make simultaneous adjustments in demand and capacity to achieve a closer match between the two (Sasser 1976, Lovelock 1980).

2-2-1 Classification of Quality Definitions

Consumers find it difficult to articulate what quality is and what attributes they require (Takeuchi and Quelch 1983). While the attributes of quality in tangible goods have been described and measured by marketers, quality in services (substances and determinants) is largely undefined although it is important to both firms and consumers. In the following discussion different approaches to classifying quality definitions will be reviewed, this will help to give a clear idea of this concept and how it may be defined.

Holbrook and Corfman (1985) classify quality definitions by combining three dimensions as shown in fig (2-1). The first dimension is the implicit/explicit quality, which distinguishes between definitions that regard quality as something present (implicit) in an object as opposed to some (explicit) aspect. The implicit view tends to regard quality as an incorporated characteristic left over after one deals with what one really cares about. The explicit view focuses on quality directly as a key aspect of interest. The second dimension contrasts mechanistic

definitions of quality with definitions which are humanistic in nature. The mechanistic definition tends to view quality “as an objective aspect of a feature or a thing or event (some thing that is present whether or not any one happens to notice)” (p.33). The Humanistic definition sees quality as a subjective response of people to objects and therefore, as a highly relativistic occurrence that differs between judges. The third dimension distinguishes conceptual definitions of quality from those relatively more operational in nature. The conceptual tends to come from refined critical discussions and incorporates rules for the systematic use of language. The operational tends to allow repeatable observation via various instruments, i.e. making measurements.

Fig. (2-1)

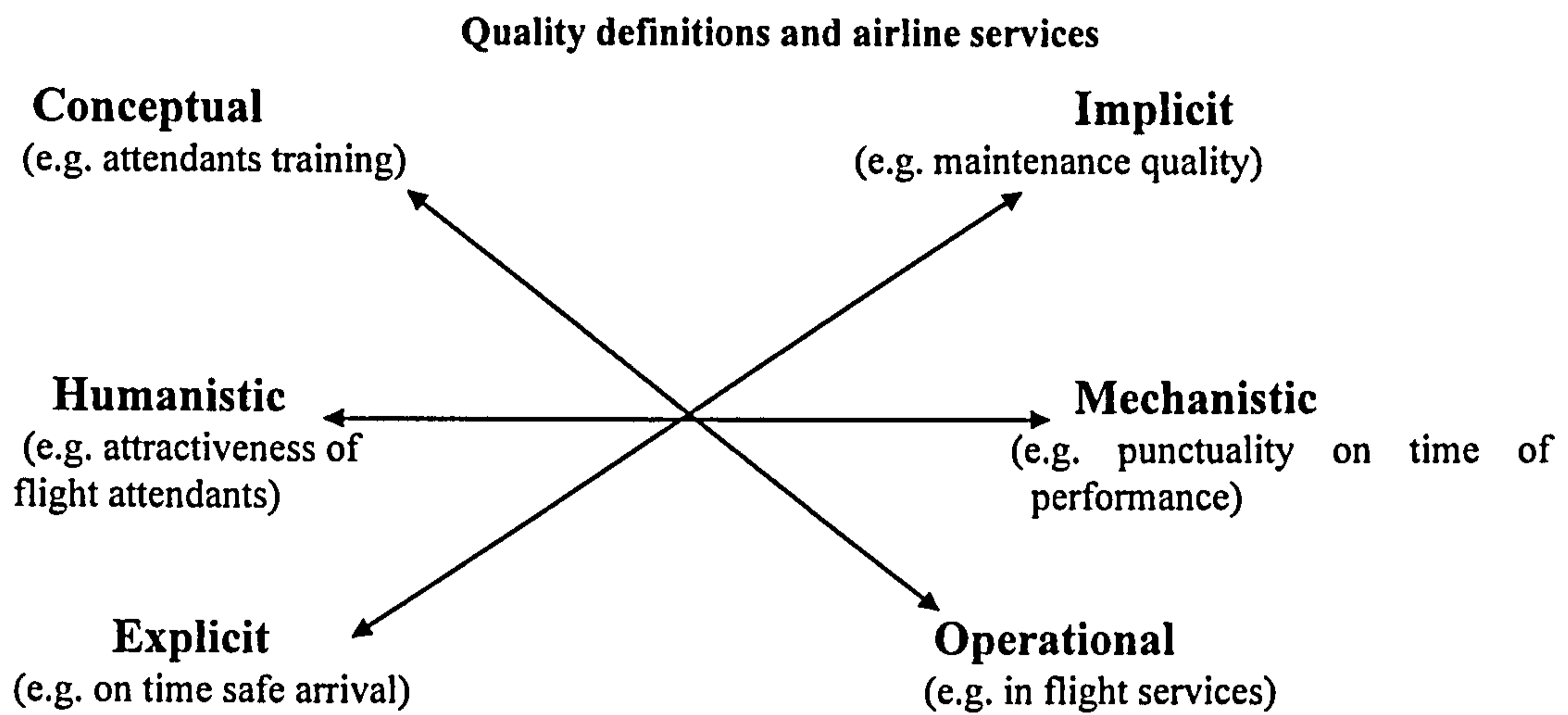
Classification of Definitions of Quality

	<i>Implicit</i>	<i>Explicit</i>
<i>Mechanistic</i>	Production based	Reliability based
<i>Conceptual</i>	Classical economics	Ordinary consumer
<i>Operational</i>	Value analysis	Quality control
<i>Humanistic</i>	Qualitative	Features based
<i>Conceptual</i>	Micro economics	Philosophy
<i>Operational</i>	Macro economics quality of life	Multi attribute and multi cue models

Source: Holbrook, M.B. & Corfman, K.P. (1985). Quality and value in the consumption experience: Phaedrus rides again. In J. Jacoby & J.C. Olson, (Eds.), Perceived quality. Lexington, Mass: Lexington Books, (p 34).

Fig (2-2) illustrates Holbrook and Corfman’s classification with examples from the airline’s services.

Fig. (2-2)



Efforts in defining quality have come mainly from the manufacturing sector. Scholars in several disciplines had considered the concept of quality each from a different point of view. Philosophers had focused on definitional issues; economists on profit maximisation and market equilibrium; marketers, on the determinants of buying behaviour and customer satisfaction and operations management, on engineering practices and production quality control. Therefore, several approaches exist in the literature to define quality. Garvin (1984), Deming (1986), Gummesson (1993), and Keiningham et al. (1994-1995) categorised quality definitions into the following approaches:

- The transcendent approach of philosophy
- The product based approach of economics
- The user based approach (marketing approach)
- The value based approaches of operations management
- The 'softer' techniques, relationships & skills approach
- The return on quality approach (ROQ)
- The manufacturing based approach.

Table (2-2) summarises these different approaches and making related comments on each one.

Table (2-2)
Different approaches to define quality

Approach	Discussion	Quality Definitions	Comments
<p>The Transcendent Approach</p> <p><i>-Quality is Excellence-</i></p>	<p>Quality is synonymous with 'innate excellence' (Tuchman 1980). It is both absolute and universally recognisable. So, it has uncompromising standards and high achievement</p>	<p>Quality is neither mind nor matter, but a third entity independent of the two.... even though quality cannot be defined, you know what it is (Pirsig 1974) Quality is " ... a condition of excellence implying fine quality as distinct from poor quality... it is achieving or reaching for the highest standard as against being satisfied with the sloppy or fraudulent (Tuchman 1980)</p>	<p>This is a philosophical issue, identify quality as some thing difficult to achieve; and it can be understood only after one is exposed to a succession of objects that display its characteristics.</p> <p>Strengths Universally recognisable-mark of uncompromising standards and high achievement.</p> <p>Weaknesses Provides little practical guidance to practitioners. Attributes of excellence may change dramatically and rapidly. There must be sufficient number of customers who willing to pay for excellence; besides there exist some measurement difficulties.</p>
<p>The Product-based Approach</p>	<p>Views quality as a precise and measurable variable. Thus, differences in quality reflect differences in the quantity of some ingredient or attribute possessed by a product (Abbott 1955; Lancaster 1979; Leffler 1982)</p>	<p>"differences in quality amount to differences in the quantity of some desired ingredient or attribute" (Abbott 1955) " quality refers to the amounts of the unpriced attributes contained in each unit of the priced attribute" (Leffler 1982) " the perceived ability of a product to provide satisfaction 'relative' to available alternatives" (Monroe & Krishnan 1985)</p>	<p>This approach lends a vertical dimension to quality. quality differences could be treated as differences in quantity, considerably simplifying the mathematics. There are two consequences to this approach: (1) high quality can only be obtained at higher cost. (2) quality is viewed as an inherent characteristic of goods, rather than as some thing ascribed to them. Because quality reflects the presence or absence of measurable product attributes, it can be assessed objectively, and is based on more than preferences alone.</p>

Continued

Table (2-2) (Continued)

Approach	Discussion	Quality Definitions	Comments
<p>The user-based approach</p> <p><i>-Marketing approach-</i></p> <p><i>-Quality is meeting and/or exceeding customers expectations-</i></p>	<p>Quality lies in the eyes of the beholder. consumers have different needs and wants, so those goods that best satisfy their preferences, are those that they regard as having the highest quality (Edwards 1968; Kuehn & Day 1962). In the marketing literature, this approach has led the notion of "ideal points": precise combinations of product attributes that provide the greatest satisfaction to a specified consumer (Kuehn & Day 1962; Johnson 1971; Kotler 1988; Ratchford 1975).</p>	<p>"Quality consists of the capacity to satisfy wants.." (Edwards 1968).</p> <p>"Quality is the degree to which a specific product satisfies the wants of a specific consumer" (Gilmore 1974)</p> <p>"Quality is fitness for use" (Juran & Bingham 1974)</p> <p>"Service quality is the extent of discrepancy between customers, expectations, or desires of service and their perceptions of the service they actually received" (Parasuraman et al. 1988).</p>	<p>This is an idiosyncratic and personal view of quality. This concept faces two problems: (1) practical problem; how to aggregate widely varying individual preferences so that they lead to meaningful definitions of quality at the market level. (2) fundamental one: how to distinguish those product attributes that connote quality from those that simply maximise consumer satisfaction. Therefore, quality is viewed as a potential of product attributes to provide satisfaction.</p> <p>This approach ignores the different weights that individuals normally attach to quality characteristics, and the difficulty of devising an unbiased statistical procedure for aggregating such widely varying preferences. The more basic problem of this approach is its equation of quality with maximum satisfaction. A product that maximises satisfaction is certainly preferable to one that meets fewer needs, but is it necessarily better as well.</p> <p>Strengths : Evaluates from customer's perspective. It is applicable across industries responsive to market changes.</p> <p>Weaknesses : Most complex definition.</p> <p>Difficult to measure. Customers may not know expectations. Pre-purchase attitudes affect subsequent judgements. Short term and long term evaluations may differ. There may be confusion between customer service and customer satisfaction.</p>

Continued

Table (2-2) (Continued)

Approach	Discussion	Quality Definitions	Comments
<p>The value-based approach</p>	<p>Define quality in terms of costs and prices. A quality product is one that provides performance at an acceptable cost (Broh 1982; Feigenbaum 1961) This definition of quality as Garvin (1988) argued "lacks well-defined limits and is difficult to apply in practice"</p>	<p>Quality means best for certain customer conditions. these conditions are: the actual use and the selling price of the product (Feigenbaum 1961).</p> <p>Quality is the relative level of goodness or excellence of any thing (Chaplin 1981).</p> <p>Quality is the degree of excellence at an acceptable price and the control of variability at an acceptable cost (Broh 1982).</p>	<p>Quality which is a measure of excellence is being equated with value, which is a measure of worth. the result is a hybrid- "affordable excellence"- that lacks well-defined limits and is difficult to apply in practice.</p> <p>Strengths : Concept of value incorporates multiple attributes. It focuses attention on a firm's internal efficiency and external effectiveness. It allows for comparisons across disparate objects and experiences.</p> <p>Weaknesses : Difficulty extracting individual components of value judgement. Questionable inclusiveness. It is difficult to apply this approach because it consists of two related but distinct concepts.</p>
<p>The 'softer' techniques, relationships, and skills approach</p>	<p>Thinking of a service quality as a process over time. it takes into considerations different personal needs at different times, and in different situations</p>	<p>Quality: "...adopting, shifting perceptions of the user that considers not only the product or service, but also how it is used, the environment where it is used, and how will the provider of the product or service meets the continuing needs of the customer (Deming 1986). Service quality is a process that happens through all the stages of each customer's experience "any place", "any time". Value for the customers is the "applied performance" they get from products and services over a period of time (Gummesson 1993)</p>	<p>This is an extension to previous approaches (e.g. manufacturing approach); thus doing it right the first time is still important in service quality, but the point here, is what is right?</p> <p>This approach concentrate on the 'soft' services such as skill, behaviour more than 'hard' services like: specification, price, and delivery.</p>

Continued.....

Table (2-2) (Continued)

Approach	Discussion	Quality definition	Comments
<p>Return on quality approach (ROQ)</p>	<p>Companies are trying to make sure that quality they offer is the quality their customers want and are willing to pay for. ROQ approach is characterised by the following philosophy: (1) quality is an investment, (2) quality efforts must be financially accountable, (3) it is possible to spend too much on quality, and (4) not all expenditures are equally valid.</p>	<p>Quality is an investment option, susceptible to quantitative decision (Keiningham et al. 1994-95)</p>	<p>It is a financial approach to quality improvement. This approach treats quality improvement efforts as investments and assumes that these efforts must be made financially accountable. Therefore spending on quality is like any other resource allocation decision; it is expected to produce returns that are greater than the costs. So, managers can direct their spending where it counts most.</p>
<p>The manufacturing based approach</p> <p><i>-Quality is conformance to specifications-</i></p>	<p>Focus on the supply side of the equation, and primarily concerned with engineering and manufacturing practice. Therefore, these definitions identify quality as 'conformance to requirements'(Crosby 1979).</p>	<p>Quality is the degree to which a specific product conforms to a design or specifications (Gilmore 1974). Quality is "all the actions that involve doing it right the first time (McConnel 1968).</p>	<p>Quality is defined in a manner that simplifies engineering and production control. According to this approach, improvements in quality lead to lower costs.</p> <p>Strengths: Facilitates precise measurement. Leads to increased efficiency. Necessary for global strategy. Should force disaggregation of consumer needs. Most parsimonious and appropriate definition for some customers.</p> <p>Weaknesses : Consumer do not know or care about internal specifications. Inappropriate for services. Potentially reduces organisational adaptability. Specifications may quickly become obsolete in rapidly changing markets. It is internally focused.</p>

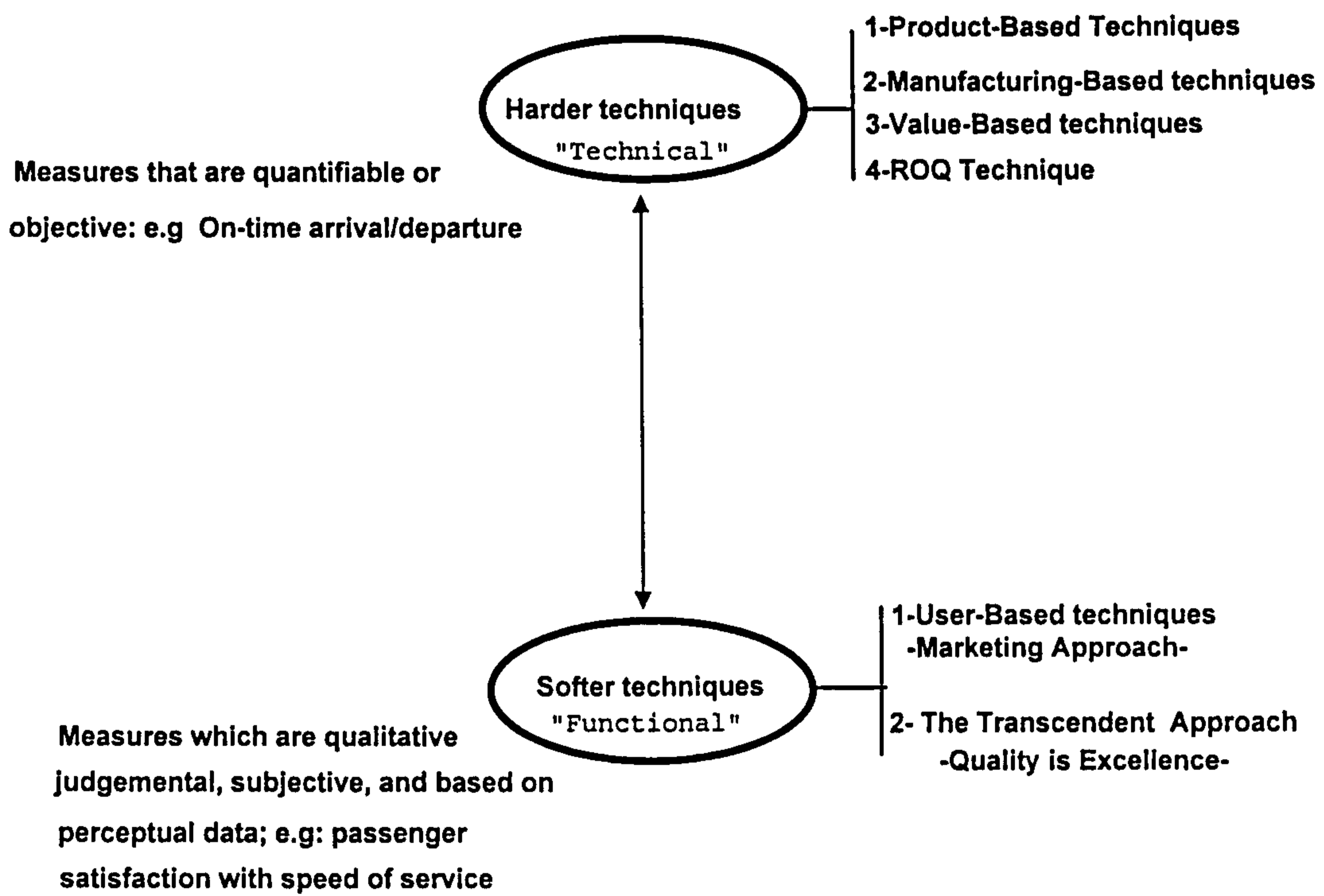
From Table (2-2) it can be concluded that most existing definitions of quality fall into one of these categories (approaches). These differing approaches can help to explain the competing views of quality held by members of the marketing and manufacturing departments. In general, marketing people typically take a user-based approach to the subject; therefore, higher quality means to them better performance, enhanced features, and other improvements that may increase cost. Because they are customer orientated, they view what happens in the factory as much less important than what happens in the field (e.g., how customers perceived a service is more important than what employees/management really offered). On the other hand, manufacturing people take a different approach: Quality as they understand it means, conformance to specifications and an emphasis on 'doing it right the first time'. Therefore, what is important here is to meet the requirements of quality standards.

Companies need to cultivate such differing approaches. This is essential to the successful introduction of high quality services. Finally it is appropriate to say that these approaches share a common problem; each is vague and imprecise when it comes to describing the basic elements of product/service quality. None gives a complete definition; for example no one wants mistakes, so 'doing it right the first time' -a manufacturing approach- continues to be important in service quality. The question, however, is: what is right?. Accuracy alone does not necessarily means efficacy as far as customers are concerned. Customers can have a desirable experience with the products and services and accomplishing this goal needs a different approach. While standardisation and the continuous improvement of set processes give firms part of what is necessary (the efficiencies), it doesn't provide customers with the individualised outcomes they want (Gummesson 1993). It is the 'softer' services, skills and behaviours that achieve this.

It is difficult to find a perfect approach that can summarise the various aspects of this concept. However, it is appropriate to say that the last approach "the softer techniques, relationships and behaviour" may be the most appropriate

one because it takes into consideration those aspects that are difficult to identify (e.g. behaviour and skills) which are very important in today's service industry. The harder aspects can be controlled more easily because they are tangible. Handling the intangible aspects correctly will provide a better way to produce good service quality.

Fig.(2- 3)
Summary of Quality Approaches



2-2-2 *Quality management*

Quality management, referred to by some authors as quality assurance, encompasses all activities and functions concerned with the attainment of quality (Hill 1983). These activities can be classified into: quality of design and quality of conformance.

(i) *Quality of design:*

Wild (1980) espouses the traditional inward focused view of design quality. He defined it as being “determined by the specification of the product, for example the tolerance placed on dimensions, the composition and treatment of materials, finishes,... etc.”. The main outcome of this activity is, as far as the operation is concerned, the creation of a quality specification. This describes or defines the product or service and should be a comprehensive statement of all aspects of it which must be present to meet customer requirements (Muhlemann et al. 1992). Quality of design is defined as:

“an interactive process whereby the customer, and marketing, sales, product or service designers, purchasing, supplies and operations...work together to develop a service or product that meets customer expectations and can be generated or produced economically”. Muhlemann et al (1992)

Hill (1991) covers quality of design in more detail than most; he asserted that “although the quality of a product/service is determined by the market need, (operations) management is responsible for establishing the appropriate quality levels for its product/services”. Moreover, Hill investigated the cost/value relationship and uses failure mode and effect analysis to identify the weak points “at the development stage of a product”. Oakland (1989) contended that the main purpose of quality of design is to ensure that the product or service will be able to achieve its intended purpose. He also stressed the role of operations when saying:

“ it is not sufficient that marketing specifies the product or service, ‘because that’s what the customer wants’. There must also be an agreement that the producing departments can achieve that requirement. Should they be incapable of doing so, then one of two things must happen, either the company finds a different position in the market place or substantially changes the operational facilities.” (Oakland, 1980).

This view is critical in understanding the link between the user-based approach to quality and the operational (manufacturing-based) view of quality. Discovering where an organisation does not meet customers' needs and expectations and then devising strategies to deal with it are important activities for managing quality.

(ii) Quality of conformance:

Quality of conformance means producing a product to meet the specification. When a product conforms to the specification it is deemed by operations to be a "quality" product even though the quality of design may be "low" (Schroeder 1989). Therefore, the main task of conformance quality is the control of quality. Quality control is defined as the task of preventing poor quality products from leaving the plant (Harris and Gonzalez 1981). Schroeder (1989) takes a more long term and proactive view and stated "quality control is aimed at continuous improvement of a stable process" primarily through statistical process control which tries to separate assignable causes from random ones and continuously removes causes of error through inspection to detect errors and find the causes of those errors.

2-2-2.1 Approaches to Quality Management

The approaches to the task of quality management have been changed over the last few years from a "traditional" reactive approach, through a more prevention orientated or proactive approach to the more recent strategic, or total quality management approach.

Table (2-3) summarises the main features of each approach.

Table (2-3)
Approaches to Quality Management

Approach	Comments
Traditional quality management	<p>The objective of this approach is to support conformance quality, that is to check that work completed in one part of the process meets its specification and to try to prevent any defective work being passed on the next stage in the process. The justification for this approach is that it is wasteful to allow time and materials to be invested in products which are not always saleable (Muhlemann et al. 1992). This approach requires the creation of acceptable quality levels (implying some poor quality is acceptable) and accepts that there is an optimum amount of quality effort at the point at which the costs of quality prevention and appraisal and the cost of defectives is a minimum. This assumes that as quality effort expands the costs of failures will decline and the costs of assuring quality, prevention and appraisal, will rise). This approach has many limitations. Garvin (1987) criticised it “as purely defensive measures to prevent failures or eliminate defects”. Slack (1991) argued against this approach and said that the approaches to find the optimum quality effort point are ‘misleading’. This approach assumes an optimum exists (that is not zero defects and perfect quality) and , furthermore, that the costs of failure are difficult to calculate and their longer term impact is unquantifiable.</p>
The prevention approach	<p>This approach takes a more proactive approach to quality and quality costs. It is characterised by “getting things right the first time” (Gummesson 1987). The prevention approach tries to move away from the notion that errors are a normal and acceptable part of everyday life. The objective of this approach is to try to allocate resources so as more often to make products or services right the first time (Hill 1991); or as Crosby (1979) named it ‘a zero defects programme’. The prevention approach takes quite a different view of the relationship between the costs of quality compared to the traditional approach. In particular, it concentrates on the difference between appraisal and prevention costs, not only checking it is right (appraisal) but also making it right first time (prevention) (Muhlemann et al. 1992). This has resulted in a new quality cost model, a little slow to reach the texts, which contends that total costs become a minimum at the point of zero defects.</p>
Total quality management (TQM)	<p>TQM is a more strategic, outward looking approach. It is an attempt to move the focus of quality away from just being a manufacturing activity into a major concern for the whole organisation. In essence the main theme of TQM is that of a user-based approach which is intent on satisfying the needs of the customer. The activities that are required to support this encompass top management commitment, improvement activities, training, control, creation of systems and procedures, involvement and participation.</p> <p>More discussion about TQM appears in section (2-2-2-2)</p>

Source: C.F. Garvin (1988): Managing quality (New York, Free Press)

From Table (2-3) we conclude that the main difference between the proactive approach to quality and TQM is the word “total” (Slack, 1991). Total Quality management (TQM) is a total involvement in quality as Slack explained:

“Total means all parts of the organisation based on one of the more powerful aspects to emerge from TQM, the concept of the internal customer and supplier. This provides the recognition of the interconnected flow of activity through an organisation whose eventual aim is in fulfilling the needs of the external customer. Total meaning everyone in the organisation, recognition of the effect on quality that everyone has through the internal customer-supplier links.” Slack (1991).

More discussion about TQM appears in the next section.

2-2-2.2 The introduction of TQM

The roots of the quality movement can be traced back in history to more than half a century ago (Youssef et al. 1996). Jablonski (1992) argues that the fundamentals of the TQM philosophy date back to the ‘Penny idea’ of 1913, which built on the following seven tenets:

- to serve the public, as nearly as we can, to its complete satisfaction;
- to expect for the service we render a fair remuneration and not all the profit the traffic will bear;
- to do all in our power to pack the customer’s dollars full of value, quality and satisfaction;
- to continue to train ourselves and our associates so that the services we give will be more and more intelligently performed;
- to improve constantly the human factor in our business;
- to reward the men and women of our organisation through participation in what the business produces;
- to test our every policy, method and act in this way: ‘does it square with what is just and right?’.

Jablonski showed that the Penny idea “espouses customer satisfaction, fairness, quality, value, training, reward for performance and continuous improvement”.

These attributes as will be shown in the following discussion are the basic elements of TQM.

Quality is never an accident; it is always the result of intelligent effort.

Total quality is a way of acting and policy aimed at the quality of products (Services), the quality of functioning and the quality of goals. In our words, effective management and efficient organisation means 'total quality orientated'.

Quality management is defined in ISO 8402 as:

“that aspect of the overall management function that determines and implements the quality policy, and as such, it is the responsibility of top management” (Kindlarski 1996).

TQM requires that the principles of quality management should be applied in every branch and at every level in the organisation.

The concept of 'quality' appears to change towards customer-focused activities encompassing all organisational functions. However, to move beyond the rhetoric to where quality action is evident, management should encourage a collaborative approach. Recognition by the management that “business survives only on its customers” (Drucker 1967) should mean that sophisticated quality service programmes become central organisational policies. Thus, approaches that build on previous strategies and are based on the quality delivered to internal and external customers are required to sustain competitive advantage.

Total quality management (TQM) is a philosophy whose main objective is to meet or exceed the needs of internal and external customers. Organisational awareness of the importance of this philosophy is just one of the many facets of TQM. In an era where quality is no longer a variable, time has emerged as an important performance measurement for assessment and evaluation. TQM affects not only quality but also the ability of the firm to become a time-based competitor. Comparing the evolution of quality movement to that of quantum physics, Miller (1993) maps this evolution into four paradigms: quality control (QC), quality assurance (QA), total quality management (TQM) and quantum quality (QQ). In each of these paradigms, quality is defined differently.

Moreover, each paradigm has a different emphasis on quality dimensions. Miller's theory of quality evolution is summarised in Table (2-4).

Table (2-4)
Evolution of quality movement

Quality Paradigm	Quality is defined as	Paradigm dimensions
Quality control (QC)	Absence of variation in output <i>QC-the control of quality during an operational process and at the post process stage through containment and inspection with the aim of preventing the release of defective goods.</i>	Inspection Measurement of results
Quality assurance (QA)	Conformance to high standards. <i>QA-the achievement of specified levels of quality by removal of the root causes of poor quality, through problem solving and prevention.</i>	Statistical analysis Process improvement
Total quality management (TQM)	Successfully meeting internal and external customer expectations <i>TQM-the application of quality assurance to every organisational activity so that zero defects are achieved, through good practice of quality management principles applying the ideas of quality "gurus" such as Deming, Juran and Crosby.</i>	Empowerment Team accountability Customer/supplier focus Speed
Quantum quality (QQ)	Achievement leaps in work processes, stockholder benefits, and personal commitment based on values of caring and integrity.	Learning Values Creativity Sustainability

2-2-2.3 TQM definition

There have been many definitions of TQM. See for example, Griffiths (1990), Perigord (1990), Caroselli (1991), Ernest and Young Quality Group (1990), Hunt (1991, 1993a,b), Talley (1991), Jablonski (1992), Tenner and DeToro (1992), Fooks (1993), Roth (1993) and Shiba et al. (1993). Some of these definitions are examined in Table (2-5).

Total Quality Management (TQM) is defined by (BS7850, 1992) as:

“Management philosophy and company practices that aim to harness the human and material resources of an organisation in the most effective way to achieve the objectives of the organisation.”

Total Quality Management (TQM) is not just a series of improvement methods as implied by BS 7850 part 2, but a change in an organisation’s culture and philosophy. It is concerned with changing attitudes and skills so that the culture of the organisation becomes one of preventing failure (c.f Simson 1995).

According to Honeycutt (1993) TQM involves: Holistic change; satisfy the customer; understand the process; measurement (“if you can’t measure it, you can’t manage it.”); team building and training; and continuous improvement.

Another definition of TQM is given by Goetsch and Davis (1995). They define TQM as:

“an approach to doing business that attempts to maximise the competitiveness of an organisation through the continual improvement of the quality of its products, services, people, processes, and environments”

TQM is a customer-orientated management system which seeks to meet or exceed customer expectations by providing defect-free goods or services the first time, on time, all the time. Although the ultimate goal is to satisfy external customers, TQM recognises that it will be difficult to satisfy external customers without meeting the requirements of internal customers as well. Therefore, it seeks to meet or exceed the expectations of both internal and external customers.

In TQM, the search for improvement is a never-ending process. Thus, when the initial goals are met, newer and higher goals are set. Seeking to achieve incremental improvements continuously is the cornerstone of TQM. The continuous search for improvement requires the full participation and involvement of all stockholders of the organisation, including managers, employees, suppliers and customers. Particularly significant is the buy-in by employees, without whose support the TQM effort would be fruitless.

In TQM, collaboration through team effort among workers and departments is encouraged, and quality improvement becomes everyone's responsibility. In organisations where the TQM culture is well established, the manager's role changes from being an administrator and controller to that of coach and facilitator.

More definitions of TQM are summarised in Table (2-5).

**Table (2-5)
TQM Definitions**

Name (Year)	Definition	Comments
Oakland (1989)	...an approach to improving the effectiveness and flexibility of business as a whole. It is an essential way of organising and involving the whole organisation, every department, every activity, every single person at every level.	This definition explains the term 'total' from functional and organisational hierarchy perspectives. This means that the term 'total' can go even beyond the internal boundaries of the organisation.
Jablonski (1992)	A co-operative form of doing business that relies on the talents and capabilities of both labour and management to continually improve quality and productivity using teams.	This definition emphasises three pillars for successful implementation of TQM: participative management, continuous process improvements and the use of teams. However, the definition does not explicitly mention the role that suppliers and customers play in the success of TQM.
Kanji & Asher (1993)	TQM is about continuous performance improvement of individuals, groups and organisations.	What differentiates TQM from other management processes is the emphasis on continuous improvement. Total quality is not a quick fix, it is about changing the way things are done-forever. Seen in this way, TQM is about continuous performance improvement. To improve performance, people need to know what to do and how to do it, to have the right tools to do it, to be able to measure performance and to receive feedback on current levels of achievement. TQM provides this (see Kanji and Asher 1993) by adhering to a set of general governing principles. They are: delight the customer; management by fact; and people-based management.

Continued.....

Table (2-5) (Continued)

Name (Year)	Definition	Comments
Zairi et al. (1994)	A positive attempt by the organisations concerned to improve structural, attitudinal, behavioural, and methodological ways of delivering to the end customer, with emphasis on consistency improvements in quality, competitive enhancements, all with the aim of satisfying or delighting the end customer.	This definition views TQM from a wider perspective. The definition is meant to include a wide range of critical factors, such as leadership and hard and soft elements. Leadership elements include mission/vision statement, quality policy, direction, goals, communication process, measurement, quality decisions, strategic planning and deployment, and customer and market focus. Hard elements include tools and techniques, measurement, systems, procedures, specifications and standards. Finally, soft elements include problem-solving approach, teamwork, innovation and creativity, continuous improvement philosophy, empowerment, incentives and process-based approach.
Youssef (1994c)	...a total philosophy whose objective is to meet or exceed the needs of internal and external customers by creating an organisational culture in which every one at every stage of creating the product and every level of management is committed to quality and clearly understands its strategic importance.	The vertical view of TQM implies that quality should be the business of everyone in the organisation. At the top of the organisational hierarchy, top management must be committed to quality, set the vision of where the organisation will be in the future, develop strategies that reflect the vision and most importantly be a role model to the rest of the organisation in appreciation of the TQM philosophy. Middle management translates top management strategies regarding TQM into executable plans by operational management. The role of operational management is also important. At first level, quality initiatives in terms of process and function improvements are executed, teamwork is emphasised and problem-solving activities using TQM tools are intensified.

2-2-2.4 The Principles of TQM

The basic principles of TQM are applicable in any organisation, whether manufacturing or service, public or private. However there are certain necessary conditions for the successful implementation of TQM. These basic requirements are summarised below:

- **Top management support and commitment:** Top management must show unwavering support to quality and excellence, and must promote the effort aggressively in order to ensure support among middle managers and workers. This management commitment appears in the amount of resources (time, money, people) that it is willing to allocate to the TQM implementation effort.
- **Long-term orientation and persistence:** TQM is a long term-orientated process which demands persistence and patience. Therefore, it takes a long time before its impact can be known.
- **Customer orientation:** Customers' needs and expectations must be carefully and continuously assessed and understood, and every effort must be made to meet and even to exceed them. This applies both to internal and external customers.
- **Employee involvement:** Full and active involvement of all employees is necessary. Workers should be encouraged to utilise their latent innovativeness and creativity, and should be empowered to make their own decisions in matters related to their specific work.
- **Training:** Thorough, continuous training is necessary if the TQM effort is to succeed. The training program offered should include group dynamics, problem solving and task skills training.
- **Teamwork:** Although individual effort is recognised in TQM, the emphasis is on teamwork. The objective must be to develop a sense of interdependence and a sense of shared purpose. Therefore, employees must be well trained in

group dynamics and in becoming effective team players. Teams must be empowered to introduce incremental improvements which will have a significant impact on the organisation as a whole.

- **Reward and recognition system:** A good TQM system will have built-in mechanisms for motivating and recognising individual employees as well as teams. The reward system must be relevant, meaningful and consistent with the TQM philosophy (e.g., it should be designed in a manner that fosters co-operation and teamwork, and discourages destructive competition among workers and departments).
- **Communication:** TQM seeks to change the established organisational culture. Therefore, it often encounters doubters, sceptics and, at times, staunch resisters. Thus, top management should be sensitive to this fact and should strive to allay the fear and doubt that many members of the organisation may have about TQM by instilling trust and assurance. A successful approach for overcoming these problems is a regular flow of clear and accurate two-way communication between management and workers. Such communication should include explaining the time frame for expecting visible benefits from the TQM system, short-term objectives and long-term goals, and sharing of success stories.
- **Measurement:** Measurement is needed to determine where the organisation has been and how much it has improved. Measurement is also important to identify customer needs, to perform statistical analysis, to monitor progress, and to make errors visible so that their causes could be identified and eliminated.
- **Partnerships:** Management should establish strong partnerships not only with employees but also with customers. Long-term relationships should also be sought and developed with suppliers to ensure a reliable supply of high-quality parts and components.

2-2-2.5 Quality Management in Service Industry:

Quality management in the service industries has been gaining momentum over the past decade. While much has been researched about quality management in manufacturing, the focus on quality in service industries is more recent. Much of the published literature in the area only dates back to the early 1980s. Examples of these are Chase (1981), Carlzon (1987), Haskett et al. (1990), Lovelock (1988), Voss et al. (1985) and Zeithaml et al. (1990).

Customers are becoming increasingly critical and vocal, and business can no longer ignore pressure from powerful consumer lobby groups. In a survey of 100 leading UK businesses, chairmen, CEOs and managing directors, the most important issues identified for success in the 1990s were “building longer term relationships with key customers” and “creating a more customer centred culture”. To achieve those goals over 90% reported quality and customer satisfaction to be “very important”. The report, however, noted the need to go beyond traditional approaches to quality and to adopt a “marketing-led approach to quality management”.

The ideas being developed in services marketing see quality from a customer perspective and recognise that the only arbiter of quality is the customer. What the customer believes is quality IS quality. This perspective on quality, a market-led approach, is also applicable to manufacturing companies where perspectives on quality have been somewhat blinkered by its production and operations genesis.

Quality management programmes require prerequisite changes in management philosophy and organisational culture. Fig. (2-4) illustrates different possible changes that accompany the introduction of total quality service. These changes can be summarised as follows:

1. the focus becomes ‘external’ to the company rather than being organised to meet the ‘internal’ needs of staff, procedures and systems. This requires a shift from focus on what industry needs to what the customer really wants.

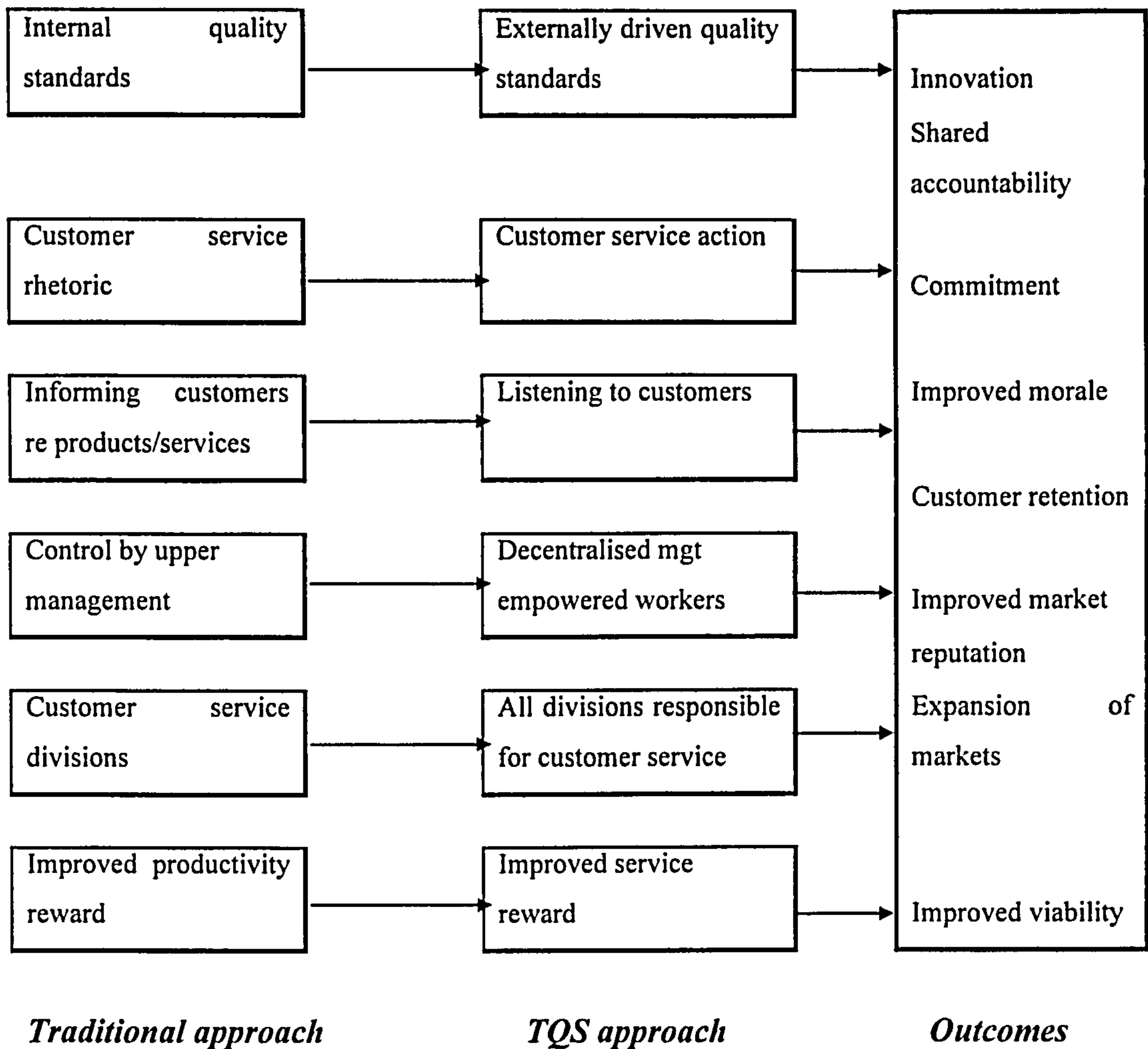
The change in focus is often accompanied by organisational restructuring and improvements in the flow of communication.

2. Action is far more important than rhetoric - it is not sufficient for an organisation to broadcast that it cares about its customers unless it can demonstrate customer care through action. Changes may entice customers to enter the premises but the quality of the service experience will determine the development of customer loyalty.
3. There is a shift from telling customers about the benefits of the product or service to listening to what customers say they require. This relies on gathering feedback from customers that is often highly subjective and difficult to quantify. More importantly, the data must be translated into action in the form of superior service, to retain customers, improve market reputation and thereby to remain viable.
4. Authority is delegated to middle and lower levels of the organisation and is accompanied by empowerment of workers. This indicates that management recognises that workers have an inherently high and sensible capacity to run things well, given an organisational climate that encourages risk-taking and innovation and supports a customer service focus.
5. Instead of being the prerogative of 'shop floor' staff or a particular department, customer service becomes an integrated function that involves employees at all levels of the organisation. All organisational policy needs to be examined regarding customer benefits, to recognise that all internal activities, such as research and development, accounting and production departments, have a direct impact on customers and exist to serve external customers.
6. Management recognises expertise at employee level and shows appreciation through remuneration and incentives schemes. As Le Bouef (1985) has stated, "what gets rewarded gets done". Therefore, giving employees a greater stake in the future of their organisations can break down the barrier of

employee-shareholders versus workers and provides an incentive for genuine commitment to continuous improvement.

Fig (2-4)

Changes that accompany the introduction of total quality service



Source: Gray et al. (1996): quality management in the Australian service industry: progress or problems?. Total Quality Management, Vol.7, No. 1, 1996, P.104

Finally, it is important to recognise that management must learn to see service quality as a process that happens through all of the stages of each customer's experience 'any time'. Value for customers is the 'applied performance' they get from products and services over a period of time. Thus, service quality can best be understood as a relationship. It is not, however, merely the relationship between a customer and a company. Rather, it is the

personal relationship between a customer and the particular employee that the customer happens to be dealing with (Sherden 1988).

Table (2-6) demonstrates how the rules for service quality have emerged from the TQM Literature.

**Table (2-6)
Rules for Service Quality**

Rule	Theoretical proposition	Contributions
1	Customers not management and not operations staff, must define what the company's quality standards will be.	Parasuraman et al. 1985; Zeithaml et al 1988
2	Customer-defined service quality standards must be translated into specific operational terms for employees throughout the company.	Parasuraman et al. 1988; Collier 1991; Luthan and Waldersee 1992
3	Specific service quality goals should be set and progress toward those goals should be measured regularly.	Hensel 1990; Parasuraman et al. 1990; Zeithaml et al. 1988
4	For quality initiatives to be embraced throughout a service company, top management must demonstrate support and enthusiasm, not only through words, but through actions.	Johnston 1992; Zeithaml et al. 1988
5	In companies which offer customised, personalised services to regular customers, empowerment of front-line employees is a key to achieving outstanding service quality.	Berry and Parasuramn 1991; Bowen and Lawler 1992; Schlesinger and Heskett 1991; Zeithaml et al. 1988.
6	In service companies where front-line employees are empowered, middle managers will generally feel threatened and these feelings must be acknowledged and allayed by top management.	Berry et al 1988; Hensel 1990; Schlesinger and Heskett 1992; Sternberg 1993
7	Team work and employee participation are crucial to the success of service quality initiatives	Berry and Parasuraman 1991; Hensel 1990; Parasuraman et al. 1990; Schneider and Bowen 1985; Zeithaml et al. 1988.
8	A successful service quality program requires that the right type of person be hired and given appropriate training and support to accomplish his/her job.	Hensel 1990; Schlesinger and Heskett 1991
9	A company that successfully implements service quality will enjoy greater financial success.	Buzzel and Gale 1989; Zahoric and Rust 1992

Source: Adopted from Stephens Nancy and Mari A. Akers (1994). Implementing Service Excellence: How a small company can do it right; in Advances in Service Marketing and Management , Vol. 3, 127-148

From the previous discussion, it can be concluded that service quality is a matter of controlling details in the service delivery. Quality development means improving all the parts of the service chain and seeing the whole. In fact the combined effects of foreign competition, deregulation, consumerism, and rising production costs have forced many firms to redefine their corporate philosophies to reflect this commitment to quality. Many view it as the key to long-term profitability and even survival in the increasingly competitive business environment of the 90s and the next century. Service quality is a multi-dimensional concept, it may mean different things to different people. Moreover, quality is what the customer perceives, no matter what the service provider might think it is or want it to be.

2-2-3 Dimensions of service quality

The purpose of this section is to identify those important factors (variables) that can be used to measure service quality. Therefore, previous studies in this field will be reviewed, and a model of service quality will be developed.

As service quality has become increasingly important to producers/suppliers' strategies its assessment has become increasingly critical. Several attempts have been made to measure it. Explication and measurement of quality present problems for researchers. Poor service quality is a familiar experience for many of us as consumers and managers and the need to improve its measurement and control, is a common theme of the service management literature. In a recent survey of current practices in service quality, Kellog et al. (1991) found that 73% of the firms strongly agree that measurement is important. Table (2-7) shows which quality measures are used and the average effectiveness. From this table we notice the low percentage of firms using repeat business as a measure of quality, while it is judged to be highly effective by firms using it and is frequently mentioned by quality experts as being an important factor to achieve high quality.

Table (2-7)
Quality Measurement Techniques and Their Effectiveness

Tool	Percentage Using Tool	Average ** Effectiveness
Waiting Time	67%	5.3
Actual Service Time	53%	5.5
Customer Complaints	94%	5.7
Customer Feed back	87%	6.2
Sales Differences	47%	4.7
Quality Audits	67%	5.7
Customer Turnover	47%	4.7
Repeat Business	47%	6.2
** 1 = Not at all effective & 7 = highly effective		

Source: Kellogg, D.L. , Rose, E.L. and Chase, R.B. (1991). Service quality: a survey of current practice. Proceedings of the 23 rd Annual Meeting of the Decision Science Institute, p.1657

Holbrook (1994) recently characterised services quality research as wallowing in a sea of confusion. The precise dimensions of service quality will necessarily vary across sectors, however, even when the appropriate dimensions are being identified, there remains the issue of developing the most suitable method of measurement (Cronin and Taylor 1994). Many authors believe that quality should not be measured directly, but rather they must break down the word "Quality" into manageable dimensions (Berry et al. 1985, Garvin 1984,1985; and Parasuraman et al. 1985, 1988, 1991). More work is still needed to identify the process by which customers evaluate services and their quality. Nelson (1974) proposes two categories of properties that customers use in their evaluative process. (i) Search qualities such as colour, price and smell; these are attributes the customer can determine prior to purchase. (ii) Experience qualities that can only be detected during and after purchase such as courtesy, wearability and purchase satisfaction. Moreover, Darbi and Karni (1973) introduce credence qualities, which are characteristics the customer may find it impossible to evaluate even after purchase (e.g. Hospital care, where patients rarely possess the skills to evaluate the quality of the treatments they receive). One useful approach for understanding service and for modelling service quality is the augmented service offering model (c.f. Kotler 1980 and Gronroos 1990);

which includes the distinction between core and peripheral services. The “core-peripheral” aspects of services have also been termed “technical-functional” (Gronroos 1990), “outcome-process” (Berry et al. 1985), “intrinsic-extrinsic” (Zeithaml 1988), “motivation-hygiene” (Lawson 1986), “rational-trigger” (White and Johnson 1992) and perhaps best of all, “what-how” (Swartz and Brown 1989).

- Core services relate to the customer benefit received or the primary customer reason for the service transaction (Gronroos 1978; 1990, Lovelock 1983, Norman 1984).
- Peripheral services are facilitative or ancillary to the core services.

Core and Peripheral services together combine to form the service package or bundle of customer benefits (Levitt 1981 and Gronroos 1990). Moreover, the augmented service offering includes (is influenced by) not only the bundle of core and peripheral services provided to customers, but also how the service is delivered and how a firm manages its promotion and external communications with customers (Levitt 1981 and Gronroos 1990). Thus, as Kotler (1980) and Gronroos (1990) argue, it is the augmented service quality offering that creates the potential for service quality to consumers.

Table (2-8) summarises the main dimensions of service quality as explored in the literature of previous studies.

Table (2-8)

Dimensions of Service Quality

		Authors (Year)				
		Sasser et al. (1978)	Lehtinin & Lehtinins (1982)	Garvin (1984, 1987)	Gronroos (1984); (1990)	Albrecht and Zemke (1985)
Contributions	<ul style="list-style-type: none"> - levels of material facilities - personnel service quality involves more than one outcome, it also includes the manner in which the service be delivered 	<ul style="list-style-type: none"> - Physical quality (e.g. equipment, buildings) - Corporate quality (company image) - Interaction quality (interaction between contact personnel and customers) <p>service quality produced in the interaction between a customer and elements in the service organisation. They differentiate between the quality associated with the process of service delivery and that associated with the outcome of the service.</p>	<ul style="list-style-type: none"> - Performance - Features - Reliability - Conformance - Durability - Serviceability - Aesthetics - Perceived quality <p>Each dimension is self contained and distinct, and any product can be ranked high in one dimension while being low on another. So quality is not a single, recognisable characteristics, but it is multifaceted and appears in many different forms.</p>	<p>He develops a service quality model based on his distinctions between technical and functional quality</p> <p>He argues that perceived performance (technical & functional quality) leads to building an image about the firm, which in turn leads to the perceived quality</p> <p>Results showed that corporate image is an important service quality dimension. in 1990 Gronroos classified the following six dimensions of service quality: professionalism and skills; attitude and behaviour; accessibility and flexibility; reliability and trustworthiness; recovery; and finally reputation and credibility</p>	<ul style="list-style-type: none"> - Care and Concern - Spontaneity - Problem solving - Recovery 	

Continued

Table (2-8) Continued

		Author (Year)				
		Parasuraman et al. (1985)	Parasuraman et al. (1988)	Johnston et al. (1989)	Armistead (1990)	Carman (1990)
Contributions	<p>Parasuraman et al. (1985)</p> <ul style="list-style-type: none"> - Tangibles, Reliability, Responsiveness, Communication, Credibility, Security, - Competence -Courtesy, Access - Understanding/knowin g of the customer <p>A set of key gaps exist regarding perceptions of service quality and the tasks associated with service delivery to consumers(table 2-11) service quality is therefore, a function of the magnitude and direction of the expected service- perceived service gaps.</p>	<ul style="list-style-type: none"> -Reliability -Responsiveness - Tangible Assurance (courtesy, credibility competence, security) -Empathy (access, communication, understanding/kno-wing the customer) <p>SERVQUAL -Scale will be discussed later section (2-2-3)</p> <p>Leblanc & Nguyen (1988)</p> <ul style="list-style-type: none"> -Corporate image. -Internal organisation. - Physical support of the service producing system. -Staff/Customer interaction. -Level of customer satisfaction. 	<ul style="list-style-type: none"> -Access - Availability -Cleanliness/ Tidiness - Aesthetics -Communication - Comfort - Competence - Friendliness - Security - Reliability - Courtesy <p>Hedvall & Paltschik (1989)</p> <ul style="list-style-type: none"> - Willingness and ability to serve. - Physical and psychological access 	<p>Split dimensions into "firm" and "soft"; The firm dimensions are:</p> <ul style="list-style-type: none"> -Time (including availability, waiting time and responsiveness). - Fault frecness (including physical items, information and advice) - Flexibility (ability to recover from mistakes, to customise the service or add additional services) <p>the soft dimensions are:</p> <ul style="list-style-type: none"> - Style (attitude of staff, accessibility of staff, and ambience) - Steering (the degree to which customers feel in control of their own destiny) - Safety (trust, security and confidentiality) 	<ul style="list-style-type: none"> - Admission service - Tangible accommodations. - Tangible food -Tangible privacy - Nursing care - Explanation of treatment. - Access and courtesy afford visitors. - Discharge planning. - Patient accounting (billing). <p>Silvestro & Johnston (1990)</p> <p>They extended Johnston et al (1989) by adding new five quality factors:</p> <ul style="list-style-type: none"> - Functionality - Attentiveness - Care - Commitment - Integrity <p>Walker (1990)</p> <ul style="list-style-type: none"> - Product reliability - Quality environment - Delivery system 	

Table (2-8) Continued

		Author (Year)		
Mister et al. (1990)	Mersha & Adalkha (1992)	Bouman & Vander Wiele (1992)	Le Blanc (1992)	Aukiran (1994)
<p>Add the following 3- dimensions to Garvin & Parasuraman dimensions</p> <ul style="list-style-type: none"> - Delivery - Information - Cost <p>They argue that for a product/ service to be of value to customers, it must be delivered in a timely and reliable manner, also necessary information in how to use the product or service must be available and there must be a reasonable cost with respect to the benefits of the product or service for the customer</p>	<p>Introduce attributes of good and poor service quality.</p> <p>This study identifies separate attributes for good and poor quality while previous studies dealt with attributes of service quality in general.</p> <p>The results of this study showed that absence of some attributes leads the consumers to perceive service quality as poor, however where these attributes are present , they may not be accorded great importance as determinants of good quality. Hence, such attributes seem to have similar effect as Herzberg's hygiene factors (Herzberge 1968)</p>	<ul style="list-style-type: none"> - Customer kindness - Tangibles - Faith <p><u>Saleh & Ryan (1991)</u></p> <ul style="list-style-type: none"> - Conviviality - Tangibles - Re-assurance - Avoid sarcasm - Empathy 	<p>There are 9-factors identified to measure service quality:</p> <p>Physical evidence, competence, corporate image, timeliness, courtesy, competitiveness, responsibility, and accessibility. corporate image is the most significant independent variable which means that over all impression left on the minds of customers is an important determinant of service quality in travel agencies. Measuring service quality is considered difficult for the soft part of the service (i.e. how the services are being offered and the service process), and easier for the technical part of the services (i.e. what is offered and output.</p>	<ul style="list-style-type: none"> - Staff conduct - Credibility -Communication - Accessibility <p><u>Gagliano & Hathcote (1994)</u></p> <ul style="list-style-type: none"> - Personal attention - Reliability - Tangibles - Convenience
Contributions				

From Table (2-8) it is possible to group the dimensions of service quality into five categories as shown in Table (2-9).

Table (2-9)
Categories of quality dimensions

Dimensions	Authors
Tangible	Sasser et al. 1978; Lehtinin & Lehtinin 1982; Parasuraman et al. 1985,1988;; Garvin 1987; Johnston et al. 1989; Le Blanc 1992; Mersha & Adalkha 1991
Reliability	Garvin 1987; Johnston et al. 1989; Misterek et al. 1990; Mersha & Adalkha 1991
Responsiveness	Garvin 1987; Johnston et al. 1989; Selvestro & Johnston 1990; Le Blanc 1992; Mersha & Adalkha 1991
Assurance	Garvin 1987; Johnston et al. 1989; Misterek et al. 1990; Selvestro & Johnston 1990; Le Blanc 1992; Mersha & Adalkha 1991; Aukiran 1994
Empathy	Johnston et al. 1989; Selvestro & Johnston 1990; Le Blank 1992; Mersha and Adalkha 1991; Aukiran 1994
Cost (Value)	Mister et al (1990), Mersha & Adalkha 1991; Aukiran 1994
Corporate Image	Lehtinin and Lehtinin (1982); Gronroos (1984); LeBlanc (1992)

Notes: The meanings of the above attributes include the following sub-characteristics
Tangible: physical facilities, equipment and appearance of personnel
Reliability: ability to perform the promised service dependably & accurately
Responsiveness: willingness to help, provision of prompt services
Assurance: knowledge, courtesy, ability to convey trust and confidence
Empathy: caring individualised attention to customers

From Table (2-9) we can conclude that researchers are generally in agreement about understanding the concept of service quality and its dimensions; although they disagree over the names and numbers of these dimensions. Most of the variables identified as measuring the dimensions of service quality are summarised in the 22- items of SERVQUAL battery suggested by Parasuraman et al. (1988) (Table 2-10), except for a few attributes such as corporate image and cost. SERVQUAL scale and its criticisms will be discussed in the following section.

Table (2-10)
SERVQUAL Battery

<p>Reliability</p> <ol style="list-style-type: none"> 1. Providing services as promised. 2. Dependability in handling customers' service problems. 3. Performing services right the first time. 4. Providing services at the promised time. 5. Maintaining error-free records.
<p>Responsiveness</p> <ol style="list-style-type: none"> 6 Keeping customers informed about when services will be performed. 7 Prompt service to customers. 8 Willingness to help customers. 9 Readiness to respond to customers' request.
<p>Assurance</p> <ol style="list-style-type: none"> 10 Employee who instil confidence in customers. 11 Making customers feel safe in their transaction. 12 Employees who are consistently courteous. 13 Employee who have the knowledge to answer customer questions.
<p>Empathy</p> <ol style="list-style-type: none"> 14 Giving customers individual attention. 15 Employees who deal with customers in a caring fashion. 16 Having the customers' best interest at heart. 17 Employees who understand the needs of their customers. 18 Convenient business hours.
<p>Tangible</p> <ol style="list-style-type: none"> 19 Modern equipment. 20 Visually appealing facilities. 21 Employees who have a neat, professional appearance. 22 Visually appealing materials associated with the service.

Source: Parasuraman, A., Valarie A. Zeithaml and Leonard L. Berry (1994). "Alternative Scales for Measuring Service Quality: A Comparative Assessment Based on Psychometric and Diagnostic Criteria". *Journal of Retailing*, 70(3): 207.

2-2-4 SERVQUAL -Scale

One of the important contributions in measuring service quality is the work done by Parasuraman et al. (1985;1988). Parasuraman et al.(1985) report qualitative exploratory research concerning service quality perceptions using in-depth interviews with executives. Twelve focus groups with executives (managers) from five different service firms (retail banking, credit card, security brokerage, product repair and maintenance service categories and long distance telephone) leads to the conclusion that a set of key gaps exist regarding executive perceptions of service quality and the tasks associated with service delivery to consumers. Classification of these gaps is shown in Table (2-11)

Table (2-11)

Gaps in Parasuraman, Zeithaml and Berry Service Quality Model

Gap 1 The difference between actual customer expectations and management perception of customer expectations.
Gap 2 The difference between management perception of customer expectations and service quality expectations.
Gap 3 The difference between service quality specifications and the service quality delivered
Gap 4 The difference between service delivered and what is communicated about the service to customers.
Gap 5 The difference between customer expectations and perceptions.

Source : Parasuraman, A. , Zeithaml, V.A. & Berry, L.L. (1985), A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49 (2), p. 44-46

Parasuraman et al. (1985) propose that service quality is therefore a function of the magnitude and direction of the (expected service - perceived service) gap. This study shows that the criteria used by consumers in assessing service quality incorporate ten dimensions. These dimensions (as shown in Table 2-12) are: tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding/knowing of the customers and access.

Table (2-12)

Parasuraman, Zeithaml & Berry Dimensions of Service Quality

Dimensions	Examples of evaluative criteria
Tangibles	Appearance of physical facilities and personnel
Responsiveness	Willingness and ability to provide prompt service
Credibility	Trustworthiness of customer contact personnel
Communication	Explaining service to customers in language they can understand
Reliability	Performing service right the first time
Security	Confidentiality of transactions
Access	Ease of contacting service firm by telephone
Understanding/ knowing customers	Making an effort to ascertain a customer's specific requirements
Competence	Knowledge and skill of customer contact personnel
Courtesy	Friendliness of customer contact personnel

Source: Parasuraman, A. , Zeithaml, V.V. & Berry, L.L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49 (2), p. 6-7

Following procedures recommended in Churchill's (1979) paradigm (fig. 2-5) for developing better measures for social sciences' constructs, Parasuraman

et al. (1988) developed an instrument called SERVQUAL for measuring customer perceptions of service quality. SERVQUAL is constructed to be a quantitative yardstick for gauging consumer perceptions. In the process of developing this scale they condensed the ten dimensions of service quality listed in their previous study (1985) (as shown in Table 2-12) into five dimensions containing 22 pairs of items (Table 2-13). These dimensions are: Reliability, Responsiveness, Assurance, Tangibility and Empathy, (access, communication, and understanding/ knowing the customer, were condensed into "empathy", and competence, courtesy, credibility and security were condensed into "assurance").

In this study, they propose also that each quality dimension can be quantified by:

1. obtaining measures of expectations and perception of performance levels for service attributes relevant to each dimension;
2. calculating the difference between expectations and perceptions of performance on these attributes, and then
3. averaging across attributes.

They also suggest that expectations are influenced by personal needs, word of mouth communication, and past experiences.

Table (2-13)

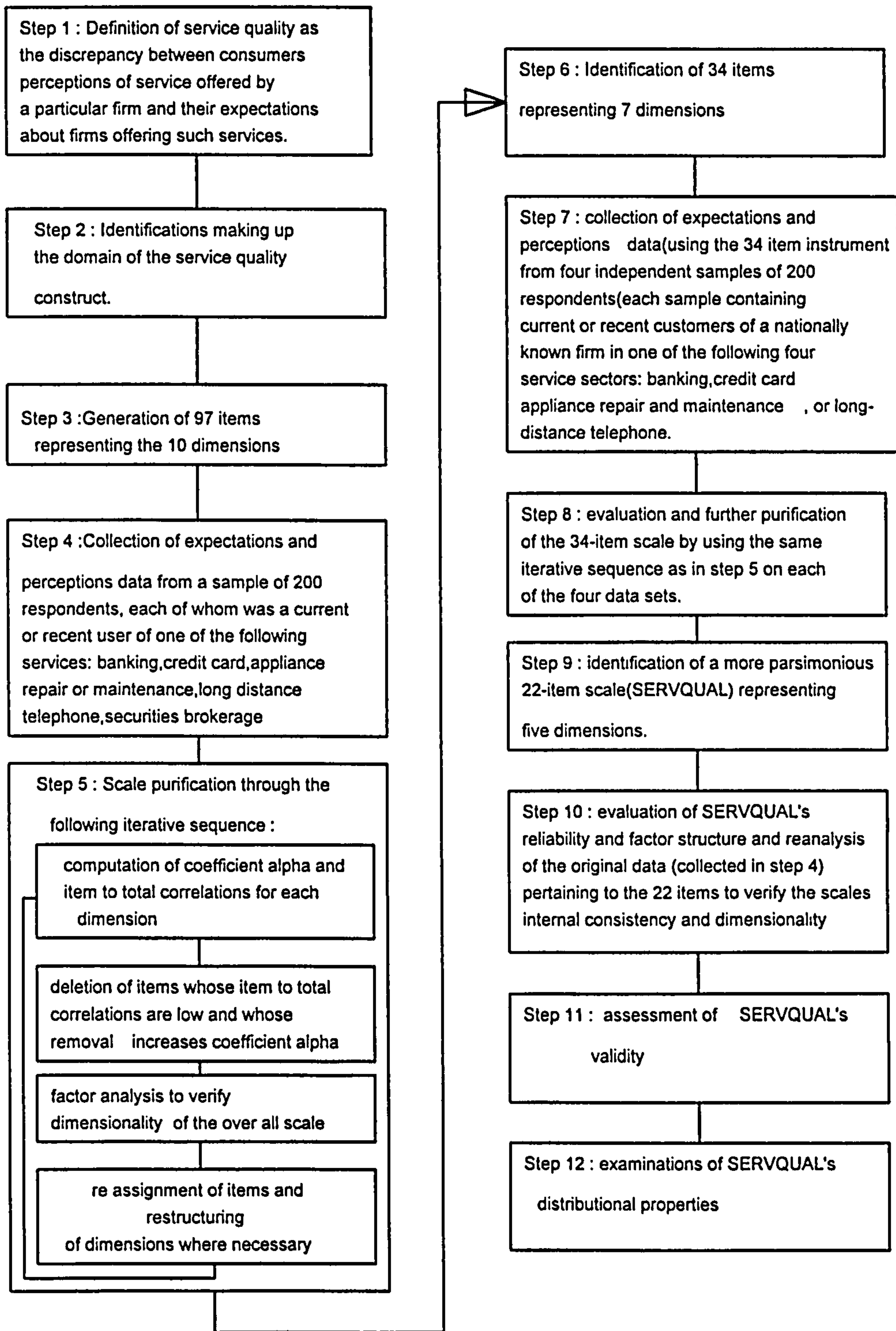
Parasuraman, Berry & Zeithaml Reduced Dimensions of Service Quality

Tangibles Physical facilities, equipment, and appearance of personal
Reliability Ability to perform the promised service dependably and accurately.
Responsiveness Willingness to help customer and provide prompt service.
Assurance Knowledge and courtesy of employees and their ability to convey trust and confidence.
Empathy Caring individualised attention the firm provides its customers.

Source: Parasuraman, A. , Zeithaml, V.A. & Berry, L.L. (1988). SERVQUAL: A multiple-item scale for assuring consumer perceptions of service quality. *Journal of Retailing*, 64 (1), p.23

Fig (2-5)

Steps Used in Developing the Service Quality Scale (SERVQUAL)

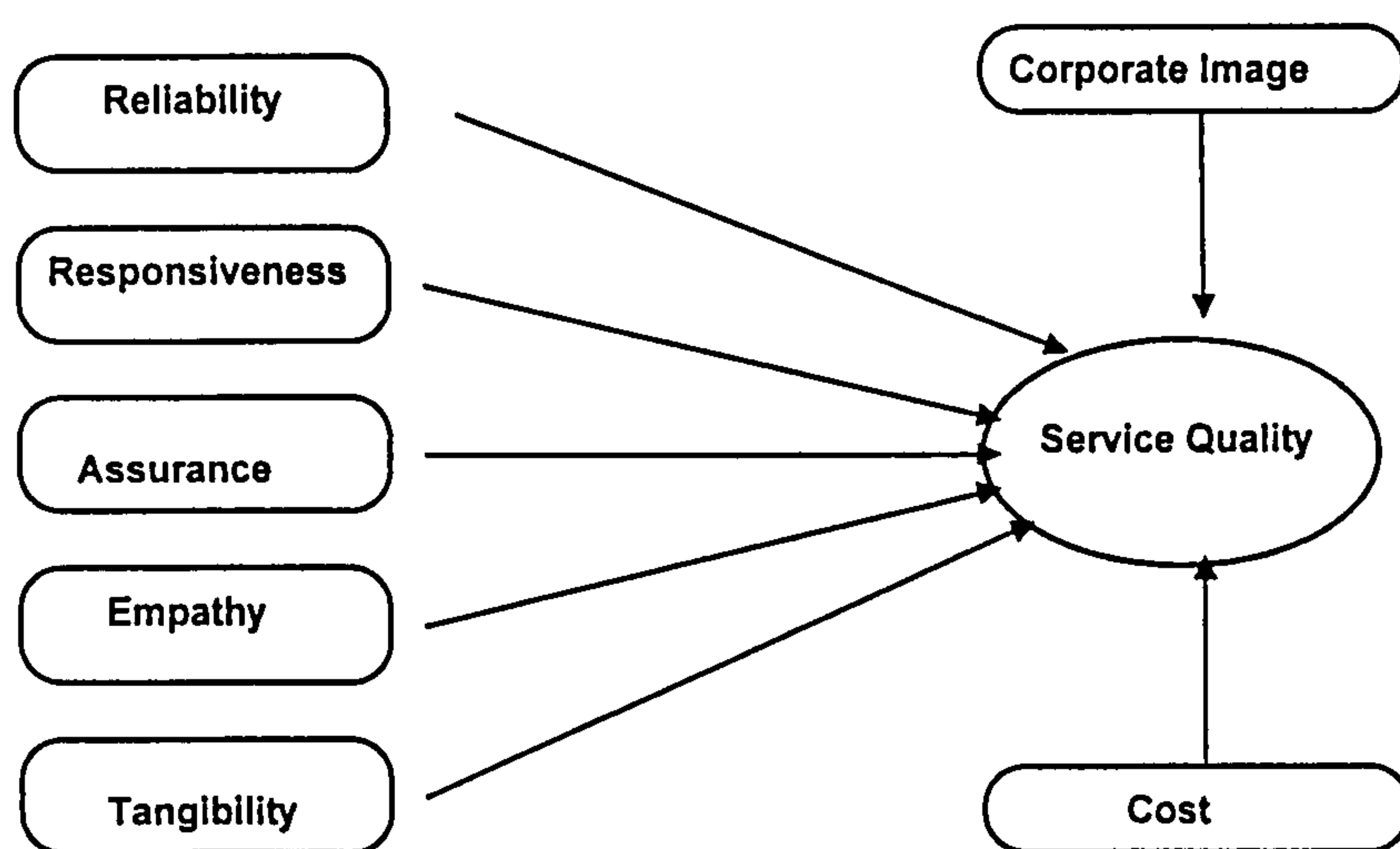


Source: Adapted from Parasuraman, A., Zeithaml, V.A. & Berry, L.L. (1988). SERVQUAL: A multiple-item scale for assuring consumer perceptions of service quality. Journal of Retailing, 64 (1), p.14

The previous discussion leads to the identification of a conceptual model of service quality that can be presented as seen in fig (2-6). The importance of this model comes from the addition of two dimensions (elements) to the five dimensions suggested by Parasuraman et. al. (1988) in the SERVQUAL. These two dimensions are: corporate image and ticket cost. The author believes that these two factors have an important impact on passengers decisions to choose a specific airline to fly with. Therefore, these two dimensions were included while discussing pre-flight services as shown in Table (3-10) and in fig. (3-6).

Fig. (2-6)

Conceptual Model of Service quality as suggested by previous literature



2-2-4.1 SERVQUAL Criticism

In this section, the main criticisms of SERVQUAL will be discussed, also improvements made by the creators of SERVQUAL to their scale will be reviewed.

The SERVQUAL instrument has received considerable recognition in the general service marketing literature as a result of the pioneering work of its authors. This scale has made an important contribution to the area of perceived service quality measurement to the degree that it seems scholars " throughout the

world" are using SERVQUAL and the research surrounding it "as a basis for their own studies" (Zeithaml et al. 1990 , p. xi). SERVQUAL serves as the basis for measurement approaches used in published studies examining service quality in a variety of contexts as shown in Table (2-14):

Table (2-14)

Examples of previous studies that applied SERVQUAL

Author (Year)	Industry (Sector)
Johnston et al. (1988)	real estate brokers
Crompton and Mackay (1989)	public recreation programs
Carman (1990); Rigotti and Pitt (1992)	a dental school patient clinic, a business school placement centre, and a tyre store
Brensinger and Lambert (1990)	motor carrier companies
Bojanic (1991); Freeman and Dart (1993)	accounting firms
Finn and Lamb (1991)	discount and department stores
Carman (1990); Babakus and Smith (1990); Reidenbach and Smallwood (1990); Mangold and Babakus (1991); Soliman (1992); Vandamme and Leunis (1993); Walbridge and Delene (1993).	hospitals and health organisations
Babakus and Boller (1992) Babakus et al. (1993)	a gas and electric utility company airline catering
Cronin and Taylor (1992); Wong and Perry (1991); Kwon and Lee (1994);	banking, pest control, dry cleaning, and fast food banking
Saleh and Ryan (1991)	hotels
Fick and Ritchie (1991)	travel and tourism
Bouman and VanderWiele (1992)	car servicing
Ford et al. (1993); McElwee and Redman (1993)	higher education
Johns (1993)	hospitality
Baker and Lamb (1993)	architectural services
Taylor et al. (1993)	recreational services
Gagliano and Hathcote (1994)	apparel retailing
Scott and Shieff (1993)	local government
Boulding et al. (1993); Teas (1993)	higher education

Despite the popularity of the SERVQUAL, several analysts have suggested that the measure has serious shortcomings that limit its usefulness. The criticisms of SERVQUAL focus on: the need to measure expectations (e.g., Babakus and Mangold 1992, Cronin and Taylor 1992, 1994); the interpretation and operationalisation of expectations (e.g., Smith 1994, Teas 1993, 1994); the reliability and validity of SERVQUAL's difference-score formulation (e.g., Babakus and Boller 1992, Brown et al. 1993); negatively worded items, as clarified by many researchers (e.g. Smith 1990, Carman 1990, Babakus and Mangold 1992); and about SERVQUAL's dimensionality (e.g., Carman 1990; Finn and Lamb 1991). Table (2-15) summarises the main contributions and comments of several researchers on the SERVQUAL scale. It is useful to remember here that SERVQUAL is a modified version of the scale introduced in 1985 and Table (2-15) includes certain comments on the original scale (1985) in addition to those on SERVQUAL. In Table (2-16) a summary of Parasuraman et al.'s responses to these criticisms is presented.

Table (2-15)

Summary of different criticisms on SERVQUAL

Comments	Authors (year)
<ul style="list-style-type: none"> • They criticise the cross sectional approach for failing to account for the possibility that the factors explain differences among consumers' attitudes at time t may not be the same as the factors that cause change in a given consumer's attitudes at time t+1. 	<p>Bolton & Drew (1991)</p>
<ul style="list-style-type: none"> • They took issue with the conceptualisation and measurement approach used in developing SERVQUAL. Therefore, they explain that the disconfirmation paradigm (P-E) is inappropriate for measuring perceived service quality. • They conclude that measures of service firm performance (SERVPERF) appear more appropriate conceptualisation and operationalisation of service quality. • Explained variance in SERVPERF performs better than the SERVQUAL. 	<p>Cronin & Taylor (1992)</p>
<ul style="list-style-type: none"> • There are problems with conceptualising service quality using SERVQUAL. • There are 3- psychometric problems associated with the use of difference scores to measure service quality: a) Difference score measures will not typically demonstrate discriminant validity from their components. b) Difference score measures demonstrate poor reliability. c) Variance restrictions (the expected or desired level of service is almost always higher than the perceived level of actual service. • The increased length of the questionnaire 	<p>Brown et al. (1993)</p>
<ul style="list-style-type: none"> • The problem of measuring expectations. Increasing P-E scores may not reflect continuously increasing levels of perceived quality as clarified by SERVQUAL. 	<p>Teas (1993 a)</p>
<p>There are many questions about:</p> <ul style="list-style-type: none"> • The extent to which SERVQUAL items can be generalised. • The inability of these dimensions to recognise the multifaceted nature of many services • The inability in considering many important issues like service outcome, price/quality or value relationship. • Problems of using and measuring expectations. • The problem of timing and frequency of administration • The length of the questionnaire. 	<p>Smith (1995)</p>

Table (2-16)**Parasuraman et al. Response to Different Criticisms**

Comments	Author/Year
<ul style="list-style-type: none"> • The change in orientation from the level of service that should be provided to the level that would be provided • Transformation of negatively worded items into positively worded statements. 	Parasuraman et al. (1990)
<ul style="list-style-type: none"> • In their response to Brown et al. (1993); they explain that: <ul style="list-style-type: none"> a) SERVQUAL measures have high reliabilities b) Because of high reliability, the problem of discriminant validity will not be found. c) The problem of (variance restriction) will be an issue just when the difference scores are used in multivariate analysis d) The increased length of the questionnaire will give rich information, besides this length can be reduced. 	Parasuraman et al. (1993)
<ul style="list-style-type: none"> • In their response to Cronin & Taylor (1992); they explain that : <ul style="list-style-type: none"> a) SERVQUAL is a tool to obtain a reading of the attitude level, not a statement about how the level was developed. b) Variance captured for SERVQUAL items is lower than that for the SERVPERF items c) SERVQUAL is richer construct than SERVPERF. 	Parasuraman et al. (1994)

From the previous discussion and as seen in Tables (2-15 & 2-16) it can be concluded that the five SERVQUAL dimensions are somewhat unclear; therefore, several attempts have been made to ascertain their reliability. Also the usefulness of measuring expectations is questioned. Even those who developed this scale considered the degree of overlap between dimensions to be substantial and important. Moreover, even if SERVQUAL is presumed to capture the aspects of service quality process, this process (as such) is not measured (Armstrong 1992). The addition and omission of the items that may be used to measure service quality depends largely on the unique characteristics of the industry; each industry may have special characteristics that may affect customers perception of service quality. Therefore, the precise dimensions of service quality will necessarily vary across sectors. However, even when the appropriate

dimensions have been identified there remains the issue of developing the most suitable method of measurement (Cronin and Taylor 1994).

We can say that SERVQUAL constitutes the ground and basis for service quality measurements, and that the work done by Parasuraman et al. (1985; 1988) has made a significant contribution to service quality research. Managers are advised to consider carefully which issues are important to service quality in their specific environments and therefore, it is the work of others to improve the scale as much as is needed.

2-3 Employee Importance to The Service Organisation

This section discusses the nature of relationships between employees and customers. There will be a brief review of the related literature that investigates the role and importance of service employees in customers' perception of service quality and their satisfaction with the provided services. This will also help, in identifying employee performance and how they perceive customers' expectations of these services. Therefore, management can find the gaps between customers' expectations of the service and how employees perceive these services.

The relationship between the customer and the service provider is anticipated to be an important determinant of quality and satisfaction because services are typically processes with large interpersonal components (Brown and Swartz 1989, Crosby 1991, Crosby and Stephens 1987, Solomon et al. 1985, Swartz and Brown 1991). Management becomes increasingly aware of the importance of their service employees and the influence they have on the organisation's image and profit margins. The face-to-face work always results in un-certainty and increased stress, as employees try to anticipate and meet potentially conflicting demands from management and customers (Kats and Kahn 1978, Schneider and Buxton 1980, Argote 1982, Mills et al. 1983). It is commonly understood that the key to ensuring good service quality is meeting or

exceeding what customers expect (Zeithaml et al. 1990). Therefore, it is critical that the service employees understand customer needs and wants.

Customer service employees are seen by the organisation and their customers as the “corporate ambassadors” who hold many of the keys to customer satisfaction and loyalty (Church and Stum 1990). The transactions that occur between service employees and their customers are “moments of truth” which form the basis for the on-going (or discontinued) relationship between customers and service organisations (Peter and Austin 1985). The service employee is usually the only organisational representative that the customer interacts with; thus, the customer sees the employee as both manager and seller and the employee’s behaviour as the “product” itself (Lovelock 1990 b). The fact that often those employees who have the most contact with customers are in lower-level positions within the organisation means that the organisation entrusts its reputation and cash flow to the performance of employees who are on the lowest rung of the organisational ladder (Tansik 1990). Therefore, management should take care of its employees because service effectiveness actually hinges in part on the emotions consistently expressed by employees (Czepiel et al. 1985). The employee-customer interaction is truly the point at which customers form their opinions of the organisation and its service; therefore it is said that there is no room for “quality control” between the employees’ behaviour and the customers “purchase” (Schneider 1980); the service employee behaviour is the “product” that the customer consumes.

Norman (1984) agrees that the emphasis must be placed on interpersonal skills in service organisations, and argues that one of the most critical outputs of service companies is the creation or maintenance of a social relationship with a customer. Research has shown that 68% of customers, stop purchasing a product

or service from an organisation as a result of an attitude of indifference on the part of an employee (Jenkins 1992).

Front-line employees, especially those in high contact service systems such as the airlines, experience an excessive amount of day-to-day uncertainty due to customers' direct involvement in the service process. These "external" players affect the time of demand, the exact nature of the product or service, as well as the "product/service" quality. Therefore, front line service providers must be able to stand up to contact with a constant flow of unfamiliar faces and must be flexible enough to respond to a variety of unpredictable questions and demands while always displaying the requisite empathy, tolerance and stamina (Zemke and Schaaf 1989). It is important to recognise also that it is not one's actual feelings but one's face (Goffman 1959), or display, that is sold in service (Hochschild 1983); this develops, over time, a relationship between the display and one's feelings. It is difficult to distinguish between display and feelings, a service employee who has negative feelings regarding his or her job, is forced to maintain a display consistent with the emotions required by management; therefore, he will experience undue tension and stress.

From the previous discussion; it can be concluded that service employees have an important role in determining service quality and a lot of what the customer perceives as service quality is influenced by the behaviour, skill level and performance of service personnel. Forber and Cox (1992) present a model of how employees may participate in quality improvement efforts:

- (i) Critical indicates are identified by the contact persons from their own experiences.
- (ii) Performance gaps between customer and contact persons are analysed.
- (iii) Improvement measures are worked out in role plays. In this way employees and customers are trained to identify, analyse and solve different quality problems.

To improve perceived service quality, service employees particularly those who come into direct contact with customers should be well trained both in interpersonal and technical skills and should be highly motivated. Quality improvement efforts should be directed to contact personnel in order to increase their willingness and ability to perform (Hart et al. 1990). Thus, contact personnel should be involved in setting goals and quality standards for their agency while taking customer expectations into account during this process. Also, contact personnel must be convinced that concern for quality is a part of their job (Shetty 1988). This will improve their performance to meet customers' expectations.

2-4 Satisfaction

The purpose of this section is to review some of the consumer behaviour literature that focuses on customer satisfaction. This will help to understand the nature of satisfaction and dissatisfaction and throw some light on the differences between satisfaction and service quality.

The first subsection reviews the nature of satisfaction and its definition. The second subsection identifies some of the consumer satisfaction models, mainly focusing on reviewing the literature that covers disconfirmation models and their components. This appears to be the central model for understanding how satisfaction emerges from the purchase process. The third subsection reviews gap model and explores the difference between service quality and satisfaction. A discussion of satisfaction measurement will be given in the methodology chapter (section 5-5-2).

2-4-1 Satisfaction Definition

The concept of consumer satisfaction has been the subject of empirical testing for a longer period of time than service quality and, therefore, it is more thoroughly developed (Oliver 1993). Considerable conceptual and empirical work has been undertaken to define and model consumer satisfaction/dissatisfaction (CS/D) since Cardozo's (1965) study. More discussion about this subject is given in section (2-4-2). The concept has its roots in the literature of economics and marketing. Samuelson (1976) equated satisfaction with the concept of product or service utility and uses the two terms interchangeably: "as a customer you will buy a good because it gives you satisfaction or utility". An individual, according to this view, is defined as acting rationally if his behaviours are directed towards maximising his satisfactions or utilities. Thus, a consumer is making rational choices concerning the allocation of his resources with the ultimate goal of maximising his satisfaction.

The doctrine of consumer sovereignty and consumer satisfaction is well reflected in the marketing concept as well. The American Marketing Association defines marketing as:

“the process of planning and executing conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organisational objectives” (Lewis and Chambers 1989).

The following discussion will concentrate on the marketing oriented definitions of satisfaction. Conceptually, CS/D contains both cognitive and affective elements; Swan (1983) noted that:

“ satisfaction is a ... specific affective/cognitive post-purchase orientation that has as its focus the evaluation of the product in terms of its performance in use” (p. 126).

Rust and Oliver (1994) also take this view describing the dominant model of customer satisfaction in the service literature as follows:

" In brief, customer satisfaction is a summary cognitive and affective reaction to a service incident (or sometimes to a long- term service relationship)".

Oliver (1981) stated that the surprise or excitement of this evaluation is thought to be of finite duration and soon decays into one's overall attitude to the product (service). He successfully measures both cognitive and affective elements of CS/D and defines it as:

"the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience" (p.29).

Therefore, the evaluative aspect of CS/D judgement is typically assumed to vary along a hedonic continuum, i.e., from unfavourable (dissatisfied) to favourable (satisfied).

Consumer satisfaction was first viewed as the consumer's fulfilment response. However, Oliver (1993a) further argues that satisfaction involves states that are not limited to mere situation and thus can be described as a process. Oliver

(1993b) extends this argument by presenting and empirically validating a model of consumer satisfaction that captures this broadening definition of the domain of the satisfaction construct in the recent services literature. Briefly, this model of consumer satisfaction demonstrates that satisfaction judgements are influenced by both positive and negative affective (i.e. emotional) response and cognitive disconfirmation. Swan and Mercer (1982) use the social equity theory to explain the customer satisfaction/dissatisfaction (CS/D). The consumer evaluates the benefit received from the product in relation to its cost (price and effort) and then he compares this ratio with the corresponding cost/benefit ratio realised by some other relevant person, such as a friend. The basis for comparison becomes the degree of equity which consumers perceive between what they achieved and what the other person had achieved

Following a new approach Johnston and Lyth (1991) define consumer satisfaction (CS) in an equation form. They believe that CS will not be based on a single factor, but rather will be the result of a combination of several factors that consumers determine to be appropriate in the creation of satisfaction. They represent consumer satisfaction determinants in the following equation:

$$CS = w \times n \sum_{i=1}^n sf$$

Where;

cs = consumer satisfaction

sf = various factors (e.g. safety, mechanical difficulties, connecting flights, cleanliness of the plane,..)

w = weighted in accordance with consumers' feelings

i = lable of each factor

n = number of factors

Johnston and Lyth (1991) explain that some factors may be more important than others and that weights and factors vary during the service; for example, air passengers may not place much weight (w) on the safety of the airline service, but may be more interested in making a connecting flight; however, if the plane develops a mechanical difficulty during the flight and their lives are in danger,

safety becomes important in the service evaluation, therefore a safe landing becomes more important than the missed connection. Also, the authors indicate that consumer satisfaction with the factors (sf) is a weighted average of the perception of those factors throughout the service. For example, the cleanliness of a plane is a function of the cleanliness of the seats, internal cabin walls, aisles and rest-room facilities. The weights assigned by each passenger will differ, resulting in a difference satisfaction for each passenger

The definitions that have received most support in the literature consider CS/D as a post-purchase evaluation judgement concerning a specific purchase transaction. (Howard and Sheth 1967, 1969, 1973, Engel et al. 1986, McNeal 1973, Oliver 1981, Day 1984, Westbrook and Oliver 1991). These are summarised in Table (2-17).

Table (2-17)

Examples of satisfaction definitions as a post purchase evaluation judgement

Satisfaction is the final outcome in the consumer decision process that consists of: problem recognition, search, alternative evaluation, choice, outcomes and satisfaction (Engel et al. 1986).
Consumer satisfaction is the buyer's cognitive state of being adequately or inadequately rewarded in a buying situation for the sacrifice he has undergone. The purchase and consumption experience with the reward that was expected from the brand in terms of its anticipated potential to satisfy the motives served by the particular product class" (Howard and Sheth 1969, p. 145)
Consumer satisfaction is the degree of fit between consumers' expectations of service quality and the quality of the service as perceived by consumer (Gronroos 1984; Johnston 1987).
Satisfaction is the consumer's evaluation of the extent to which the product or service fulfils the complete set of wants and needs which the consumption act was expected to meet (Czepiel et al. 1974).
Satisfaction is "... the consumer's response to the evaluation of the perceived discrepancy between prior expectations (or some other norm of performance) and the actual performance of the product as perceived after its consumption (Tse and Wilton 1988, p. 204).

These definitions consider satisfaction as the end state of the consumer purchase decision and postulate the satisfaction of consumer wants and needs as the central purpose of the marketing process. They also show that if the actual outcome of a product was seen as better than or equal to the outcome expected,

the buyer would feel satisfied (the opposite is also true). Thus, the chief responsibility of the firm is to satisfy the long-term needs of its customer coalition and therefore, it must strive to implement the marketing concept (Levitt 1969). Therefore, a natural question is whether CS/D and consumption emotion are distinguishable theoretical constructs (Westbrook and Oliver 1991). These conceptualisations suggest that CS/D represents a consumer's evaluation of a specific transaction and consumption experience and contains both affective and cognitive components (Patterson and Johnson 1993).

From the previous definitions, many aspects of satisfaction concept should be noted:

1. Satisfaction is described as a complex and multivariate construct.
2. Cognitive processes such as perception and evaluation are emphasised; these features identify consumer satisfaction as something different from the simple reinforcement of rewarding behaviour.
3. Expectations serve as the normative standard in the appraisal process. This matter differentiates satisfaction from an objective evaluation of product characteristics.

To give a clear idea of satisfaction, different models of consumer satisfaction/dissatisfaction will be discussed in the following section.

2-4-2 Models of Consumer Satisfaction

This section identifies some of the models used to understand customer satisfaction. Cardozo (1965) brought together two branches of psychological theory, "contrast" theory and "dissonance" theory to provide the basis for making specific statements about consumer satisfaction and in particular the relationships between effort, expectation and evaluation (Johnston 1993).

- "Contrast theory implies that a customer who receives a product less valuable than he expected will magnify the difference between the product received

and the product expected. Even if this original expectation were to change, he would still be free to compare unfavourably the product with better one” (Cardozo 1965).

- On the other hand, “dissonance theory would imply that a person who expected a high-value product and received a low-value product would recognise the disparity and experience cognitive dissonance”. Dissonance is aroused in this case because receiving a low-value product is not consistent with having expected a high value product. So, this difference would put pressure on the individual to reduce perceptions.

Based on Cardozo’s work, various models have been used and developed over the last fifteen years to explain the satisfaction/dissatisfaction construct. They include attribution models (see for example Oliver and DeSarbo 1988), affective models (Westbrook 1987), equity models (Woodruff et al. 1985), multiple process models (Tse and Wilton 1988), the perceived performance model (LaTour and Peat 1979) and the expectancy disconfirmation model (Oliver 1980). A comparison of these models is contained in Erevelles and Leavitt (1992). They concluded that: “it is still not very clear which paradigm may best model consumers’ satisfaction/dissatisfaction judgements in various situations”. However, the most widely used and accepted paradigm is the expectancy disconfirmation theory (see for example: Woodruff et al. 1985, Swan 1988, Tse and Wilton 1988, Oliver and DeSarbo 1988, Vezina and Nicosia 1990, Bolton and Drew 1991, Mattsson 1991).

2-4-2.1 Disconfirmation Models and their Components:

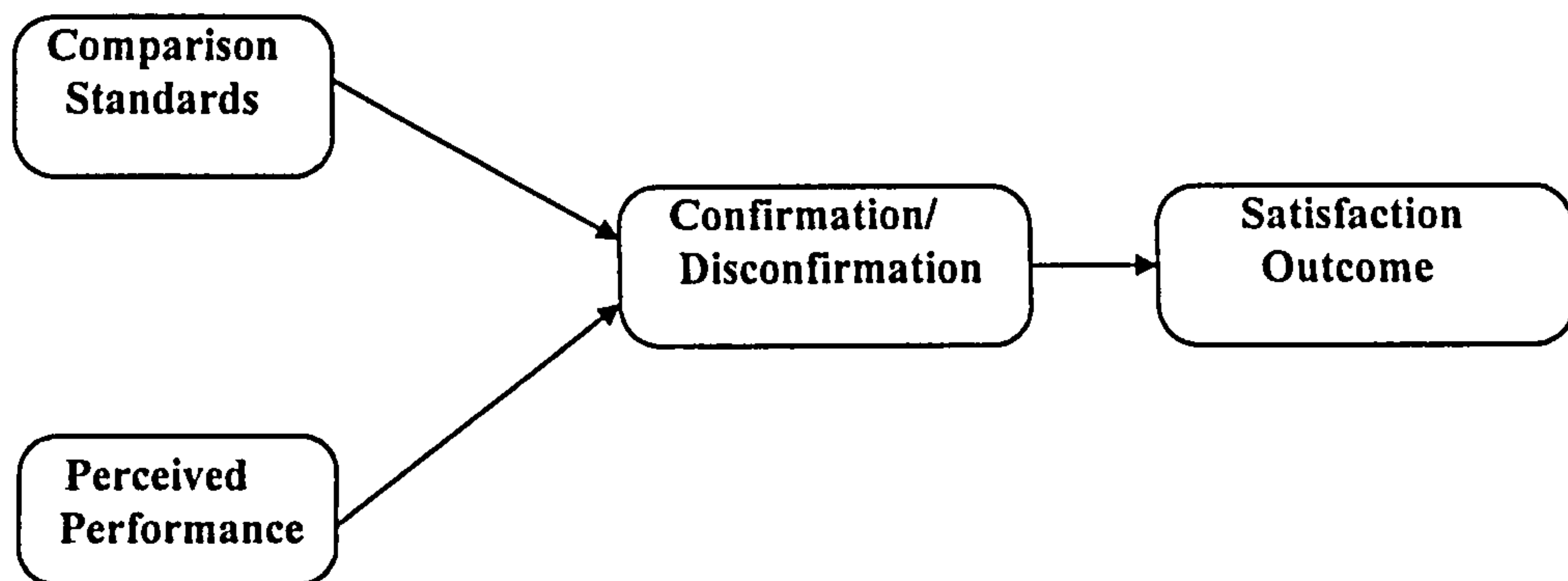
Several models have been proposed to examine the antecedents of satisfaction and provide theoretical explanations of consumer satisfaction. The vast majority of researchers have employed the confirmation/disconfirmation paradigm. This paradigm is considered the dominant conceptual model in the customer satisfaction literature (Patterson and Johnson 1993). In this paradigm

consumer evaluate consumption experiences and make satisfaction decisions by comparing perceived performance with some preconsumption standards (fig.2-7).

The level of satisfaction is related to the size and direction of the disconfirmation experienced. Therefore, satisfaction occurs when performance matches or is better than the standard, while dissatisfaction occurs when the performance is less than the standard.

Fig. (2-7)

Disconfirmation Models



Source: Wirtz, J. (1993): "A Critical Review of Models in Consumer Satisfaction". Asian Journal of Marketing, Vol. 2, Part 1, P. 8.

As Shown in fig. (2-7), the disconfirmation model include four main elements; these elements are:

First element: Comparison Standards

This element is the most controversial component in disconfirmation models. A lot of empirical research and theoretical debate has revolved around the question: "what standard or standards do consumers use in the comparison process?". Previous literature showed that several broad classes of pre-experience standards can be identified as follows:

(i) Expectations:

The disconfirmation model with expectations as the comparison standard has received the strongest empirical support and has been most widely applied.

Therefore, satisfaction can be conceptualised as the consumer's response to the experienced discrepancy between pre-experience expectations and performance (e.g. Churchill and Surprenant 1982, Oliver 1980, Tse and Wilton 1988). Expectations are a function of the consumer's frame of reference, which is determined by his/her experience with the product (Miller 1977), the observed experiences of other consumers, word-of-mouth (LaTour and Peat 1979) and advertising effects (Olson and Dover 1976). On the other hand, expected product performance represents the most likely performance (Miller 1977, Liechty and Churchill 1979) or predicted performance (Woodruff, Cadotte and Jenkins 1983).

(ii) Ideal Performance:

In this model, instead of comparing performance with expected or most likely performance as in the disconfirmation of expectation model, the ideal performance theory suggests that consumers use as a comparison standard the optimal possible performance: the performance that best "can be" or the performance a consumer could "ideally hope" for (i.e. Sirgy 1984, Tse and Wilton 1988).

(iii) Value-Percept Disparity:

The previous two comparison standards (expectations and ideal performance) have not included consumer needs. This standard (value-percept standard) draws on the most basic concepts underlying marketing, which are those of human needs and wants. A human need is a state of perceived deprivation in a person, which takes the form of wants shaped by culture and individual personality. On the other hand, a motive is a need that is sufficiently pressing to direct a person to seek out satisfaction of this need, whereby the consumer is motivated toward products and services that he/she believes will satisfy this drive (Kotler 1988; P. 5-6). In practice, values and expectations often fall together because consumers choose purposefully to achieve their goals. But when values and expectations have been separated experimentally, values rather than expectations determine satisfaction (Locke 1967). In other words,

performance in relation to needs and wants rather than expectations appear to be the primary determinant of satisfaction (Westbrook and Reilly 1983). Therefore, under this standard, satisfaction/dissatisfaction is a response triggered by a cognitive-evaluative process in which the perceptions of an object, action or condition are compared to one's values (or needs and wants). The smaller the discrepancy between perceptions of the object, action or condition and one's values, the more favourable is the evaluation and the greater the level of satisfaction (Westbrook and Reilly 1983, Locke 1967). Thus, in the context of marketing, value-percept disparity has been operationalized as the extent to which a product provides the features and performance characteristics needed by a consumer.

The difference between the ideal performance and the value-percept disparity models lies in the implicit consideration of needs and wants in the second model. Instead of using the optimal possible performance as a comparison standard, the value-percept disparity model employs the level performance that is required to fulfil the consumer's needs and wants.

(iv) Experience-Based-Standard:

This standard model suggests that the comparison standard can be influenced by perceived capabilities of brands other than the one purchased, and that the standard may be more than just expectations about the most likely or predicted performance of a focal brand (Woodruff et al. 1981;1983, LaTour and Peat 1979). This standard may differ significantly from the expected or predicted performance of the focal brand. In general, Woodruff et al. (1981) propose that a comparison standard can be based on:

- a brand unit (e.g. a particular McDonald's restaurants),
- other units of the same brand (e.g. several other McDonald's restaurants),
- similar brands (e.g. Burger King's and Wimpy's restaurants),
- a range of brands competing for the same use situation (e.g. fish and chips restaurants) or even,
- a whole class of products competing for the same basic needs or wants (e.g. all restaurants).

(v) Normative deficit:

The “normative deficit theory” conceptualises satisfaction as a comparison between perceived performance and perceptions of social norms (Swan 1983). So far, little empirical work has been done to validate normative deficit theory. Furthermore, it is suggested that this theory would have limited application because, for the majority of products and services, social norms either do not exist or are only vaguely defined.

(vi) Multiple standards:

Many authors (e.g. Sirgy 1984, Wilton and Nicosia 1986, Tse and Wilton 1988) proposed that comparison standards can change in different stages of the post consumption process. Tse and Wilton (1988) suggest that post-experience comparison process should not be modelled with a state variable, but as a continuous process involving different standards as the effects of the product consumption decay. No adequate theoretical framework has been developed to support this model. Therefore, further research would be necessary to determine which standards are to be used at what stages of the satisfaction process. These questions will have to be addressed before operational models incorporating multiple standards could be used.

(vii) Experience -Based- Norms

In 1987, Cadotte, Woodruff and Jenkins developed a synthesis of the experience-based and the value-percept standards, and proposed what they called “experience-based norms”. They suggest that consumers rely on a standard with two characteristics: (1) it reflects the desired performance in meeting needs/wants (as with value-percept standard), and (2) it is constrained by the consumers believe of possible performance, based on their breadth of consumption experiences (comparable to the experience-based standard). This extended experience-based norm needs further conceptual and measurement research.

(viii) Attribution Models:

In the last decade, attribution theory has been found to be very useful in explaining consumers' post-purchase behaviour. Research in this areas is based on the work of Kelly (1972) and is primarily developed from the Weiner (1980) schema. According to this paradigm, consumers are viewed as rational processors of information who look for reasons to explain why a purchase outcome turned out the way it did (Wong and Weiner 1981, Folkes 1984). More specifically, consumers tend to search for causes for purchase successes or failures and usually attribute these successes or failures using a three dimensional schema (Folkes 1989, Oliver and DeSarbo 1988, Krishnan and Valle 1979):

- 1- Locus of Causality (internal or external): The purchase outcome can be attributed either to the consumer (internal) or to the marketer or something in the environment or situation (external).
- 2- Stability (stable/permanent or unstable/temporary): stable causes are thought not to vary over time, while unstable causes are thought to fluctuate and vary over time.
- 3- Controllability (volitional/controllable or nonvolitional/constrained): Both consumers and firms can either have volitional control over an outcome or be under certain uncontrollable constraints.

These dimensions are generally thought to be dichotomous (Weiner 1980), although there has been some discussion of them being perceived on a continuum (Folkes 1984). A consumers' response to a situation depends on the attributions he/she makes (Erevelles and Leavitt 1992).

(ix) Equity Models:

Equity models of consumer satisfaction are different from the other models in consumer satisfaction in that they are based on the relationship between the costs an individual expends in the transaction and the anticipated

rewards. These models are derived from equity theory (Adams 1963) and are based on the notion that inputs and outcomes have equity interpretations that are responsible for satisfaction judgements (Oliver and Swan 1989). According to this theory, parties to an exchange will feel equitably treated (satisfied), if in their minds, the ratio of their outcomes to inputs is deemed "fair" (Oliver and DeSarbo 1988). Whether a person feels equitably treated or not may depend on various factors including the price, the benefits received, the time and effort expended in the transactions (Woodruff et al. 1983, Tse and Wilton 1988). Finally, equity models of consumer satisfaction are different from the other models, in that satisfaction is evaluated relative to other parties in an exchange and the outcomes of all parties are taken into consideration. Using equity theory, interpersonal phenomena can be modelled, and this adds a new dimension to past research in consumer satisfaction/dissatisfaction.

Table (2-18) summarises the main characteristics and general comments about these comparison standards.

Table (2-18)
Characteristics of Comparison Standards

Comparison Standards	Characteristics	Comments
Expectations	The disconfirmation of expectations model suggests that the consumer makes a post-purchase comparison between pre-purchase expectations and the performance received (Churchill & Surprenant 1982; Oliver 1980).	The disconfirmation of expectations model does not provide sufficient differentiation between cognitive and evaluative notions. Expectations refer to beliefs about the most likely performance of a product or service. However what is expected in a product/service may/may not correspond to what is wanted or desired. This model limits satisfaction to aspects of the product for which the consumer has preusage beliefs (i.e. aspects about which the consumer has expectations). If the consumer does not have expectations about an aspect of the product, their disconfirmation regarding that attribute cannot occur. Yet, it seems that consumers may be dissatisfied with an aspect of the product that they were aware of before its use (Westbrook and Reilly 1983).
Ideal Performance	"Ideal product performance involves a desired level of product-outcome expectations" (Sirgy 1984; P. 30)	Consumers could rarely perceive any performance better than the standard, as hardly any firm can perform better than its customers could "ideally hope for".
Value-Percept Disparity	Westbrook & Reilly (1983) viewed satisfaction/dissatisfaction as "an emotional response triggered by a cognitive-evaluative process in which the perceptions or (beliefs about) an object, action, or condition are compared to one's values (or needs, wants, desires)" (P. 258)	Westbrook and Reilly (1983) did not actually measure a comparison standard (i.e., similar to measuring disconfirmation without measuring expectations or perceived performance). They found a very poor fit of their model. A further concern with the Westbrook & Reilly (1983) study in the distinction between "desires" and "needs". Depending on individual interpretation, these two concepts may be different in that "needs" connote some thing required or necessary whereas "desires" are simply wanted (Spring & Olshavsky 1993).
Experienced-Based Standard	The comparison standard can be influenced by perceived capabilities of brands other than the one purchased, and that the standard may be more than just expectations about the most likely or predicted performance of a focal brand (Woodruff et al. 1981; 1983, LaTour and Peat 1979)	Although Cadotte et al. (1987) provide some empirical support for an experience-based standard, and although the conceptual framework seems promising, Woodruff et al. (1983) and Cadotte et al. (1987) failed to furnish a convincing operationalization of their standard. In their study, they measured beliefs about the "typical" performance, best brand performance and focal expectation. However, they did not present nor explain how an experience-based standard could be developed from these measures.

Continued....

Table (2-18) Continued

Standard	Characteristics	Comments
Desired Congruency Models	This model proposes consumer desires, based on means-end theory, as the comparison standard. This model utilises consumer's desires as a standard against which product performance is compared (Olshavsky & Spring 1989) and proposes that these desires from higher-level-values as in means-end-theory (Gutman 1982).	Subjects were asked to answer the questions in terms of how they would react if they were to buy and use the product (the use of role-playing by subjects). This technique is unable to develop the intense emotional response that is thought to characterise extreme levels of consumer satisfaction or dissatisfaction. Also, expectations were established at only one level by means of a relatively weak manipulation. So when several levels of expectations are experimentally induced and/or when expectations are more firmly established through a stronger manipulation (e.g. strong assurances by a manufacturer), effects of expectations may be stronger.
Normative Deficit	Conceptualises satisfaction as a comparison between perceived performance and perceptions of social norms (Swan 1983).	Little empirical work has been done to validate normative deficit theory. Also, this theory will have limited application because most products/services, social norms either do not exist or are only vaguely defined.
Multiple Standards	Tse and Wilton (1988) argue that post-experience comparison process should not be modelled with a state variable, but as a continuous process involving different standards as the effects of the product consumption decay.	No adequate theoretical framework has been developed to support this model. Therefore, further research would be necessary to determine which standards are to be used at what stages of satisfaction process.
Attribution Models	Consumers tend to search for causes for purchase successes or failures and attribute these successes or failures using a multidimensional schema. Consumers post-purchase responses depends on the attribution made (Weiner 1980; Wong and Weiner 1981; Folkes 1984).	Attribution models have, in the past been more useful in predicting consumers' reactions when they are dissatisfied than in explaining the satisfaction process itself. Attribution theory may be useful in explaining satisfaction in situations where it is important for a consumer to determine the cause of an outcome, or when the formation of such attribution enhance the consumption experience.
Equity Models	Consumers' satisfaction judgements are based on equity interpretations derived from the costs an individual expends in the transaction and the anticipated rewards (Woodruff et al. 1983; Tse and Wilton 1988; Oliver and DeSarbo 1988).	Equity theory holds a lot of potential in modelling satisfaction in situations where interpersonal affects are important. Equity models may provide a much richer picture of consumer satisfaction in situations that may not be completely captured using traditional satisfaction models. Equity models of consumer satisfaction may have applications in sales management, retailing and channel strategy because of their nature of capturing the interpersonal component in the transactions.

The following comments can be drawn from Table (2-18):

- All satisfaction models are based on a comparison process of one sort or another. The majority of these models are based on a comparison between perceived performance and a pre-consumption experience standard.
- The expected, value-percept and experience-based standards emerge as the most promising standards. They have a conceptual basis, intuitively appealing theories and at least some empirical support. However, expectations have received much empirical support, and have been the most frequently used standards in both applied and theoretical research.
- There are a number of situations in which expectations do not seem to be of an appropriate standard (LaTour and Peat 1979): A consumer may be forced to purchase a brand whose attributes are not evaluated favourably (e.g. because the preferred brand is not available). Although the consumer's expectations of the purchased brand may be confirmed by the consumption experience, the consumer will still be dissatisfied with the product because of his/her unfavourable evaluation of its attributes. The disconfirmation-of-expectations model, however, predicts a satisfying consumption experience for this case. Also, it has been criticised that the disconfirmation-of-expectations model holds that previous experiences within the product category merely influence the accuracy of expectations of the focal brand performance, and no influence is predicted on the satisfaction outcomes. The development of alternative standards seems to indicate that researchers and practitioners have to be more careful when applying expectations as a comparison standard in satisfaction models. Expectations seems to be a good pre-experience comparison when consumers have free choice and sufficient pre-purchase experience or information, so that they can choose purposefully and match their needs and wants with expectations and know the performance they can realistically expect.

- The first of these limitations of expectations standard seems to be addressed by value-percept theory, which explicitly proposes values, deriving from needs and wants, as standards. The second limitation is addressed by the experience-based standard, which holds that the comparison standard is shaped by the breadth of experience a consumer has.
- The experience based-standard disregards needs and wants in the same way as the expectations standard, and the value-percept standard does not reflect the reality of available product performances on the market, which would set the limits for the performances a consumer believes a focal brand should provide (Cadotte et al. 1987). Here the theorists have the implicit assumption that consumers would be satisfied with a realistically achievable performance, even when needs and wants are not fully met.

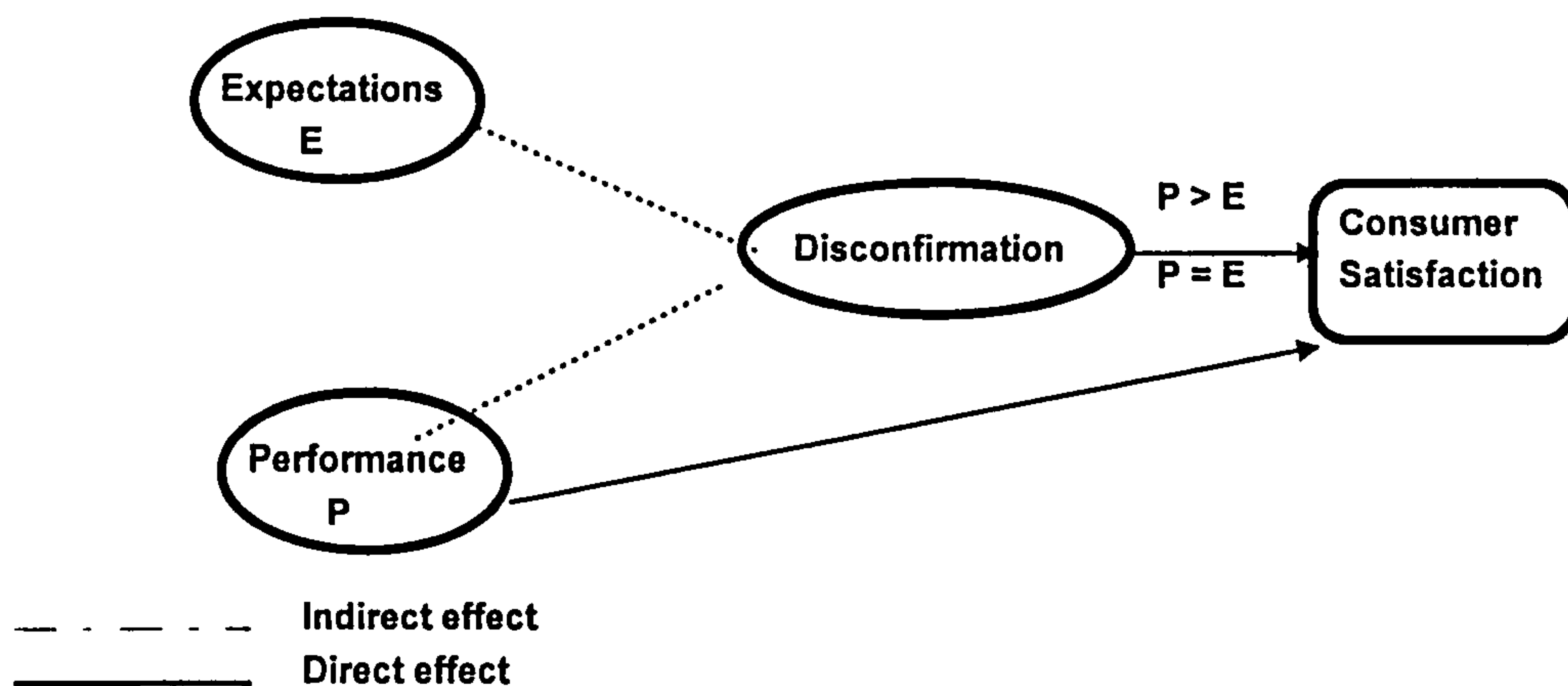
Second element: Perceived Performance

Perceived performance is customers' subjective perception of actual product/service performance during the consumption experience. Perceived rather than objective performance has been primarily employed as a driver of the disconfirmation process (e.g. Cadotte et al. 1987, Churchill and Surprenant 1982, Oliver 1980). Empirical results confirm the notion that perceived performance directly influences satisfaction (fig.2-8). Moreover, Churchill and Surprenant (1982) and also Tse and Wilton (1988) found that perceived performance was a better predictor of satisfaction than the disconfirmation-of- expectations variable. These results seem to cast some doubt on the appropriateness of confirmation/disconfirmation as a mediating variable and/or expectations as the comparison standard. Therefore, the generally employed perceived performance measures have strong evaluative components, which leads to the conclusion that these measures capture a part of the satisfaction construct.

Fig. (2- 8)

Conceptual Model of Consumer Satisfaction

- Disconfirmation Paradigm-



Expectation considered here as a pre-consumption standard

Third element: Confirmation/Disconfirmation

Confirmation/disconfirmation occupies a central position as a crucial intervening variable in most satisfaction models. Disconfirmation arises from discrepancies between pre-consumption comparison standards and perceived performance.

Disconfirmation has been defined operationally in two different ways: as a subtractive and as subjective disconfirmation.

- The subtractive disconfirmation approach assumes that the result of post-experience comparison can be expressed as a function of the algebraic difference between perceived performance and a comparison standard (e.g. LaTour and Peat 1979, Parasuraman et al. 1985; 1988, Tse and Wilton 1988).
- On the other hand, subjective disconfirmation has been operationalised as the subjective evaluation of the difference between perceived performance and a comparison standard (e.g. Churchill and Surprenant 1982, Westbrook and Reilly 1983).

From previous literature, it was found that subjective rather than subtractive disconfirmation should be used in modelling consumer satisfaction. The reasons for that are:

1. Subjective disconfirmation represents a distinct intervening cognitive state that results from the comparison process and precedes a satisfaction decision (Oliver 1980). Subjective disconfirmation accounts for a set of psychological processes that mediate performance perceptions, comparison standards and level of disconfirmation experienced. Example of these processes are those that result in the contrast and consistency effects as shown in Table (2-18).
2. Empirical comparisons of the two operationalizations indicate that subjective disconfirmation explains satisfaction outcomes much better than subtractive disconfirmation (Tse and Wilton 1988, Oliver and Bearden 1985).
3. A fundamental problem of any measure that builds on difference scores is lack of reliability. This has been virtually sanctified in the psychology literature to the point where difference scores are rarely used at all (Prakash 1984, Prakash and Lounsbury 1984)

2-4-2.2 *Theories about the disconfirmation process:*

There are four common theories that help understanding of the disconfirmation process (Anderson 1973, LaTour and Peat 1978, Oliver 1976, 1980). These theories are: the contrast theory; the consistency theory; the assimilation-contrast theory; and the negativity theory. Table (2-19) summarises the main characteristics of these theories.

Table (2-19)
Disconfirmation Theories

Theory	Characteristics	Authors
Contrast Theory	If perceived performance is greater than or equal expectations, confirmation or positive disconfirmation occurs and this leads to satisfaction. If perceived performance is less than the expected performance, negative disconfirmation occurs and this, in turn, causes dissatisfaction.	Churchill and Surprenant (1982)
Consistency Theory	When disconfirmation occurs, consumers revise their perception of product performance to more closely match their pre-experience expectations. These expectations-oriented responses might be triggered when individuals are either reluctant to acknowledge discrepancies from previously held positions (Oliver & DeSarbo 1988), or when the performance is ambiguous and therefore open to attractive interpretations (Hoch and Deighton 1989; Oliver 1980). As a result, the consistency theory predicts that an increase in expectations also raises the level of satisfaction.	Anderson (1973); Olson and Dover (1976); Oliver and DeSarbo (1988); Oliver (1980); Hoch and Deighton (1989).
Assimilation-Contrast Theory	This theory proposes that the magnitude of the perceived discrepancy determines which of the two theories (Consistency and Contrast) best explains the satisfaction outcomes of a particular consumption experiences. Therefore, and according to this theory, if the discrepancy between expectations and perceived performance is small, consistency effects are predicted. Consumers will alter their perception of performance to match their pre-experience expectations. However, when the experienced disconfirmation exceeds a certain magnitude, contrast effect are predicted. Thus, the Assimilation Contrast theory qualifies the circumstances under which either consistency or contrast effects are predicted. There are probably variables other than the magnitude of disconfirmation that influence what effects would be observed. For example, when performance is difficult to judge as in the consumption of services, expectations might dominate and consistency effects would be observed. Other variables might include level of involvement or strength of expectations.	Sherif and Hovland (1961).
Negativity Theory	Predicts dissatisfaction when any disconfirmation, positive or negative, occurs (Anderson 1973). The negativity theory explains satisfaction decisions for only a rather limited set of consumption experiences. This theory has been empirically supported only when expectation were strongly held as in Carlsmith and Anderson's study (1963), or when subjects had high ego involvement, were committed to the outcome and were interested in the task (Oliver 1980).	Anderson 1973; Carlsmith and Anderson (1963); Oliver (1976)

From previous discussion, it is possible to say that the disconfirmation theory, as a means of understanding satisfaction, has a great deal of support in the literature and has undergone some development since Cardozo's early work. Customers use some forms of pre-experience performance standard on which to judge their perceptions of the performance of the goods or services leading to confirmation or disconfirmation.

The Fourth Element: Satisfaction

The last element of the disconfirmation model is satisfaction. It is generally accepted that satisfaction is determined by the magnitude and direction of the disconfirmation experienced (e.g. Swan and Trawick 1981, Tse and Wilton 1988). The satisfaction contrast itself is defined as an evaluative response concerning the perceived outcome of a particular consumption experience (Westbrook and Oliver 1981). As discussed in section (2-4-1), satisfaction has been defined from different perspectives. Table (2-20) shows that satisfaction can be applied to many suggested constructs.

**Table (2-20)
Satisfaction-Constructs**

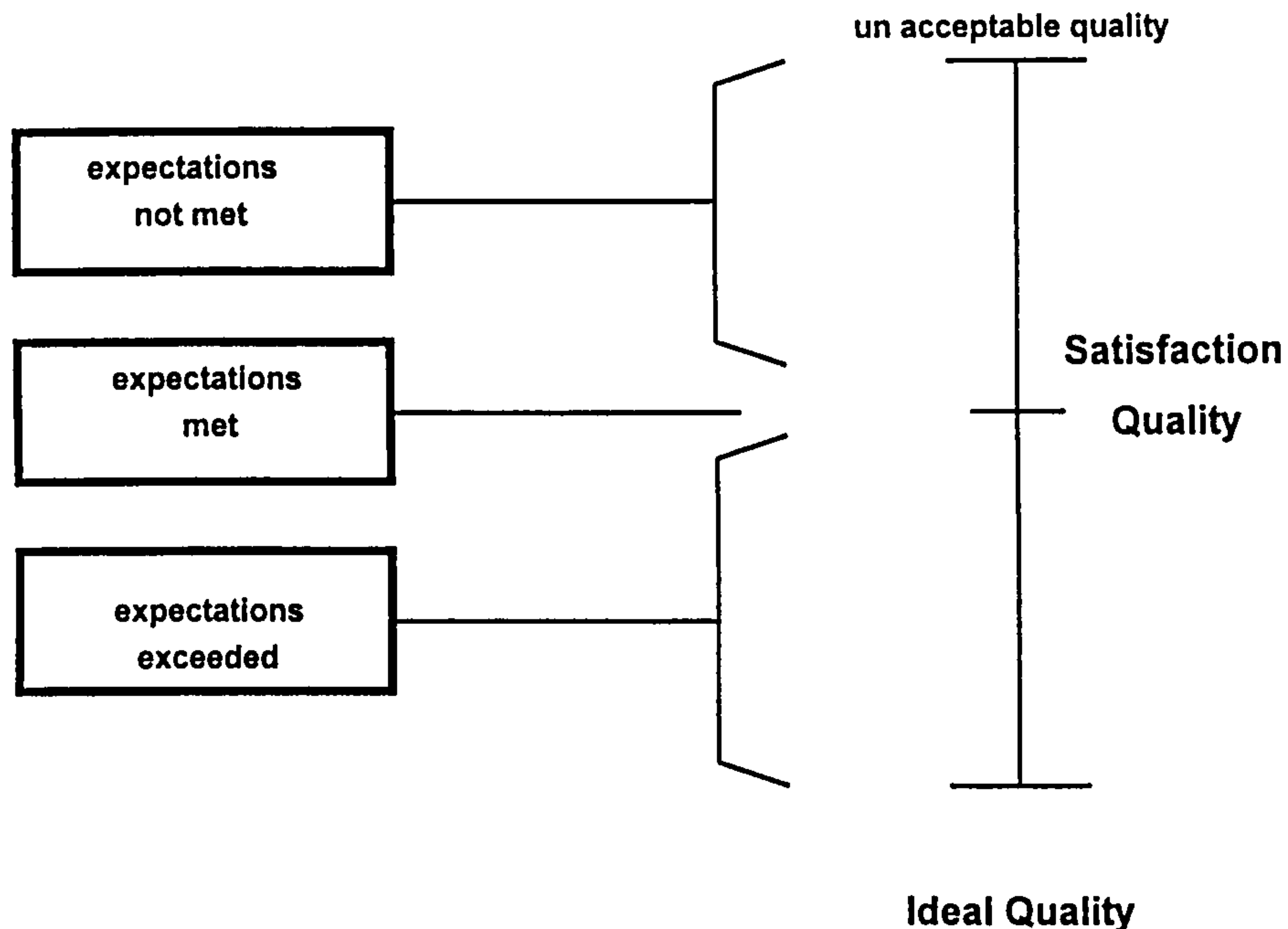
Construct	Definition
A cognitive state	Satisfaction is the results of a cognitive process of comparing perceived performance with expected performance (Swan 1988).
An emotional response	Much of CS/D literature refers to satisfaction as an emotional response to an evaluation of a product/service experience (e.g. Hunt 1977; Oliver 1982; Day 1984; Mattsson 1991).
An artificial construct	As Featherstone (1991) claimed, lifestyle is a manipulated product of the consumer society and that satisfaction therefore, is artificially created.
An adaptive process	Expectations can be moulded and adapted during the service process itself so that satisfaction evolves from a dynamic process or interaction in a service setting (Johnston 1987)
A complex mental process	Satisfaction is " a complex mental process by which a great number of components of the service encounter are simultaneously perceived" (Mattsson 1992).
An attitude	"Satisfaction...is conceptualised as a post-purchase attitude.... and is operationalized as the sum of satisfaction with the different attributes of the product or service" (Jayanti and Jackson 1991).
An effect on attitudes	Drew and Bolton (1991) differentiated between attitudes and satisfaction. They pointed out that "satisfaction is an effect with acts as an intervening variable to modify a prior attitude into the current attitude". "attitude is a predecision construct and satisfaction is a post-decision construct" (LaTour and Peat 1979).

2-4-3 Service Quality and Gap model

Gap model, a seemingly similar, yet conceptually different model to the disconfirmation paradigm has emerged in the service literature in recent times. This conceptual model is produced by Parasuraman et al. (1985), and explains the nature and dimensions of service quality. The authors argue that perceived service quality is the result of the consumers comparison of expected service with perceived service performance as shown in figures (2-9; 2-10).

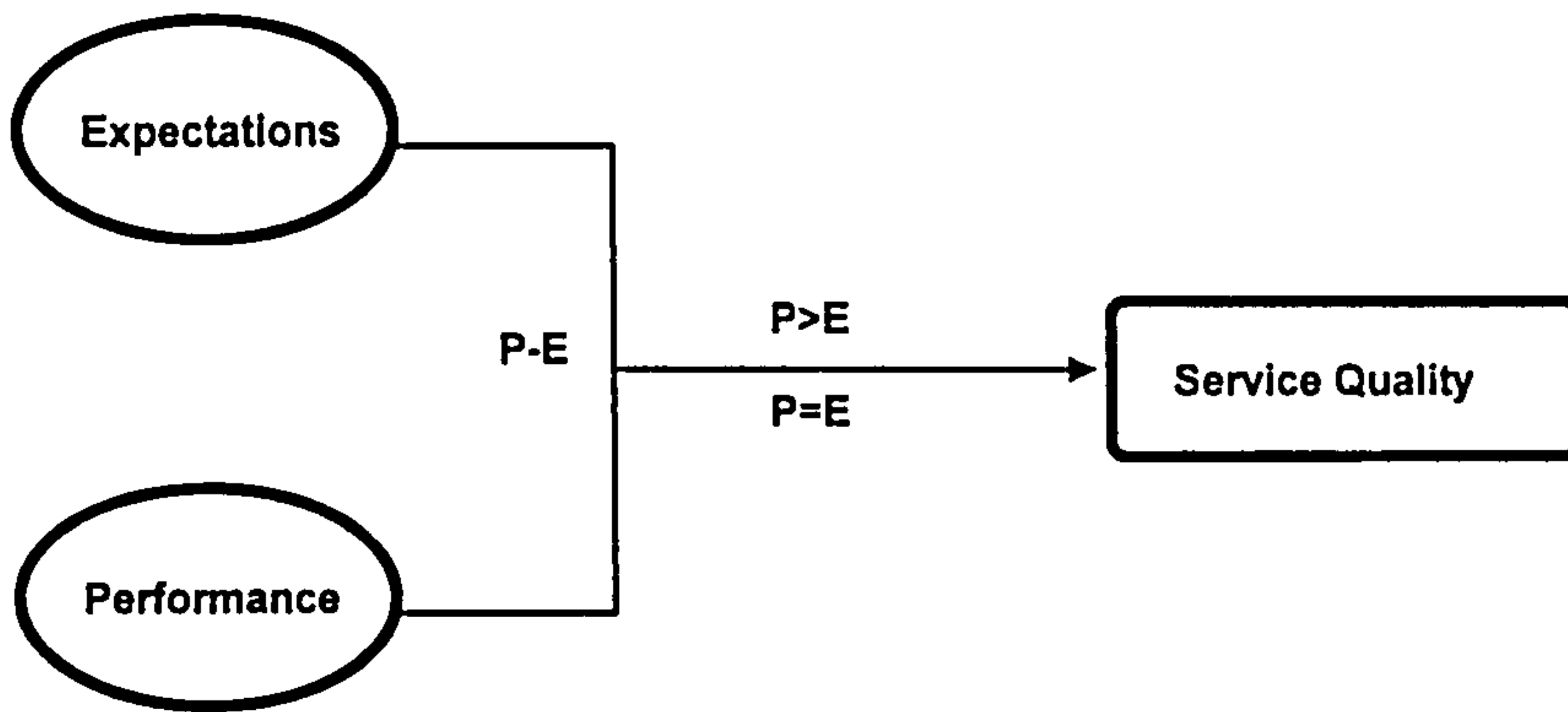
Fig. (2-9)

Continuum of Perceived Service Quality



Source: Berry, L.L. Zeithaml, C.V. & Parasuraman, A. (1985). Quality counts in services, too. *Business Horizons*, 28 (3), p.47.

Fig. (2-10)
Gap Model



Parasuraman et al. (1988) had empirically tested the key part of their conceptual model in a quantitative study and developed a measuring instrument known as SERVQUAL. Therefore, service quality, according to the gap model, is a function of expectations and performance; $SQ = f(\text{exp}, \text{perf})$

More discussion about SERVQUAL was given in sections (2-2-4).

2-4-4 Conceptual differences between consumer satisfaction and service quality

There are many different issues about the two concepts (service quality, consumer satisfaction). These differences result from the nature of the two concepts as seen in the discussion of the disconfirmation paradigm and the gap model. For example; Kaspar and Lemmink (1988) suggested that the concepts of satisfaction and quality are different, and that it is the perceived service quality that will affect consumer satisfaction. Nguyen (1991) reported a strong correlation between satisfaction and perceived service quality, and came to the conclusion that the two concepts measure the same thing. Rust and Oliver (1994) based on Oliver (1993), identify a number of key elements that distinguish service quality from consumer satisfaction (also see Patterson and Johnson 1993, or Taylor 1993). A close investigation of the respective models shows several

distinct differences (conceptual and operational). These differences are summarised in Table (2-21).

Table (2-21)
Differences between Service Quality (SQ) & Consumer Satisfaction (CS)

- 1- CS/D is considered to relate to a specific transaction or consumption experience; while SQ represents a more global judgement across multiple service encounters and that SQ is similar to an individual's general attitude towards a firm (Parasuraman et al. 1985, 1988).
- 2- CS/D or disconfirmation paradigm includes (disconfirmation) as intervening variable which is conceptualised to have an independent, additive effect on satisfaction (Oliver 1977); while the gap model did not include such intervening variable.
- 3- There are other antecedent variables of CS/D such as equity, consumer attributions (fairness), while gap model has not included such additional antecedent variables (Oliver & Swan 1989; Bitner 1990).
- 4- Performance have a direct effect (as well as an indirect one mediated through disconfirmation) on CS/D in high-involvement goods and services (Tse and Wilton 1988; Bolton and Drew 1991; Patterson 1993), while this direct effect is not captured in the gap model (Cronin and Taylor 1992).
- 5- CS/D is based on experience with the service, while the SQ is not necessarily experience based: to make an assessment of SQ a consumer does not necessarily have to have experienced the service (Rust and Oliver 1992). CS/D on the other hand is transaction specific and represents a consumer's post-purchase evaluation of the tried service (product) offering (Hunt 1977).
- 6- CS/D is transaction specific, it should therefore be measured as soon as possible after the service transaction has taken place. While SQ perceptions being a more enduring attitude and representing multiple transactions could be measured some time after exposure to some form of marketer or non-marketer communications.
- 7- The pre-purchase standard (expectations) in CS/D research is typically operationalised as expected or predictive performance; it reflects what performance "will be". While SQ expectations are defined as the equitable or deserved level of performance. It represents the level of performance as consumer feels they "should" receive.
- 8- CS/D researchers prefer a consumer's perceived or subjective measure using "better than expected"- "worse than expected" scales as integrating cognition which captures the discrepancy evaluation process" (Oliver and Bearden 1985, p.236). While in the gap model researcher and not the consumer who makes the comparison.
- 9- SQ is an attitude concerning a customer's global evaluation of a service offering; past experience with a phenomenon provides an anchor for subsequent judgements, and that exposure to some stimuli (e.g., a transaction with a service firm thus generating CS/D) above/below the adoption level modifies subsequent attitudes (Helson 1964).

2-5 Loyalty Behaviour

This section aims to define the main factors that affect consumer loyalty in the services industries. Different approaches to measure customer loyalty were reviewed; Therefore, behavioural, attitudinal and composite measures of loyalty were discussed.

2-5-1 Loyalty Measurement

This section highlights the main issues that can be used to identify and measure loyalty behaviour. Loyalty has evolved through several conceptual and operational interpretations. The most widely accepted of these definitions are multi-dimensional in nature, incorporating the attitudinal and behavioural measures of commitment and repeat purchase (e.g. Day 1969, Jacoby 1971, Muncy 1983, Selin et al. 1988).

There are three distinctive approaches to loyalty measurement:

(i) Behavioural Measures of Brand Loyalty

According to this approach, brand loyalty studies were operationalised through the behavioural interpretation of loyalty as a form of repeat purchasing of a particular brand over time (Brown 1952, Cunningham 1956, Frank 1962, Tucker 1964, Sheth 1968). These behavioural definitions are categorised into the following four groups (Jacoby and Chesnut 1978):

1. The sequence in which the brands were purchased (Brown 1952, Cunningham 1956, Lawrence 1969).
2. The proportion of purchase devoted to a given brand (Cunningham 1956, Lipstien 1959, McCann 1974, Charlton and Ethrenberg 1976).
3. The definitions that reflect the probability of purchase. This type of operationalization reflects a stochastic model of consumer behaviour (Assael 1987); it does not predict one specific course of action. Rather the prediction is always in probability terms. Frank (1962) looked at the notion of repeat purchase probability, where loyalty was defined as the relative frequency of purchase of a specific brand from a prior set of purchases.

4. Those definitions that synthesise or combine several behavioural criteria. Burford et al. (1971) have developed a loyalty index based on several behavioural components such as: the fraction of loyalty object expenditure within the product class budget, the number of switches from the loyalty object, the number of brands available and those patronised.

There are many different factors that are involved in purchase situations. Many products and services are available in different forms, varieties, levels of quality and price. Howard and Sheth (1969) state that buying behaviour is a process that produces repetitive choice decisions for goods and services, and that consumers establish their own buying cycles that determine the purchase frequency of these goods and services. Purchase behaviour is affected by: pre-purchase needs and attitudes, previous use experience and external factors such as advertising and promotion, retail availability, word-of-mouth effects, personal selling efforts and variation in product formulation and pricing (Ehrenberg 1972). Zeithaml, Parasuraman and Berry (1990) pointed out that there are many behavioural intentions measures that are missed from past service quality studies; these behavioural intentions include a willingness to pay a premium price and to remain loyal even when prices go up. Singh (1990) adds also, the customers' complaint intentions when they have problems with a company's service. Therefore, Consumers must take decisions on many aspects of purchasing, including: whether to buy or not; from where to carry out their purchasing activities; what quantity and at what price they are willing to pay.

Broadly speaking, customer loyalty is the feeling of attachment to or affection for a company's people, products or services. Thomas and Sasser (1995) believe that there are alternative measurements, these can be grouped into three major categories:

- Intent to repurchase: although customer responses are simply indications of future behaviour and are not assurances, they have the following benefits. First, companies can capture this information when they measure satisfaction, making it relatively easy to link intentions and satisfaction for analytical

purposes. Second, intent to repurchase is actually a very strong indicator of future behaviour. Although this measure will generally overstate the probability of repurchase, the degree of exaggeration usually is fairly consistent, meaning that the future results can be predicted fairly accurately.

- Primary behaviour: there are five categories that show actual repurchasing behaviour; these categories are: recency, frequency, amount, retention, and longevity. Although these are important measures of actual behaviour, they only provide a glimpse of overall share and are most useful as an indication of changes over time.
- Secondary behaviour: customer referrals, endorsements and spreading the word are extremely important forms of consumer behaviour for a company. In most product and service categories, word of mouth is one of the most important factors in acquiring new customers. Frequently, it is easier for a customer to respond honestly to a question about whether he or she would recommend the product or service to others than to question about whether he or she intended to repurchase the product or service. Such indications of loyalty, obtained through customer surveys, are frequently ignored because they are soft measures of behaviour that are difficult to link to eventual purchasing behaviour. However, since secondary behaviour significantly leverages the positive experiences of a single customer, it is very important to understand what types of experiences create such behaviour.

However, by the late 1960's, researchers were beginning to question the validity of behaviour as the sole indicator of loyalty. Day (1969) criticised past behavioural conceptualisations as he felt they could not distinguish between true or "intentional" loyalty and "spuriously" loyal buyers who were deal-orientated in their repurchasing and lacked any attachment to brand attributes. Including psychological attachment as a distinguishing factor, Day (1969) advanced the definition of loyalty as a more discrete form of repeat purchase behaviour. Day

also argued that true loyalty exists only when there is involvement with the purchase and commitment to the brand.

(ii) Attitude measures of brand loyalty

Behavioural measures may provide an adequate prediction of loyal purchase behaviour. However, they fail to consider the process that has led to that behaviour. In contrast, attitudinal measures may offer an understanding of the factors that are central to the development and modification of brand loyalty (Pritchard 1991).

Attitudes are considered to be the psychological construct most capable of providing an explanation of the process that has led to purchase behaviour (Day 1970). Monroe and Gultinan (1975) examined the degrees of loyalty by using a single, seven-point scale items that looked at price sensitivity to repurchasing a particular brand.

An attitude is a habit of mind. It is learned and it predisposes a person to have either a generally positive or negative reaction or response to an object or group (Beacham 1986). Waters (1987) studied the effect of attitudes on consumer behaviour and noted that weakly held attitudes are much more easily changed than strongly held attitudes. Fishbein (1975) states that attitudes are rooted in beliefs; people acquire their attitudes as they learn to link various objects, concepts, values, goods, attributes, qualities and characteristics with the object or subject of concern. An individual's attitude is influenced by the set of beliefs which the individual holds about the object. People develop attitudes toward things which are meaningful to them, and those attitudes play various roles in daily life. Consumers do not have in-born attitudes; it is through learning that they develop strong positive and negative attitudes. Attitude formation and attitude change have been carefully differentiated by Freedman and Steinbruner (1964). They have defined an attitude as a lasting system which is made up of a cognitive component, a feeling component and an action tendency. Crespi (1965) used the fact that attitudes are produced as a consequence of endogenous

influences to show that the ways in which each consumer makes purchase decisions and responds to advertising, is to satisfy individual needs and motives.

Pritchard (1991) found that psychological commitment consists of three dimensions: resistance, volition, and complexity.

- **Resistance** measures overall reluctance or resistance to change important associations with or beliefs about a particular service. Therefore, the items comprising the resistance factor demonstrate the importance of symbolic association, awareness and perpetuation of public- self in ongoing purchase relationships.
- **Volition** includes factors that are related to components of free choice, control or self-responsibility for one's preference to use a particular service.
- **Complexity** reflects the ease with which an attitude or preference can be changed.

(iii) Composite measure of Brand Loyalty

Many authors argue that uni-dimensional measure of brand loyalty is probably insufficient in measuring such a complex multi-dimensional phenomenon (Jacoby and Kyner 1973). Thus, in order to be truly loyal the consumer must hold a favourable attitude toward the brand in addition to purchasing it repeatedly (Day 1969). Olson and Jacoby's (1971) research advanced the concept of brand loyalty to be multi-dimensional. They found that four factors underlie this concept: labelled behavioural brand loyalty, attitudinal brand loyalty, multi-brand loyalty and general brand loyalty. Moreover, Newman and Werbel's (1973) work on information search and its relationship toward brand performance provided the conceptual foundation for the development of another composite measure of loyalty. Recent attempts have begun to examine the loyalty construct using the composite approach (Howard et al. 1988, Selin et al. 1988; Backman and Crompton 1991). Backman and Crompton (1991) used frequency of purchase to operationalise behaviour and developed another attitudinal index which they termed "psychological attachment" to measure

recreation activity loyalty. Recent research has been impeded by inadequacies in the formulation of valid and reliable behavioural and attitudinal measures. For example, the use of frequency of purchase alone to assess behavioural loyalty does not consider the competitive effects (e.g. multi-brand loyalty) of purchase behaviour in the product category. The above indicates that the frequency of participation attributed to a brand or agency would appear to hold little meaning unless it is considered in the light of a participant's overall frequency of participation. On the other hand, a closer examination of the theoretical and empirical rigor underlying the development of various attitudinal measures raises some construct validity questions (Nunnally 1967). Day (1970) argues that to adequately measure the attitudinal component of loyalty, researchers must first regard the construct as a psychological process. The previous loyalty attitudinal measures tend to be based on the antecedents or consequences (e.g. ego involvement and satisfaction) of loyalty rather than psychological process from which those effects are derived. Therefore, Muncy (1983) supported the perception of inadequate measurement, arguing that many of these measures are derived from an operational definition rather than from a theoretical conceptualisation of loyalty.

From the previous discussion, it was seen that the loyalty construct has evolved through several conceptual and operational interpretations. The most widely accepted of these definitions are multi-dimensional in nature, incorporating the attitudinal and behavioural measures of commitment and repeat purchase (e.g., Day 1969, Jacoby 1971a, Muncy 1983, Selin et al. 1988). Therefore, a loyal travel consumer will repeatedly purchase or use a particular travel service and possess a positive sense of attitudinal commitment toward that service provider. Figure (2-11) represents the main elements that will be used to measure consumer loyalty. These elements can be classified into two categories:

- Attitudinal measures. These include three variables (factors): resistance, volition and complexity.

- Behavioural measures. These include four factors: purchase intentions, word-of-mouth communications, price sensitivity and complaint behaviour.

More discussion about loyalty measurement is given in section 2-5 and in the methodology chapter (section 5-5-3).

Table (2-22) summarises the main factors that can be used to measure customer loyalty.

Fig. (2-11)

Conceptual Model of Consumer Loyalty as Suggested by Previous Literature

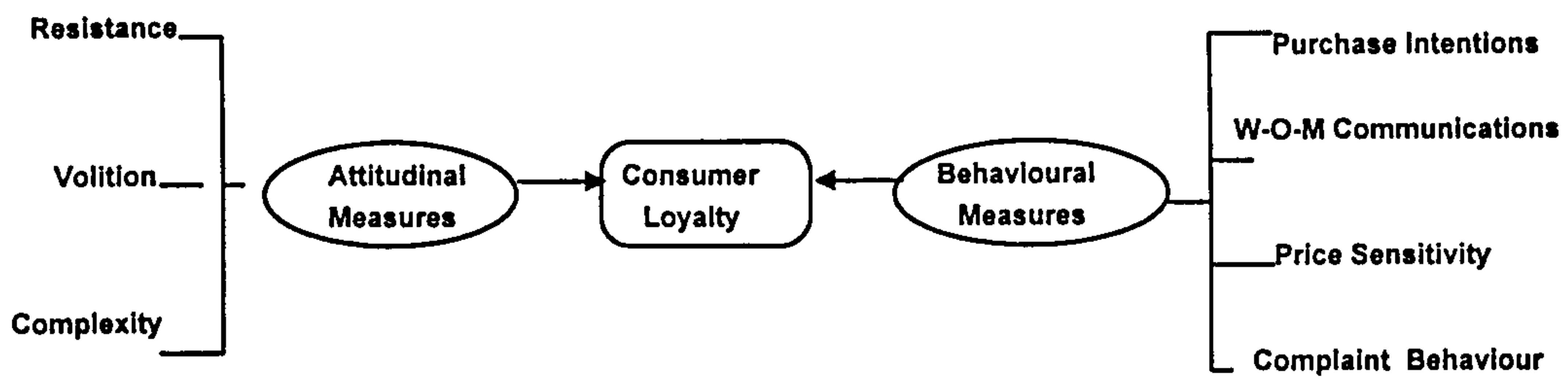


Table (2-22)
Loyalty dimensions

Dimensions	Variables	Loyalty Measures
Behavioural Measures	Purchase Intentions	1- Consider XYZ your first choice to buy a service from 2- Do more business with XYZ in the future. 3- Do less business with XYZ in the future.
	Word -of- mouth communications	1- Say positive things about XYZ to other people. 2- Recommend XYZ to some one who seeks your advice. 3- Encourage friends and relatives to buy XYZ services.
	Price Sensitivity	1- Buy a service from another competitor who offer more attractive prices. 2- Continue to deal with XYZ if its prices increase some what. 4- Pay a higher price than competitors charge for the benefit you currently receive from XYZ.
	Complaint Behaviour	1- Switch to a competitor if you experience a problem with XYZ service. 2- Complain to other consumers if you experience a problem with XYZ service. 3- Complain to XYZ employees if you experience a problem with XYZ service. 4- Complain to external agencies if you experience a problem with XYZ service
Attitudinal Measures	Resistance	1- Prefer XYZ because their service makes me feel important 2- Changing my preference from XYZ to another would require major rethinking. 3- Prefer XYZ because their image comes closest to reflecting my life style. 4- Even if close friend recommends another competitor, I would not change my preference for XYZ. 5- It would be difficult to change my beliefs about XYZ.
	Volition	1- My preference for XYZ is my own decision. 2- I am fully responsible for the decision to use XYZ service. 3- I did not control the decision on whether to use XYZ services. 4- I freely chose to use XYZ services over other available options.
	Complexity	1- I am knowledgeable about XYZ service. 2- I consider my-self to be an educated consumer regarding XYZ services. 3- I don't really know that much about XYZ services.

All questions are measured by 7-point Likert scale where; 1= not at all likely/ and 7= extremely likely

Source: Adapted from (i)-Pritchard M. (1991): Development of Psychological Commitment instrument (PCI) for Measuring Travel Service Loyalty. Ph.D Thesis, University of Oregon.

(ii) Parasuraman, A. Zeithaml, V.A. , and Berry, L.L (1994). "Reassessment of Expectations as a Comparison Standard in Measuring Service Quality: Implications for Future Research," Journal of Marketing, 58(10); 111-124.

2-6 Summary

This chapter has explored the concepts of service quality, consumer satisfaction and consumer loyalty in the context of marketing literature. The purpose of this chapter is to identify the main elements or factors that can be used to measure each concept. This will help to identify the main elements of the proposed model in this study as will be shown in chapter four.

Quality is one of the competitive performance criteria for both the manufacturing and service sectors of the economy. Despite the recognition of the importance of service and the acceptance of user-based definition of quality, much of the related literature is almost exclusively devoted to the quality of tangible goods defined in terms of conformance to manufactures' specifications (Zeithaml et al. 1990). However, from the discussion shown in this chapter, it is seen that there is a lack of consensus about the definition of quality which would help to bring the various views of quality together (cf. Garvin 1984, Mahlemann et al. 1992).

Service quality has become an important research topic because of its apparent relationship to cost, profitability, customer satisfaction, customer retention and positive word of mouth. Service quality is widely regarded as a driver of corporate marketing and financial performance. However, it can be difficult to define and provide a competitive service quality for many reasons like:

- The fact that service quality is determined by the customer not the business makes it hard for a manager to assess service failings solely through his own subjective observation (Jensen and Markland 1996).
- The problem is with service specifications (Hesket 1987) and because of the intangible nature of services (Cowell 1984).
- The problems of quality measurement (Sasser et al. 1987, Zeithaml et al. 1990). Manufacturing quality literature has been philosophically grounded in the manufacturing-based quality model. In this model, quality is defined as a lack of deviation from a defined specification. Thus, for most manufacturing

firms performance standards are relatively easy to specify. For service industries, a statement of quality philosophy is more difficult to delineate since service firms generally provide utility, not objects. Several definitions of service quality have been suggested in the literature. Some authors have advanced the notion that service quality is meeting the needs and requirements of customers (Murdick et al., 1990, Smith 1987). Building on a user-based definition, others have stated that service quality is how well the service delivered matches the customer's expectations (Creedon 1988, Lewis 1989). More drastic notions such as "providing better service than the customer expects" have been advocated (Lewis 1989).

It appears from the service literature, that customer satisfaction is very much related to customer perceived service quality. However, the question still remains as to how the dimensions of service quality interact and combine to create the feelings of customer satisfaction/ dissatisfaction. The debate about service quality and satisfaction is far from complete. Indeed, there seem to be more areas of disagreement than agreement. The key aspects of the debate can be summarised as follows:

- Although it is generally agreed that service quality is an attitude and therefore distinct from the transaction specific nature of customer satisfaction, the nature of the relationship between service quality and customer satisfaction, which is antecedent to the other, is not agreed.
- There is not agreement over the exact number of dimensions of service quality and their definitions.
- There is a great debate about the models of service quality measurement. A particular area of debate is the role of expectations in measuring service quality. A second area is the need to include importance weighting in the measure. Various models have been proposed including performance only measures, performance-minus-expectations, weighted measures and more

complex models. Each claim greater levels of reliability and validity than alternative techniques.

Service providers must be aware of not only what satisfies the client, but also what they have to do to achieve the levels of activity that lead to satisfaction. The customer behaviour literature has provided some theoretical underpinning of customer satisfaction based predominantly on marketing and psychology. Although debate continues on many issues about the satisfaction/dissatisfaction construct, there seems to be general agreement on several points:

- Consumer satisfaction is a central issue in marketing thought and practice (Yi 1990). As Pfaff (1976) eloquently put it: “there is little doubt that the maximisation of consumer satisfaction is considered by most to be the ultimate goal of the market economy”. Satisfaction is a major outcome of marketing activity and serves to link processes of decision making and consumption with post-purchase phenomena such as attitude change, complaining behaviour and word-of-mouth, repeat purchase and brand loyalty (Bearden and Tell 1983, Fornell 1992, Oliver 1980a). But the question here is, what do consumers use as pre-experience comparison standard?
- There are several satisfaction/dissatisfaction models, but the most widely used and accepted paradigm is the disconfirmation theory (cf. Woodruff et al. 1985, Swan 1988, Tse and Wilton 1988, Bolton and Drew 1993, Mattsson 1991).
- The disconfirmation theory has been extensively applied to products and only recently to services (Bearden and Tell 1983, Sirdeshmukh et al. 1992, Swan 1992). It has not been applied, as yet, to airline services.
- There has been some debate about the use of expectations as the base for comparisons with perceptions of performance (Johnston 1993, Spreng and Olshavsky 1993). Therefore, several performance standards have been proposed from ideal (Mattsson 1991) to minimum tolerable (LaTour and Peat

1979). But the question here is, what is satisfaction?. Is it an attitude or an effect on attitude?. Is it an emotional or a cognitive response?.

Generally, most of the definitions of consumer satisfaction construct can be described as vague, or unclear. These definitions do not delimit the boundaries of the construct adequately, they are so broad that they do not go any further than defining satisfaction as a particular type of construct; Westbrook and Reilly (1982) define satisfaction as: “ ...is an emotional response to the experiences provided by, or associated with, particular products or services purchased”. This definition for example, fails to distinguish between satisfaction and other concepts like pleasure or anger, which could be described as an emotional response to a particular product experience. Moreover, it is difficult to assess the validity of the content of previous definitions because most of the definitions proposed have been concluded by the researchers without showing the basis upon which the definitions have been developed.

- There still argument about the relationship between service quality and satisfaction; are they the same?, or are they two different concepts ? (cf. Cooper et al. 1989, Bolton and Drew 1991, Cronin and Taylor 1992).

The third concept that had been discussed in this chapter was loyalty. Loyalty is a complex concept which is difficult to measure. However, its importance has been documented in a variety of studies, and researchers have gained a better understanding of loyalty in recent years. Measurement issues have remained problematic, especially with respect to the attitudinal component of loyalty.

The relationship between the three concepts (service quality, customer satisfaction and customer loyalty) is the main objective of this study. By developing appropriate measures for these concepts, it is hoped that these relationships can be examined within the area of airline services, where no comprehensive studies have been carried out. This will be the subject covered in the following chapter.

Chapter Three

Service Quality, Satisfaction, and Loyalty in Airline Services

3-1 Introduction

3-2 Airline and service Classifications

3-3 Airline Service Quality

3-3-1 Dimensions of Airline Service Quality

3-4 Employee Role in Airline Services

3-5 Passenger Satisfaction

3-6 Passenger Loyalty

**3-7 The Relationship between service quality,
passenger satisfaction and loyalty**

3-8 Travel Behaviour

3-9 Summary

3-1 Introduction:

This chapter will focus upon the concepts of service quality, satisfaction and loyalty in the context of airline services. Therefore, the main classification schemes of service quality and the location of airline services in these classifications will be clarified. Then the literature of previous studies that have discussed the dimensions of airline service quality will be reviewed; this will help to identify the important factors that can be used to measure service quality. In the fourth part, a review of different studies that discuss the concepts of passenger satisfaction and loyalty will be highlighted to explain the relationship between these concepts and service quality. Then a theoretical linkage between the three concepts will be reviewed. The various aspects that relate to travel behaviour will be discussed to give a clear idea about passenger behaviour and what are those factors, that may affect their travel decisions. Finally, the role of employees in airline services will be discussed to examine how they perceive the level of services they provide to passengers and why different gaps may exist between employee perception and passenger expectations of these services.

3-2 Airlines and Service Classifications

Various attempts have been made to classify services (Judd 1964, Hill 1977, Shostack 1977, Chase 1978, Sasser et al. 1978, Thomas 1978, Kotler 1980, Lovelock 1980 & 1983, Stiff & Pollack 1983, Schmenner 1986).

Chase (1978) classifies services into two groups according to the extent of customer contact required in the service delivery: the high-contact system and the low-contact one. Therefore, the longer the time the customer spends with the service system, the greater the degree of interaction between the two during the production process. Chase explains that in high contact systems, the customer can affect the time of demand (for example an airline will sometimes delay a take-off for a late arrival); which will affect the exact nature and quality of service, since a customer tends to become involved in the process itself. Chase mentions that airlines exhibit mixed service characteristics at their terminals

(with high contact ticket counters and low contact baggage handling), pure service characteristics within the planes, and quasi manufacturing (moderate contact) characteristics in their billing and airline maintenance operations. According to this classification, the required skills of the work force in high-contact systems are characterised by a significant public relations component. Thus, any interaction with the customer makes the direct worker in fact part of the product and therefore his attitude can affect the customer's view of the service provided. Finally, although Chase made a useful distinction, it is not as helpful as it could be. A number of services can be considered high contact even though they only "shelter the customer" and in the process have very little interaction with the client. To use Chase's example, a hotel is a high-contact service, but to others, hotels are vastly less demanding than are hospitals, primarily because hotels interact with customers in limited and very structured ways, whereas hospitals must interact with patients in irregular and frequently sustained ways. Also, these classification schemes become more problematic when Chase turns to examining potential operating efficiency: Chase adds that potential facility efficiency = $1 - \frac{ct}{st}$; where ct = customer contact time, and st = service creation time, thus the greater the ratio of customer contact time, the lower the potential efficiency of the service facility. Therefore, the notion of client contact may be fraught with more ambiguity than is necessary (Schmenner 1986).

Lovelock (1983) classifies services into four categories (fig. 3-1): (1) Tangible actions to people's bodies. (2) Tangible actions to goods and other physical possessions. (3) Intangible actions directed at people's minds. and (4) Intangible actions directed at people's intangible assets. Lovelock (1983) classifies airline passenger transportation as a tangible action to people's bodies, where passengers need to be physically present during service delivery. They must enter the service "factory" which is the plane, and they must spend time there while the service is performed. Therefore, the delivery of airline services

may affect some travellers' states of mind as well as physically moving their bodies from one airport to another.

fig (3-1)
Understanding the Nature of the Service Act

Who or What is the Direct Recipient of the Service?

What is the nature of the Service Act?	<i>People</i>	<i>Things</i>
<i>Tangible Actions</i>	Services directed at people's bodies: health care <u>passenger transportation</u> beauty salons exercise clinics restaurants haircutting	Services directed at goods and other physical possessions: freight transportation industrial equipment repair and maintenance janitorial services landscaping/ lawn care veterinary care
<i>Intangible Actions</i>	Services directed at people's mind: education broadcasting information services theaters museums	Services directed at intangible assets: banking legal services accounting securities insurance

Source: Lovelock, C.H. (1983). *Classifying Services to Gain Strategic Marketing Insights*. Journal of Marketing, 47, 9-20

The service sector had been classified by Stiff and Pollack (1983) into two dimensions: customer contact and economic concentration. According to this classification, passenger transportation is categorised as a high customer contact-high economic concentration business.

Schmenner (1986) develops new classification of services by using both the degree of labour intensity and the degree to which (1) the consumer interacts with the service, and (2) the service is customised for the consumer. Schmenner argued that airline services have the classification of low labour intensity and low degrees of customisation and interaction (fig. 3-2). Therefore, in the case of low labour intensity, the choice of equipment is important and monitoring

technological advantages is also important to introduce fast and accurate services. On the other hand, with low degrees of interaction and customisation, an airline must try to make its services more exciting; which means giving high attention to the physical surroundings.

fig 3-2
The Service Process Matrix

		Degree of Interaction & Customization	
		Low	High
Degree of Labor Intensity	Low	Service Factory: - <u>Airlines</u> -Trucking -Hotels -Resorts & Recreation	Service Shops -Hospitals -Auto Repair -Other Repair Services
	High	Mass Service -Retailing -Wholesaling -Schools -Retail aspects of Commercial Banking	Professional Services -Doctors -Lawyers -Accountants -Architects

Source: Schmenner R.W. (1986). How can service Businesses Survive and Prosper?
Sloan Management Review, 27 (3), p.25.

Therefore, service businesses that have relatively low labour intensity and low degree of interaction and customisation are labelled “Service Factories”, and when the degree of interaction and customisation for the consumer increases, the service factory gives way to the “Service Shop” which has a high degree of plant and equipment relative to labour, but which offers more interaction and customisation. In the third cell are the “Mass Service” businesses which have a high degree of labour intensity but a rather low degree of interaction and customisation. Finally, if the degree of interaction with the customer and customisation of this service increases, the mass service gives way to “Professional Service”.

A summary of the important classification schemes of services and the location of airline services is shown in Table (3-1) .

Table (3-1)
Important classification schemes of services

Author / Year	Proposed classification schemes	Main contributions	Comments
Thomas (1978)	1-Primarily equipment based a-automated (e.g., car wash) b-monitored by unskilled personnel (e.g. airline) 2-Primarily people based a- unskilled labour (e.g. lawn care) b- skilled labour (e.g., repair work) c- professional staff (e.g., lawyers, dentists)	It provides a useful way of understanding product attributes.	This classification is operational rather than marketing in orientation.
Kotler (1980)	1-People-based versus equipment based 2-Extent to which client's presence is necessary 3-Meets personal needs vs. business needs 4-Public vs. private, for profit vs. non-profit	This classification takes into considerations different aspects like: people and business needs, private and public interests, and profit versus non-profit matters.	Synthesises previous work, recognises differences in purpose of service organisation.
Chase (1983)	According to the extent of customer contact in service delivery; There are two types of services: 1- high contact 2- low contact	1- Airline exhibit mixed service characteristics at their terminals (high contact baggage handling), pure service characteristics within the planes, and quasi manufacturing characteristics in their billing and air plane maintenance operations 2- This distinction between high and low contact systems provides a basis for classifying service production systems that can enable the manager to develop a more effective service operation.	1-It is difficult sometimes to differentiate between high and low contact operations 2-Contact personnel have relatively little discretion in altering the characteristics of the service they deliver; so, their role is just implementation and the judgement is usually reserved for managers or supervisors. Therefore, although this distinction is useful , but it is not as helpful and comprehensive as it could be. 3-This classification scheme becomes more problematic when it turns to examine potential operating efficiency.

Continued.....

Table (3-1) (continued)

Author / Year	proposed Classification Schemes	Main Contributions	Comments
Lovelock (1983)	<p>Services are classifying into four categories:</p> <p>1-Tangible actions to people's bodies</p> <p>2-Tangible actions to goods and other physical possessions</p> <p>3-Intangible actions directed at people's minds</p> <p>4-Intangible actions directed at people's intangible assets :</p>	<p>1-This classification of services done in a way that transcend narrow industry boundaries.</p> <p>2- This classification discusses how the nature of the service might affect the marketing task.</p> <p>3- Airline passenger transportation are classified as tangible action to people's bodies</p>	<p>1-According to this classification marketing managers can obtain a better understanding of: the nature of their product; the types of relationships their service organisations have with customers, the factors underlying any sharp variations in demand; and of the characteristics of their service delivery systems.</p> <p>2- There still exist a problem of using client contact; which may be fraught with more ambiguity than is necessary.</p>
Stiff &Pollack (1983)	<p>Service sectors are grouped on the basis of their relative customer contact and economic concentration to four groups .</p> <p>1- high customer contact low- economic-concentration.</p> <p>2- low customer contact low-economic concentration</p> <p>3-high customer contact-high-economic concentration.</p> <p>4- low customer contact-high-economic concentration</p>	<p>1-Passenger transportation is categorised as a high customer contact-high economic concentration business.</p> <p>2-This distinction between low and high contact systems provides a basis for classifying service production systems that can enable the manager to develop more effective service operation.</p>	<p>1-Most of passenger problems for these services are not specific ones but involve (need) some sort of correction (e.g. luggage loss, not arriving on time, cancelled reservations), therefore airlines and because of their large sizes can make its cost efficient to establish formal means of these corrections.</p> <p>3-There still exist the problem of using client contact, which may be fraught with more ambiguity than is necessary.</p>

Continued.....

Table (3-1) (continued)

Author/Year	Proposed Classification Schemes	Main Contributions	Comments
Schmenner (1986)	Services are better classified by using both the degree of labour intensity and the degree to which the customer interacts with the service; and, the degree to which the service is customised for the consumer (fig. 3-2)	1-Airline services are low labour intensity and low degrees of interaction and customisation; so the choice of monitoring technological advantages is very important, and that airline must try to make the service it provides exciting to meet customer needs. 2- it is possible to classify different challenges faced airlines.	1-Synthesises previous work and adds several new schemes. 2- Capacity cannot be increased easily, so demand must be managed to smooth out any peaks and promote off-peak times. Also the inflexibility of capacity implies that scheduling service delivery is relatively more important than it is for the other service industries.

From the previous table we can conclude that service classifications vary from person-to- person and from one situation to another. The ways in which services are provided, distributed, evaluated, purchased and consumed affect consumer perceptions. Recognition of these distinctions by marketers has led to different types of marketing strategy being directed at each of these groups. Through such classifications, the application of marketing management tools and strategies in manufacturing has become a professional skill that transcends industry division.

The following section will discuss airline services and the important dimensions that may be used to measure its quality.

3-3 Airline Service Quality

Airlines have had a difficult time in adopting the quality concept because air transportation was not provided by the airlines alone, but is a joint effort involving the airlines, passengers and the government (Gourdin 1988). The

customer has direct contact with the airline, it is always blamed for the problems of the entire system despite management's best effort and intentions.

As a result of increasing fuel prices and the competitive nature of the airline industry, and as one way to reduce overhead costs, airlines turned to reducing or eliminating a number of customer services (e.g. that had been expected by the flying public in the past). This has resulted in an increase in consumers' frustration, and dissatisfaction with the quality of service being provided by the airline industry.

3-3-1 Dimensions of Airline Service Quality

In order to introduce high airline service quality, it is necessary to identify the main attributes or features of this service.

The term quality is perhaps the most over used term in today's literature, speeches and customer complaints. The importance of service quality in any service industry cannot be disputed. Passengers have increased expectations concerning the quality of service they receive (Brewda et al. 1989), and carriers are struggling to meet these expectations (Coppet 1988). This struggle between airlines and passengers suggest that there is room for improvement in carrier management's understanding of how airlines define service quality.

This section will investigate different dimensions that may be used to identify and measure service quality according to the previous related studies.

Many researchers report that service quality objectives and performance in the passenger airline industry typically take the form of airline on-time arrivals and departures, problem free baggage and no cancelled flights (Folkes et al. 1987, Bitner et al. 1990). Bolton et al. (1989) explained that common complaints directed at airlines today are mostly related to baggage handling, delayed flights, missed connections, reservation handling, over-sales, problems with refunds and endless lines at airport ticket counters or gate areas. Moreover, Bolton et al. (1989) identified three dimensions of customers' complaint behaviour in the

airline industry. The three complaint dimensions appear to reflect distinct ways in which the customer interacts with the airline service providers. The first dimension involves “operational problems” such as flight cancellations and delays, over-sales, and problems arising during the standard service contact (flight). The second dimension reflects “marketing problems” such as information on fares and advertising. These problems concern facilitating services and generally occur prior to the flight. The third dimension reflects “special situation problems”: which concern services in non standard service contacts, such as denial of credit and availability of tour packages.

Transportation service includes the collection of both core and peripheral transportation flight itself. Peripheral services involve supportive and facilitative services such as ticketing and baggage handling, or availability of executive conference rooms; while core services consist of the basic transportation flight itself (Folkes and Kolestky 1987, Bitner et al 1990, Gronroos 1990, Zeithaml et al. 1990, Morash and Ozment 1994).

Table (3-2) shows examples of different variables representing the total transportation services.

Table (3-2)
Airline service flow variables and their definitions

<p>A- Airline core service flows:</p> <ul style="list-style-type: none"> 1- Passenger Services- services associated with in-flight passenger comfort, convenience, and safety (flight attendants, meals, etc.) 2- Flight Services- services associated with the in-flight operations of aircraft (e.g. pilots). 3- Maintenance Services-services associated with the maintenance of flight-status aircraft.
<p>B- Airline Peripheral Service Flows:</p> <ul style="list-style-type: none"> 1- Ground Support- services associated with baggage handling, aircraft servicing, and traffic control. 2- General Administrative Support- financial and accounting activities, legal services, purchasing, and other general administration.
<p>C- Airline Communication Flows:</p> <ul style="list-style-type: none"> 1- Airline public relations, promotion, advertising, and selling.
<p>D- Airline Capacity Utilisation:</p> <ul style="list-style-type: none"> 1- Load Factors- percentage of seats flown which are filled (i.e., capacity utilisation and passenger congestion) 2- Passenger Enplanements-total number of passengers flown (i.e., system utilisation and passenger congestion)

Source: U.S. Department of Transportation, Air Carrier Financial Statistics (December, 1990).

In a recent study Morash and Ozment (1994) explained that the total transportation service offering generally includes several dimensions of transportation service flows as shown in fig (3-3).

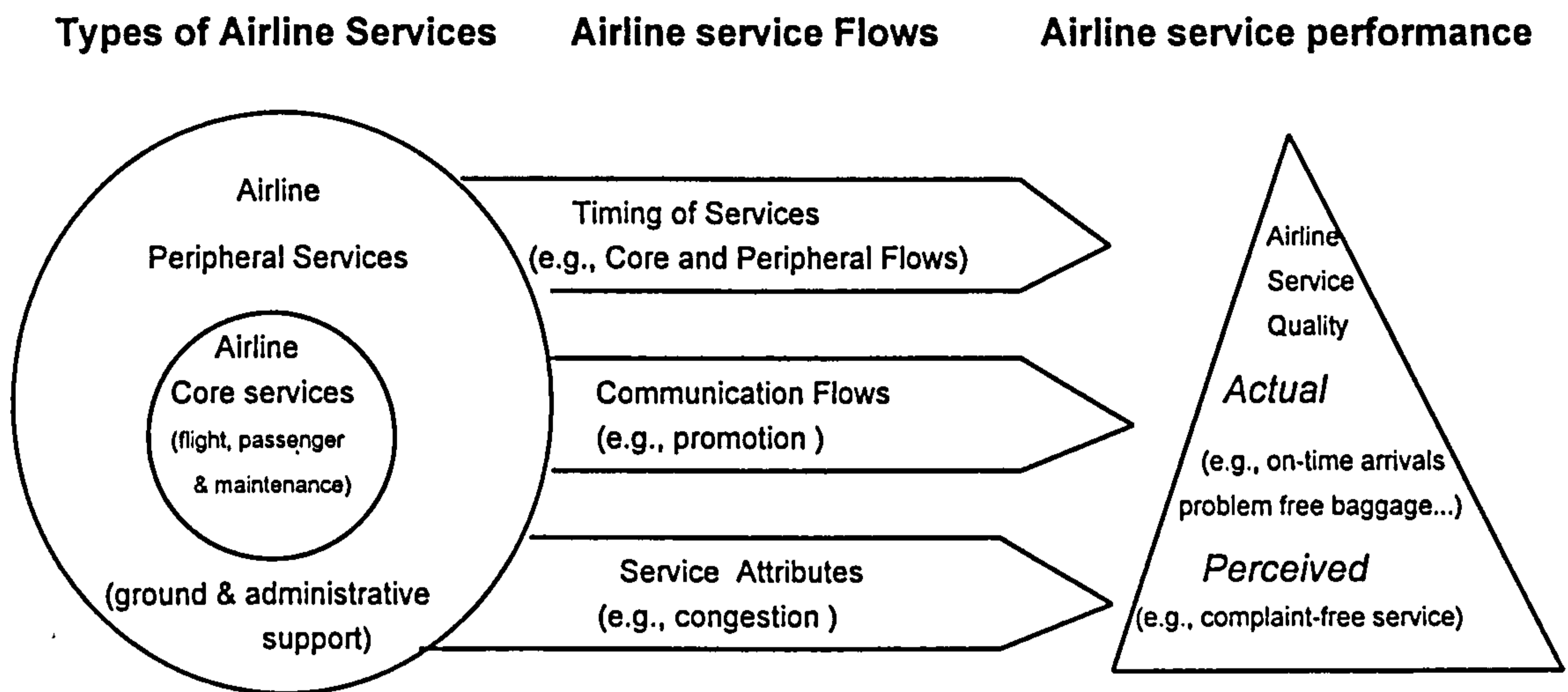


Fig (3-3)

"Total Transportation Service Offering"

Source: Morash, E.A. and Ozment, J. (1994). Toward Management of Transportation service quality. *Logistics and Transportation Review*, 30, 2, p.155

These dimensions are:

- “Timing” of core and peripheral service flows (Ozment and Chard 1986).
- Communication flows with customers which are likely to influence service quality performance and may actually be used to develop consumer expectations of service levels (Zeithaml et al. 1988, Gronroos 1990, Cronin and Taylor 1992). This effect can be created by advertising and personal selling “flows” that may influence customers’ expectations and perceptions of the service quality they receive (Bowersox and Moras 1989).
- The service “Delivery” environment or situational context of the transportation service that may create a stream or flow of additional service attributes (Gronroos 1990). For example, transportation peak-load conditions may create difficulties for the transportation system in delivering actual service quality, also peak conditions may create “congestion queues” (Langer

and Saegert 1977, Maister 1985) which could adversely impact on a passenger's perception of the service quality, regardless of the actual service quality received.

Morash and Ozmont (1994) concluded the following points:

1. All elements of the total transportation service offered impact on both perceived (e.g. passengers point of view) and actual service quality (e.g. airline point of view).
2. Service quality efforts and expenditures can be specifically targeted and focused for particular service quality objectives.
3. Communication flows have the primary relationship with passenger perceived service quality;
4. Forward planning appears best for core services over longer decision horizons while feed-back type planning seems best for peripheral services over shorter contemporaneous decision horizons. Forward planning is concerned with anticipatory planning of service flows in order to fulfil or exceed customer expectations, to avoid service problems and to redefine and systematise customer relations, while feedback service planning is concerned with making current corrective adjustments to transportation service flows (Gannon, 1977, p. 141).

Zeithaml et al. (1990) explained that some aspects of the core and peripheral services are more prominent and "visible" to customers than other aspects, and the customer may use these prominent and outstanding service attributes as "cues" to judge the overall quality of the transportation service.

In his study on British Airways, Gronroos (1990) identified four consumer oriented factors that influence service quality: two feed forward determinants (i.e., careful employee selection and training program) and two feed-back type adjustments of service (i.e. "recovery" and "spontaneity"). Recovery was defined by airline customers as "if any thing goes wrong or something unexpected happens, there is someone who is prepared to make a special effort to handle the situation". Spontaneity was defined by airline customers as airline employees

demonstrating a “willingness and readiness to actively approach customers; showing that they can think for themselves and not just go by the book” (Gronroos 1990, p.44).

Many researchers have attempted to identify the main dimensions of airline service quality (Perry and Friedman 1973, Ritchie et al. 1980, Jones and Cocke 1981, Good et al. 1985, Hu and Bruning 1989, Harding 1988). Perry and Friedman (1973) provided dimensions by which airlines could evaluate consumer attitudes or changes in attitudes as a result of policy or advertising changes. These dimensions are: safety, economy, service speed, and prestige. Ritchie et al. (1980) investigate consumers’ perceptions of the concept of competition in the airline industry by showing 30 main measures that affect the selection of air services (Table 3-3). They also conclude that both vacation and business travellers were very concerned about service, although each tended to emphasise somewhat different perspectives. Timing and frequency of flights were considered important to travellers, particularly those in the business category, while prices (fares), safety considerations, flight schedule and conditions surrounding the making of reservations are of great importance to vacational travellers.

**Table (3-3)
Airlines Service Quality Measures**

Criterion	Element
Flight Schedules	On time arrival/departure Frequency of flights Non-stop flights
Safety considerations	In-flight procedure, Safety record, Maintenance quality, Attendant training
Fare	Low cost vacation fares, Fares for children, Senior citizen fares, Weekend fares
Aircraft Characteristics	Body type, Maximum speed, Size, Seating space
Flight Related Aspects	Baggage handling, Ease of ticket purchase, Quality of meals, Entertainment, Reading material, Courteous attendants, Bar service, Next seat vacant
Reservation Conditions	Speed of confirmation Assistance information Ease of making
Auxiliary Services	Hotel reservation, Tourism information, Car- Reservation

Source : Ritchie, J.R., Johnston, E.E. & Jones, V.J. (1980). Competition, fares and fences- perspective of the air traveller, *Journal of Travel Research*, 19, 17-25 p. 21

Jones and Cocke (1981) used the semantic differential technique to assess the quality of commuter service by evaluating the perceptions of passengers on seven commuter airlines. Each passenger was asked to indicate his/her assessment of some aspect of the commuter on the basis of scale from 1 to 100. Fourteen measures grouped into 5-dimensions were used, these dimensions are: operations, equipment, personnel, economics and image (Table 3-4). The results of this study indicate that the commuter passengers were (in general) pleased with the service provided by the airlines.

Table (3-4)
Jones & Cocke measures of airline service quality

Dimension	Measures
Operation	consistently on time reliable baggage handling desirable schedule security conscious
Equipment	quiet equipment roomy planes clean equipment
Personnel	polite personnel knowledgeable personnel prompt service by personnel
Economics	high value for money spent economical (not expensive)
Image	profitable reliable (safe)

Source: Jones & Cocke (1981). A performance evaluation of commuter airlines: the passengers view. Proceedings of the 22 nd Annual meeting of the transportation research forum, part One, p. 249

Harding (1988) identified 24 measures of airline image in the Middle East (Table 3-5) through a review of seven (un published) research studies that had been done privately by airlines, aircraft manufacturers, and by independent market research organisations. Two elements of airline image are identified by this study. Firstly, issues relating to discrimination between nationalities by airline personnel, and secondly, the foreign language skills required of airline employees.

Table (3-5)

Measures of Airlines' Image in the Middle East

1. Punctuality, On-Time performance
2. Schedules Convenient
3. Good in-flight Service
4. Safety
5. Behaviour of Airline Personnel (Ground and in-flight)
6. Competence of Airline Personnel
7. No Discrimination Between Nationalities by Airline Personnel
8. Efficient Reservations
9. Efficiency of Airline Personnel
10. Cabin Comfort and Attractiveness
11. Quality of Meals and Beverage Service
12. Type of Aircraft
13. Availability of Business Class Service
14. Price/Value
15. Check-In and Boarding Service Efficiency
16. Appearance of Airline Ticket Offices
17. Foreign Language Skills of Airline Employees
18. Information Provided to Passengers
19. Baggage Retrieval and Other Post-Flight Services
20. Connections and Transit Facilities
21. Promotions Including Frequent Flyer Programs
22. Past Experience with Carrier
23. Recommendations of Distributors and Other "Opinion Leaders"
24. National Identity of Carrier

Source: Harding, F.E. (1988). The components of airline image: a Mid-East perspective; San Antonio: Proceedings of the annual meetings of the south west marketing association, p. 155 & 156

Hu and Bruning (1987) attempted to test the extent to which service importance is a factor in identifying domestic airline travellers by type of air carrier. They served 533 travellers at an international airport in the United States using two scales that measure service importance (11 measures) and service performance (12 measures) as shown in (Table 3-6). They call service importance, "instrumental importance" and define it as "a temporal perception of product importance based upon the consumer's desire to obtain particular extrinsic goals

that may derive from the purchase and/or usage of the product/service” (p.33). On the other hand service performance is called “enduring importance”, and is defined as “a long-term cross-situational perception of product importance based on the strength of the product’s relationship to control needs and values” (p.33). The results showed that instrumental importance factors (flight specific) are more valuable than enduring (general) importance in making the choice decision, and although pre flight and post flight services, dependability, and reliability ranked highest in enduring importance, attributes more closely associated with instrumental importance (i.e. comfort, convenience, reliability, carrier image, and dependability) tended to be of greater explanatory value in the passengers’ flight decision.

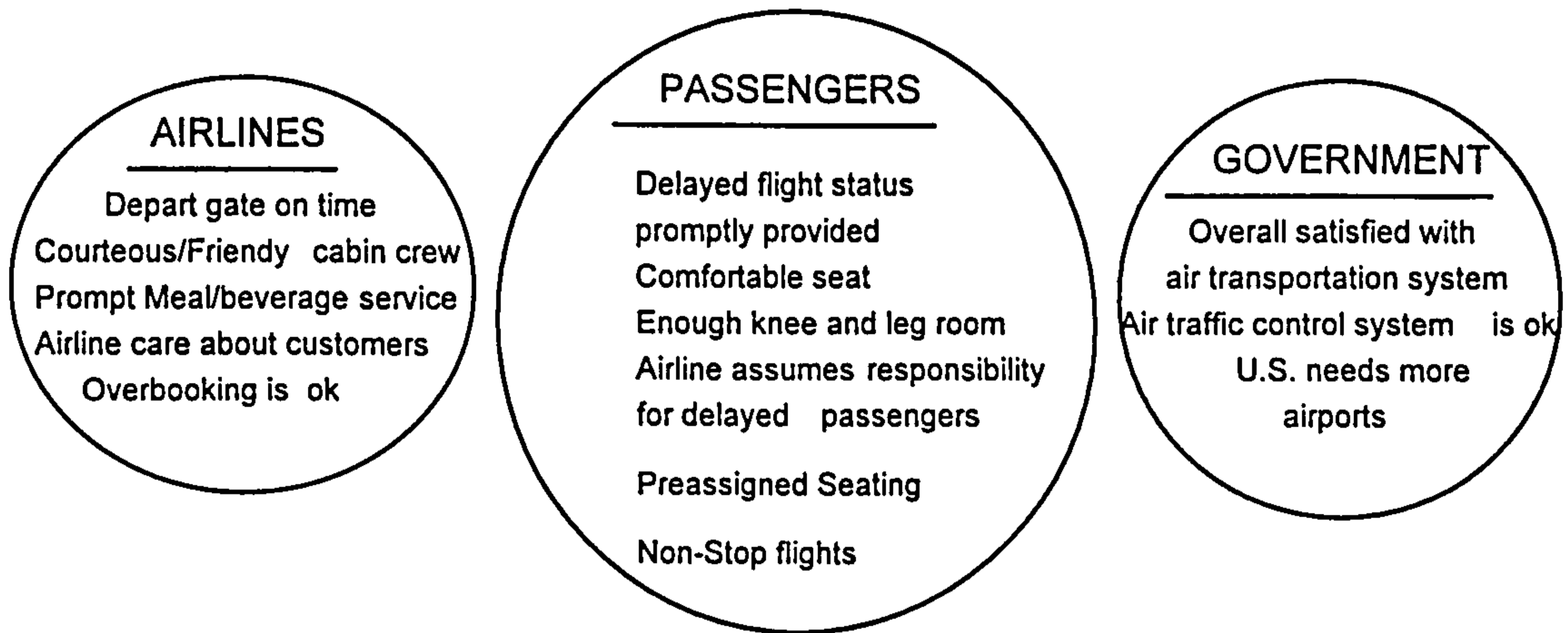
Table (3-6)
Measures of Product Importance and Product Performance

<u>Enduring Importance</u>		
1.	Timeliness (time of arrival and departure)	
2.	Reliability (perceived level of safety associated with the carrier)	
3.	Comfort (physical pleasure associated with the trip)	
4.	Convenience (ability to arrange flight with minimal transfers)	
5.	Dependability (ability to meet scheduled arrival and departure times)	
6.	Pre-flight Service (reservation, ticketing, baggage checking)	
7.	In-flight Service (food, beverage, reading materials)	
8.	Post-Flight Service (baggage retrieval, connection flight information)	
9.	Fare (ticket price)	
10.	Access Transportation Cost (cost to and from air terminals)	
11.	Air Carrier Image (innovative versus un imaginative, profitable versus un profitable, etc.)	
<u>Instrumental Importance</u>		
1.	On-Time	Late
2.	Safe	Unsafe
3.	Courteous Personnel	Discourteous Personnel
4.	Clean Equipment	Dirty Equipment
5.	Roomy Planes	Crowded Planes
6.	Desirable Schedule	Inconvenient schedule
7.	Profitable Airline	Unprofitable Airline
8.	Quiet Equipment	Noisy Equipment
9.	Security Conscious	Not Security Conscious
10.	Reliable Service	Unreliable Service
11.	Knowledgeable Personnel	Uninformed Personnel
12.	Economical Price	Uneconomical Price

Source: Hu , M. & Bruning, E.R. (1989). A comparison of enduring and instrumental product/service importance: The case of the airline traveller. Transportation Practitioners Journal, 54, p. 36-37

Many researchers try to identify different service gaps that may appear in airline services and affect passenger satisfaction (Gourdin and Kloppenborg 1991, Hopkins et al. 1993). Gourdin and Kloppenborg (1991) utilised a general model of service quality to identify service gaps that can lead to customer dissatisfaction with the airline industry (fig 3-4). Results showed that convenient arrival/ departure times, pre loading security checks, and prompt meaningful flight information were important components of a quality air transport system. The researchers also identified those factors that are important in quality air travel to passengers, airline managers and Government. Factors identified as important from the passengers point of view are: on-board comfort, being kept informed regarding delays, and being cared for when travel was disrupted. Airline managers were concerned about some things that were not nearly as important to passengers, such as: on-time departure from the gate, courteous cabin attendants, beverage service on short flights and care about customers overbooking. Moreover, there are some factors that both passengers and managers agreed were important in quality air travel; for example: convenient (check-in) board delays, take-off on time, beverage service on long flights, aircraft clean in-side, prompt baggage handling, lost bags procedure and airline complaint mechanism. However, there were numerous areas of complete disagreement such as: those factors that seemed to confirm the existence of service gap 1 (gap between consumer expected service and management perceptions of consumer expectations).

Important Quality Factors In Air Travel



<u>Passenger / Airline Agreement</u>	<u>Passenger / Government Agreement</u>	<u>Total Agreement</u>
<ul style="list-style-type: none"> 1- Convenient check in 2- Convenient connections 3- On-board comfort during delays 4- Take-off on time 5- Beverage service on long flights 6- Aircraft clean inside 7- Prompt baggage handling 8- Careful baggage handling 9- Lost bags procedure 10- Airline complaint mechanism 	<ul style="list-style-type: none"> 1- Lower fares for non-peak travel <hr/> <p style="text-align: center;">Airline / Government Agreement</p> <hr/> <ul style="list-style-type: none"> 1- Airlines must earn a profit 2- Safety announcements made 	<ul style="list-style-type: none"> 1- convenient departure times 2- Convenient arrival times 3- Preflight security screening 4- Meaningful flight information promptly displayed

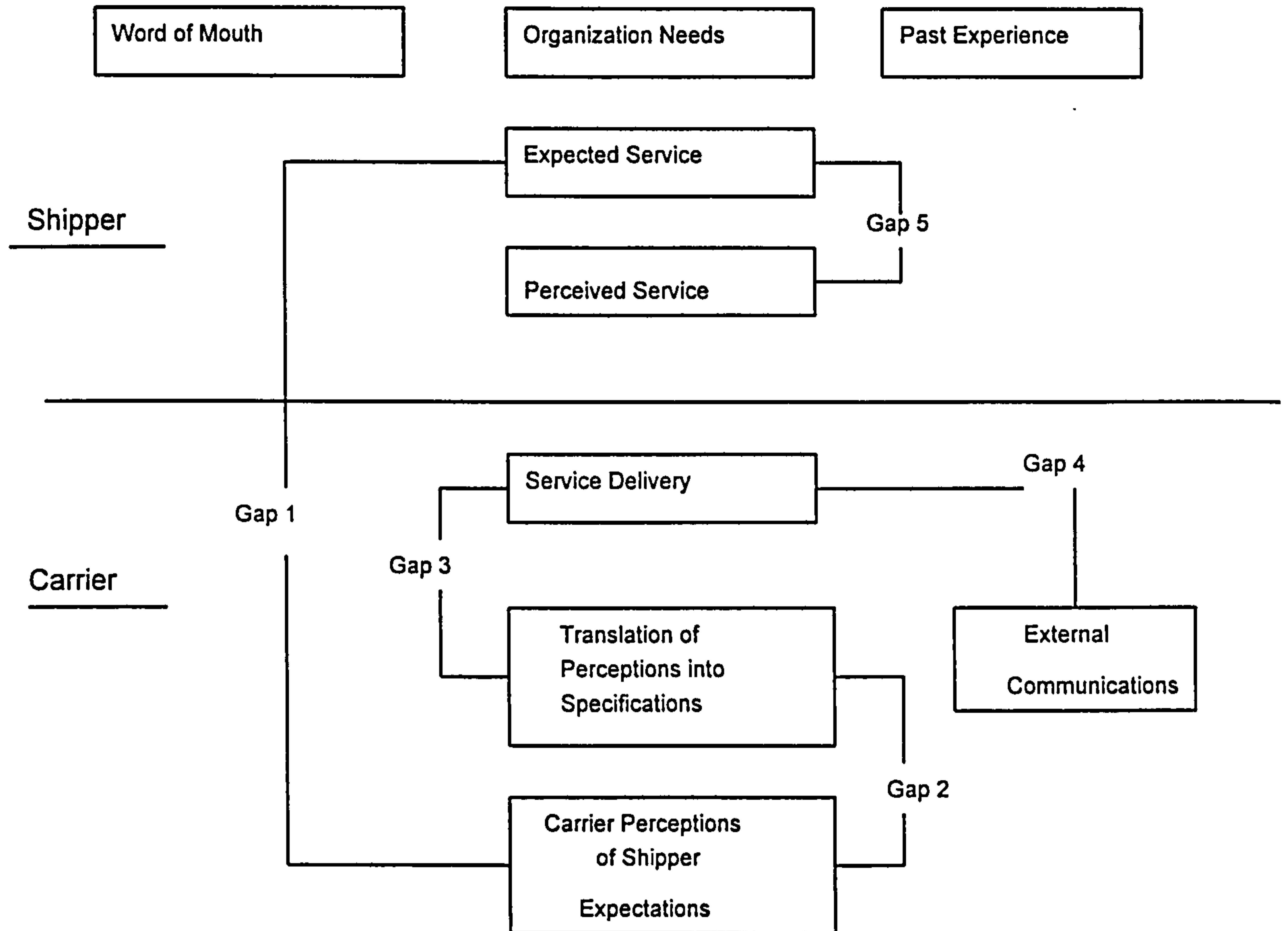
Source :Adopted from Gourdin, K.N. & Kloppenborg, T.J.(1991). Identifying service gaps in commercial airtravel:the first step toward quality improvement. Transportation Journal, 31 (1), p. 26.

Hopkins et al. (1993) describe 22 statements that are designed to measure service provider gaps and their causes. The questionnaire was based on the reactions of shippers and carriers to various statements reflecting features of service quality. These statements are based on a survey developed by Zeithaml et al. (1990).

Statements applicable to transportation were selected and adopted to specifically analyse possible gaps in the transportation industry.

Fig (3-5)

Model of Service Quality (Transportation Industry)



Source : Hopkins,S.A.,Strasser, S., Hopkins, W.E., and Foster,J.R.(1993). Service quality gaps in the transportation industry An Emperical Investigation. Journal of Business Logistics, 14,1, p. 147

Results showed the existence of all five theorised gaps in the carrier/shipper system within the transportation industry (fig 3-5), and that although carriers know what service quality the shipper expects from them, they are not providing this quality of service. In order to explain this, there are many questions to be answered. For example:

- Do carriers feel it is too costly to achieve that quality level?

- Are they failing to translate what they know of shippers' expectations into measurable quality standards and specifications that their employees can follow?
- Are carriers not communicating standards and specifications clearly to their employees?

In a recent study, Eliot and Roach (1993) tried to identify a phenomenon that may be influencing passengers' evaluation of airline carriers. Two different questionnaires were administered, in the first one respondents were asked to rate ten airline carriers with regard to six attributes. These attributes were based upon previous research by Bolton et al. (1989) and consumer reports (July 1991). The six attributes are:

- On-Time performance (arriving at final destination within 15 minutes of schedule).
- Baggage Handling (experiences of waiting for luggage and lost or damaged bags).
- Food Quality (taste and variety of food provided).
- Seat and Leg room (roominess of seats and aisles).
- Check-In Service (experiences of waits at the check-in counter, obtaining flight information, and of having flights re scheduled).
- In-Flight Service (friendliness, and competence of flight attendants and pilots).

The second questionnaire was used to measure the perceived conceptual similarity of the six service attributes of airlines. Results indicate that a respondent's evaluation of airline service attributes may be biased by pre-existing ideas that may distort their evaluation of airline carriers on the basis of their beliefs about interrelationships of service attributes. The perception about service quality attributes are seemingly influenced more by factors internal to the respondent than by the actual attributes available for observation.

Table (3-7) summarises the main contribution of previous research in the area of airline service quality dimensions and makes general comments on them.

Table (3-7)
Airline service quality dimensions

Author / Year	Objectives	Main Contributions	Comments/ criticisms
Ritchie et al. (1980)	Discuss the effect of deregulation on various components of the total airline system (e.g. choice, fares, service, and schedules)	They discuss 8-dimensions (30-measures) that affect the selection of air services. Timing and frequency of flights were considered important to business travellers, while price, safety considerations, flight schedule, and reservation conditions are of great importance to vacational travellers.	Comprehensive study; it covers many important factors used to measure service quality. some factors are difficult to measure by passengers alone (e.g. safety)
Jones & Cocke (1981)	Assess the quality of commuter services by means of evaluating the perceptions of passengers on seven commuter airlines.	Identify 5-categories of dimensions with 14 variables to view the quality of services (Table 3-4). The commuter passengers were for the most part favourably pleased with the service provided by the airline. Moreover, the commuters held their own when compared with the major air carriers except for the area of equipment, the size of which is limited by law. The commuters' service level and image were positive	Measures used may not clearly represent quality dimensions (e.g. using only profitability and reliability to measure carrier image). This study used semantic differential technique which involves repeated judgements of a concept against a series of bipolar adjectives situated at the extremes of 100 mm scale. Each passenger was asked to indicate his assessment of some aspect of the commuter on the basis of a scale from 1-100. Therefore, a problem of using this scale by the passengers because of its wide range may exist.
Etherington and Var (1984)	Establish a methodology for measuring airline preferences by updating previous airline passenger selection criteria.	Discuss five-dimensions with 17- factors to identify the criteria for selecting a specific airline	Factors used did not cover activities related to post flight services.
Hu and Bruning (1987)	Test the extent to which service importance is a factor in identifying domestic airline travellers by type of air carrier.	Measuring service importance (11-factors), and service performance (12-factors). Results show that the first types are more valuable than the second in making the choice decision	The method used to identify strength of instrumental and enduring factors was the step-wise discriminant analysis; type of carrier served as dependent variable, enduring importance and instrumental flight measures as the predictor variables.

Continued....

Table (3-7) (continued)

Author / Year	Objectives	Main contributions	Comments
Gourdin (1988)	Discusses the issue of airline service quality from a broad perspective by examining the issue from the view points of the carrier, passenger, and the government	Adopting quality concept in the airline industry is a joint effort involving the airlines and the government. Highlight the problem that there is no consensus among the users and providers of air transportation as to what quality means in the airline industry.	This is a theoretical study related basically to literature, and does not include an empirical study to support theoretical findings.
Harding (1988)	Identifies airlines images in Middle East	There are two elements of airline image which rarely appear in U.S airline studies: issues related to discrimination between nationalities by airline personnel and issues related to foreign language skills required of airline employees.	This study presents a review of unpublished research studies that had been done privately by airlines, aircraft manufacturers and by independent market research organisation
Gourdin & Kloppenborg (1991)	Identify service quality gaps that can lead to customer dissatisfaction in commercial air travel. Examine and reconcile the different perspectives of each group (passengers, airlines, and government) using specific air travel attributes.	Identify the perception of quality dimensions in the view of passenger, airlines and government. They found that-there are many areas where there is no agreement amongst passengers, management and government (fig 3-4), and that total agreement is about: on-time departure and arrival, security, and availability of flight information.	The model used in this study delineates the process by which a customer's service expectations are satisfied. The questionnaire contains questions in either an importance-type or an agree/disagree format. All questions utilised a five-point Likert scale for responses.
Hopkins et al. (1993)	Studying different gaps within the "consumer-marketer" system in transportation sector.	Describe 22-statements that are designed to measure service provider gaps and their causes. Results showed that the five gaps existed in the carrier-shipper system within transportation industry	SERVQUAL was the survey instrument used in this study. There is a need to better identify problem areas and to offer definitive solutions to the improvement of service quality in transportation industry

Continued.....

Table (3-7) (Continued)

Author / Year	Objectives	Main contributions	Comments
Eliot and Roach (1993)	Identify a phenomenon that may be influencing passengers' evaluation of airline carrier.	Perceptions about service quality attributes are seemingly influenced more by factors internal to the individual than by the actual attributes available for observation. Consumer may systematically distort their evaluation of airlines.	This study discusses consumer evaluation of airline service quality by using systematic distortion hypothesis which states: under difficult memory conditions (e.g. situations where limited information is known), respondents on interpersonal checklists, personality inventories, and behaviour rating questionnaires systematically distort their evaluations of other people.
Ostrowski et al. (1993)	To examine issues related to service quality and customer loyalty in the commercial airline industry.	Results showed that competition based on pricing will do little to build and maintain brand loyalty. There is significant relationship between reputation, service, value offered and brand loyalty (retained preferences).	Measuring passenger loyalty by depending just on retained preferences; (one item) without showing specific details about purchase behaviour may not be enough to represent passenger loyalty.
Truit & Haynes (1994)	Examine productivity and quality issues in regional airline industry in the US.	This study integrates traditional productivity and quality paradigms and techniques into a hybrid service model. It develops a service model designed to measure the impact of newer aircraft on regional airline productivity and service quality.	Passenger care about service quality, and they perceive aircraft type to be an important quality attribute. Further study is required to discover more precise passenger perceptions of the quality attributes of the new aircraft; since this study found only aircraft size as an important service attribute.
Morash and Ozmont (1994)	Examine service quality in airline industry as measured by the total transportation service .	All elements of the total transportation service impact both perceived and actual efforts. Expenditures can be targeted and focused for particular service quality objectives. Summary of the best managerial decision practices over different decision horizons is provided. Forward planning appears best for core services over longer decision horizons, while feed back-type planning seems best for peripheral services over shorter contemporaneous decision horizons.	Data for all of the variables examined were obtained from three different sources of governmental reports published by the US Department of Transportation (US DOT); so, there may exist a problem of validity of these data. Also there may be a problem of using the same methodology if a similar study was applied in other countries, where no such prepared data is available.

The main attributes used by passengers in evaluating airlines services and that affect their selection of a special airline in their travelling can be summarised as seen in Table (3-8).

Table (3-8)
Attributes used to evaluate airline services

Attributes	Authors
Skill of airline employee -Courteous employees -Know how to answer questions -Knowledgeable personnel -Are exact about service times -They give prompt services -They are willing to help -Give individual attention -Treat passengers equally.	Makens & Marquardt (1977); Ritchie et al. (1980); Jones & Coke (1981); Etherington & Var (1984); Hu and Bruning (1987); Harding (1989); Gourdin & Kloppenborg (1991); Hopkins et al (1993); Ostrowski et al. (1993);
Baggage Handling -Waiting for baggage -Lost baggage -Promptness of baggage handling	Harding (1980); Ritchie et al. (1980); Jones & Coke (1981); Etherington & Var (1984); Bolton et al. (1989); Hu & Bruning (1987); Gourdin & kloppenborg (1991); Eliot & Roach (1993); Kaynak et al. (1994); Morash & Ozmont (1994)
Food Quality -Amount and quantity of food -Menu selection -Prompt beverage and meal	Makens & Marquardt (1977); Ritchie et al. (1980); Etherington & Var (1984); Hu & Bruning (1987); Harding (1989); Gourdin & Kloppenborg (1991); Eliot & Roach (1993); Ostrowski et al. (1993);
On-Time Performance -On-time arrival and departure -Airline responsibility for delayed passenger.	Makens & Marquardt (1977); Ritchie et al. (1980); Jones & Coke (1981); Etherington & Var (1984); Hu and Bruning (1987); Harding (1989); Gourdin & Kloppenborg (1991); Eliot & Roach (1993); Hopkins et al (1993); Ostrowski et al. (1993); Kaynak et al. (1994); Morash & Ozmont (1994)
Flight Schedule -Flight Cancellation -Frequency of flights -Non-stop flights	Ritchie et al. (1980); Jones & Coke (1981); Etherington & Var (1984); Bolton et al. (1989); Hu and Bruning (1987); Harding (1989); Gourdin & Kloppenborg (1991); Hopkins et al (1993); Ostrowski et al. (1993); Kaynak et al. (1994); Morash & Ozmont (1994);
Price - -Fares for children -Weekend fares -Lower fares for non-peak travels -Lack of information fares -Drink price	Makens & Marquardt (1977); Ritchie et al. (1980); Jones and Coke (1981); Bolton et al. (1989); Hu & Bruning (1987); Gourdin and Kloppenborg (1991); Ostrowski et al.(1993); Kaynak et al (1994);

Continued....

Table (3-8) (continued)

Attributes	Authors
Safety Records -Customer feel secure in transaction -Maintenance quality -Security conscious	Ritchie et al. (1980); Jones & Coke (1981); Hu & Bruning (1987); Gourdin & Kloppenborg (1991); Hopkins et al (1993); Kaynak et al. (1994)
Image -Past Experience -Appearance of ticket office -Profitability -Airline reputation	Jones and Coke (1981); Hu & Bruning (1987); Harding (1989); Gourdin and Kloppenborg (1991); Ostrowski et al.(1993); Kaynak et al (1994);
Aircraft Characteristics -Seat & legroom -Cleanliness of plane -Boarding area -Modern looking plane -Cabin comfort & attraction -Size & Type of aircraft -Noise Levels -Storage space at seat -Ventilation and cabin temperature	Ritchie et al. (1980); Jones and Coke (1981); Hu & Bruning (1987); Harding (1989); Gourdin and Kloppenborg (1991); Hopkins et al. (1993); Ostrowski et al. (1993)
Reservation & Buying ticket -Ease of ticket purchase -Speed of confirmation -The way and delays in answering telephones -Over booking is ok -Meaningful flight information -Reservation handling -Problems with refunds & endless lines at airport ticket counters -Lines wait at airport counter -Boarding gate line wait	Makens & Marquardt (1977); Ritchie et al. (1980); Etherington and Var (1984); Bolton et al. (1989); Hu & Bruning (1987); Harding (1989); Gourdin & Kloppenborg (1991); Ostrowski et al. (1993);
Reading Material and video showings	Ritchie et al. (1980); Hu & Bruning (1989)
Carrier has error free records (complaint records)	Gourdin & Kloppenborg (1991); Hopkins et al. (1993)

Table (3-9)
Attributes of Airline Services
-Previous Contributions-

Attribute	Ritchie et al. (1980)	Jones & Coke (1981)	Etherington & Var (1984)	Hu & Bruning (1987)	Gourdin (1988)	Harding (1988)	Gourdin & Klopenborg (1991)	Eliot & Roach (1993)	Hopkins et al. (1993)	Ostrowski et al. (1993)	Morash & Ozmont (1994)	Kaynak et al. (1994)
On-time performance	x	x	x	x		x	x	x	x		x	x
Price	x	x		x			x			x		x
Safety	x	x		x			x		x			x
Flight schedule	x	x	x	x		x	x		x	x	x	
Reservation	x		x	x		x	x			x		
Baggage handling	x	x	x	x		x	x	x			x	x
Food quality	x		x	x		x	x	x		x		
Image		x		x		x	x		x	x		x
Aircraft characteristics	x	x		x		x	x		x			
Reading material & video showing							x					
Dealing with complaints	x	x	x	x		x	x		x			
Skills of employees									x			

Services provided to passengers can be classified according to the time (stage) of introduction to: pre-flight, in-flight and post flight services as shown in Table (3-10).

**Table (3-10)
Pre-flight, In-flight, Post-flight Services**

Stage	Service Attributes
Pre-flight services	<p>a) Reservation and buying ticket</p> <p>b) Airport Services</p> <p>1- Ground staff availability 2- Helpfulness of ground staff 3- Courteous employees 4- Knowledgeable personnel 5- Neat appearance of employees 7- Assistance in case of delay 8- Terminal announcements 9- Answering telephones politely and quickly 10- Signs at airport</p> <p>c) Check in services</p> <p>1- Lines at airport ticket counters 2- Boarding gate line wait 3- Baggage handling</p> <p>d) On-time departure (punctuality of departure)</p> <p>e) Image</p> <p>1- Maintenance quality 2- Airline reputation 3- Past experience 4- Recommendations of distributors and opinion leaders 5 Type of air craft, availability of different classes (business, first, economy)</p> <p>f) Security procedures</p> <p>g) Ticket price</p> <p>1- Availability of discounts</p> <p>h) Schedule</p> <p>1- Frequency of flights 2- Non stop flights 3- Flight cancellation 4- Convenient schedules for passengers</p>

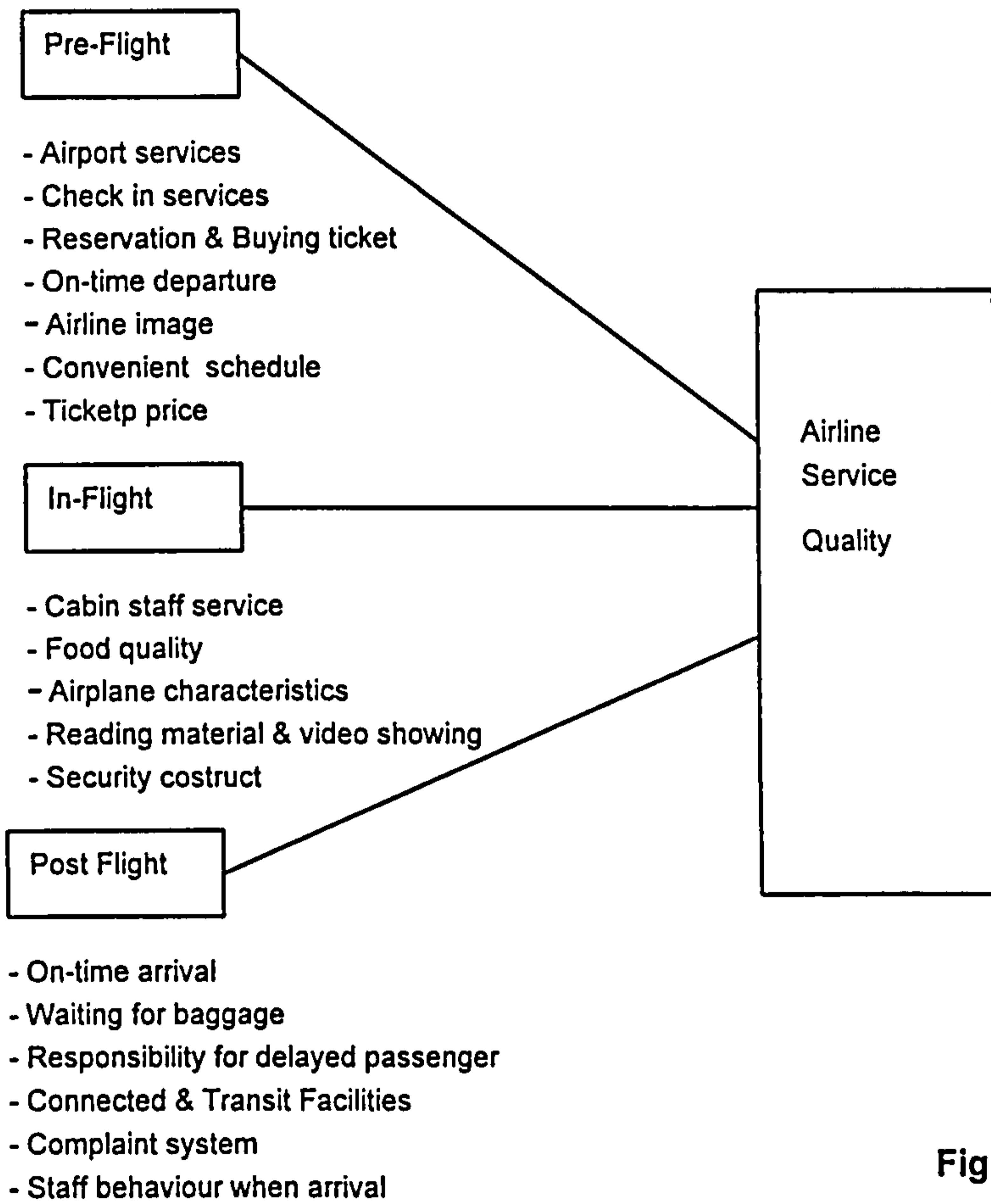
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Table (3-10) (Continued)

Stage	Service Attributes
<p>In flight services</p>	<p>a) Cabin staff service</p> <ol style="list-style-type: none"> 1- Sincerity of providing the service 2- Attentiveness of service 3- Courtesy toward passengers 4- Friendliness of staff 5- Enthusiasm of service 6- Efficiency and Professionalism 7- Willingness to "offer" service 8- Consistency amongst staff 9- Staff confidence and discipline 10- Prompt services 11- Give individual attention 12- Knowledgeable employees 13- Foreign language skills 14- Welcome on board 15- Crew appearance 16- Cabin announcement 17- No discrimination between nationalities 18- Adherence to smoking/ no smoking regulations <p>b) Food Quality</p> <ol style="list-style-type: none"> 1- Quality of meals 2- Quantity of meals 3- Consistency of meal standard 4- Meal services 5- Menu selection 6- Drink price and varieties <p>c) Air plane Characteristics</p> <ol style="list-style-type: none"> 1- Seat and width pitch 2- Cleanliness of plane and Lavatories 3- Modern looking equipment 4- Cabin comfort and attraction 5- Ventilation and cabin temperature <p>d) Reading Material and Video Showing</p> <p>e) Security Conscious</p>
<p>Post Flight Services</p>	<ol style="list-style-type: none"> 1- On-time arrival 2- Waiting for baggage 3- Lost baggage 4- Airline responsibility for delayed passenger 5- Complain system 6- Staff assistant when arrival 7- Connections & transit facilities.

Classifying airline services as seen in Table (3-10) enable airlines to have more control on their operations in each stage and therefore offer the best level of services to satisfy passengers needs.

Fig. (3-6) shows various factors that may affect airline service quality



Factors Influencing Airline Service Quality

3-4 Employee Role in Airline Services

This section will discuss various aspects that identify the role of employees as an important element in providing successful airline services.

Airline employees must deal with passengers honestly and fairly. Thus, all information either good or bad, should be provided promptly so that customers know what is happening and can plan accordingly. It has been found that a large number of suggested quality improvements from passengers are concentrated on raising the customer service skills of airline personnel (Gourdin and Kloppenborg 1991). These are centred around instilling some sense of organisational pride and customer commitment in airline employees. This is crucial for several reasons such as: First, to most passengers, the ticket agent or the flight attendant is the airline; if that person is having a bad day, they totally undo management's best made plans, policies, and procedures. Second, the air transport system is such that disruptions will invariably occur. These may be the result of management error, but government influences and even the weather can adversely to resolve problems and "make it right". This puts these employees into the unfortunate role of performing "damage control"; something has gone wrong, the passenger is unhappy and blames the airline, and it is left to ground workers to smooth the situation. Many customers noted negative experiences with air employees who were disinterested, ignorant, unresponsive, and generally lacking in any sort of customer orientation. Edvarsson (1992) mentions that delayed flights, cancelled flights, delayed luggage, overbooking and lack of information were important variables to be asked for, and that airline should train its staff in the techniques of communication and how to relate to customers when critical incidents occur.

Employees responses to failure are a critical quality dimension. Bitner et al. (1990) in their study of 700 service encounters in the airline, hotel, and restaurant industries, found that system delivery failures can be turned into highly satisfactory encounters if they are handled properly. These findings provide new insight into the quality issue, given the inability on the part of management to

control many of the factors that make up service quality. It means that management must give airline personnel the authority to solve individual passenger problems on the spot.

3-5 Passenger Satisfaction

Chapter two discussed various factors and attributes that may affect consumer satisfaction and loyalty. The purpose of this section is to identify these factors and attributes that may affect passenger satisfaction and loyalty. It is important here to remember that there are no real previous studies about passenger satisfaction and loyalty, all that had been found did not cover these areas in a comprehensive way or did not handle airline passengers in particular, thus one of the objectives of this study is to contribute to this area.

Satisfying passengers in transportation services has an important effect on a carrier's long-term survival (Rhea and Shrock 1987), thus the ability of a carrier to differentiate its services allowing consumer satisfaction to become a strategic weapon rather than an operational tool (Distribution 1988). It was found that the emphasis on consumer satisfaction will continue to increase by as much as 11% every year (Goudge and Strasser 1988; Distribution 1988). This reflects the importance of this concept in marketing literature. There are three major forces causing this trend: first, customer expectation levels are higher, because as carriers provide higher levels of service in an effort to remain competitive, the minimum level of service that customers are willing to accept also rises (Goudge and Strasser 1988). Second, carriers' ability to evaluate their performance is improving (Distribution 1988, Samiee 1988). Third, more efficient logistics management compels better service (LaLonde 1986).

Passenger dissatisfaction is growing, especially among the business travellers. A survey by Industry Week magazine (1987) shows that 85.5% of the survey respondents believe airline service has become more difficult, 44.9% said their flights were rarely on time and 88.3% said the whole process of travelling by air takes more time than five years ago. Also, the study showed that 85.5% found

business air travel to be more expensive. Similarly, a survey conducted by Consumer Reports (1991) between January 1989 and May 1990, showed that airlines still fall short of satisfying passengers. This survey uses different measures to develop consumer overall satisfaction index, by ranking 14 U.S. airlines according to the following criteria : pre flight criteria (check in service, boarding area), baggage handling and on-time performance; in flight criteria (cleanliness of plane, seat width, leg room, ventilation and cabin temperature, flight service quality of food). Results showed that 30 % of respondents listed “very crowded” as a problem with their flight, and half of the respondents called the seat comfort less than good. This is expected, since airlines are trying to squeeze more profit out of each flight by squeezing most passengers into tighter, narrower seats (Yom,1990). Also 20% reported the following pre-flight problems: long waits at the check-in counter, difficulty obtaining flight information, rude or slow staff, flight cancellations or being bumped; while 37% of the survey participants had problems with food quality. The major findings of this study are: airlines that provide the best service are the small and medium - sized carriers that have developed niches for comfort, service, or consistently low fares; The “megacarriers” that fly the bulk of domestic passengers earned mostly average grades, and the airlines that satisfied their customers least, were for the most part, carriers that have been in deep financial trouble.

It is important to keep in mind that the number of complaints is not a complete measure of passengers dissatisfaction since it underestimates the number of dissatisfied customers, and as Warland et al. (1975) have shown, a significant number of passengers who become upset do nothing, or take actions which are not observed. Therefore, such complaints are never among the ranks of consumer complaints.

3-6 Passenger loyalty

Previous studies have concentrated on purchase intentions to represent loyalty. This approach covers only the behavioural dimension of loyalty and neglecting the attitudinal aspect. Therefore, one of the objectives of this study is to cover this area (behavioural and attitudinal dimensions) and link them with passenger satisfaction and loyalty.

Ostrowski et al. (1993) tried to examine issues related to service quality and customer loyalty in the commercial airline industry. Passengers were asked to evaluate 15 specific individual elements associated with the service encounter (the flight itself) and to provide two global evaluations: one on overall quality and the other on overall value of flight. The individual service elements that respondents were asked to evaluate comprise the total service experience, encompassing the five dimensions of service quality (tangibles, reliability, responsiveness, assurance and empathy) utilised by customers to judge an organisation's service (Berry et al. 1990). Results showed that current levels of perceived service quality are below potential and that customer loyalty to airlines is low. It was found also that competition based on pricing, will do little to build and maintain brand loyalty, and there exist consistent and significant relationships between service quality (carrier image or reputation) and retained preference, as a measure of customer loyalty.

The airline industry the world over is in a stage of rapid transformation. In this process, passenger satisfaction and loyalty are becoming of prime concern to airlines. It is indicated in many consumer purchase decision models that the consumer's repeat purchase and brand loyalty are closely associated with his satisfaction or dissatisfaction with an initial purchase (Berkman and Gilson 1986). In this regard, it is increasingly important for an airline's marketing departments to identify to what extent their passengers are satisfied or dissatisfied with their airline services. Moreover, and from the strategic management perspective, an airline organisation can improve its chance of designing strategies

that optimise environmental opportunities by making an accurate assessment of its customer environment (Chon and Olsen 1990). The implication is that: to take adequate strategic actions in the area of service marketing, one must understand how people perceive an airline service and what makes them satisfied or dissatisfied with airline services experiences. Figure (3-7) shows various factors that may affect passenger loyalty.

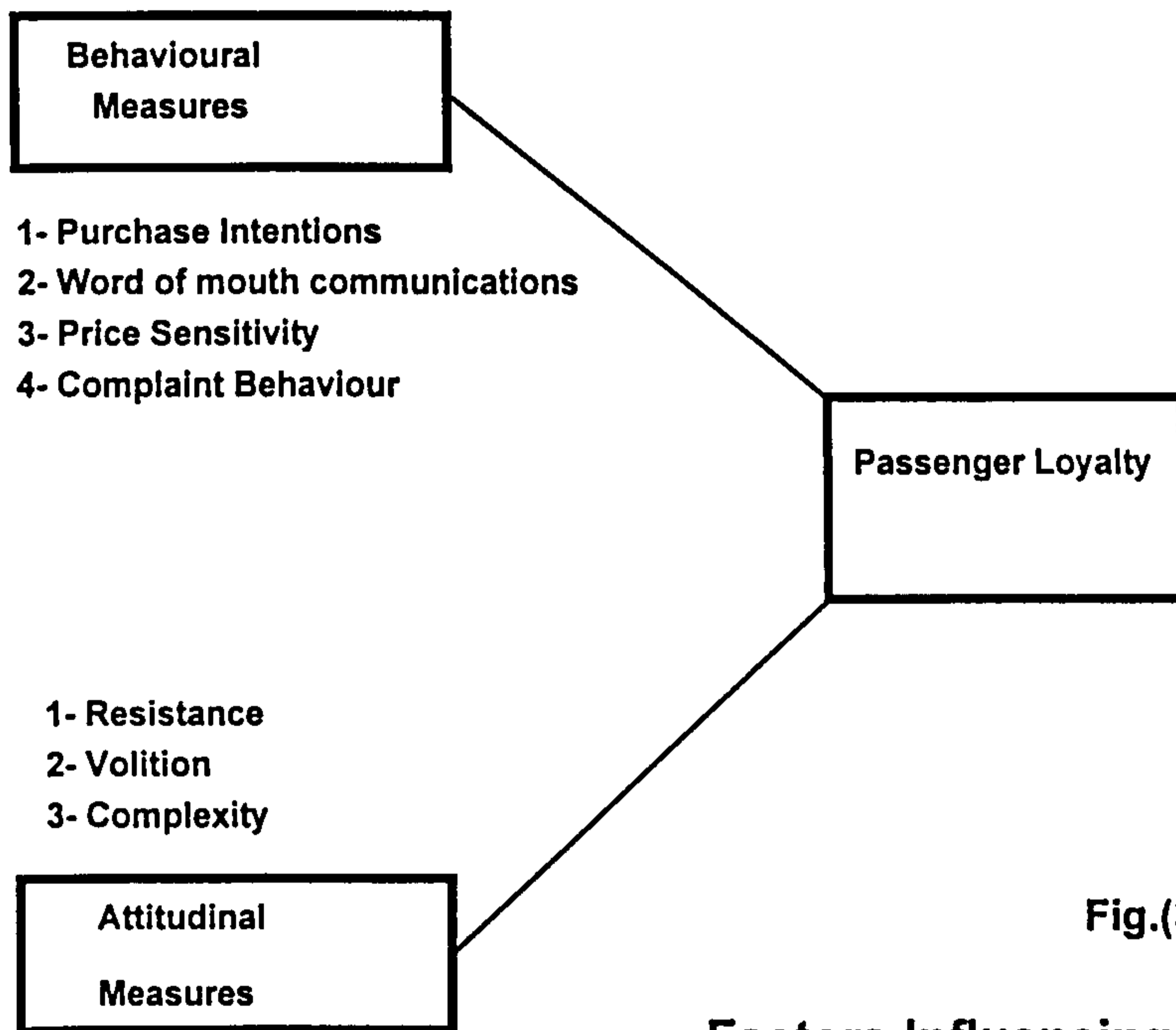


Fig.(3-8)

Factors Influencing Passenger Loyalty

3-7 The relationship between (service quality, consumer satisfaction and consumer loyalty) as found in the Previous Literature

The purpose of this section is to review the previous literature that links the three concepts (quality, satisfaction and loyalty). This will help to illustrate the causal relationship between these concepts and the main variables that can identify each one.

(i) Airline service quality - Passenger satisfaction

Service quality and consumer satisfaction have been linked together as shown by many previous studies (Smith & Houston 1983, Kotler 1988, Kaspar & Lemmink 1988, Lewis & Klein 1986, Bolton & Drew 1991). These studies showed that overall consumer satisfaction with a service could be positive and substantial when the consumer services are “high service quality” that is, delivery of service is perceived as equal to or better than expected service. Nguyen (1991) reported a strong correlation between satisfaction and perceived service quality, and consequently drew the conclusion that the two concepts measure the same underlying construct.

Satisfaction with low quality can exist whenever a person’s expectations in a given situation are low and performance is adequate to the task. Similarly dissatisfaction with high quality can ensue when some elements of service delivery are not up to personal standards (i.e., when a person’s predictive expectations are higher than those normally used to judge quality) (Oliver 1993).

On the other hand, literature shows that performance of the service is seen to be better predictor of overall service quality (Parasuraman et al 1991, Babakus & Boller 1992), and performance alone explains most of the variation in satisfaction (Churchill & Surprenant 1982, Bolting & Woodruff 1988, Tse and Wilton 1988, Swan 1989). Performance is defined as the degree to which products possess certain desired characteristics, or deliver certain benefits (Teas 1993 b).

The direction of causality between service quality and consumer satisfaction is an important unresolved issue that Cronin and Taylor's (1992) article addresses empirically and Teas' article (1993) addresses conceptually. Cronin and Taylor conclude that service quality leads to consumer satisfaction and not vice versa. However, there is a lack of consensus in the literature and among researchers about the causal link between the two constructs. The view held by many service quality researchers is that consumer satisfaction leads to service quality, while consumer satisfaction researchers have an opposite causal direction between the two constructs. These conflicting perspectives may be due, as Teas (1994) suggests, to the global or overall attitude focus in most service quality research in contrast to the transaction focus in most consumer satisfaction research.

(ii) *Airline service quality - Passenger loyalty*

Previous studies indicate that a relationship between service quality and consumer loyalty exists. Many researchers in service quality have suggested that when large inter brand differences in quality are perceived within a product category, there is a tendency for consumers to be more brand loyal (McConnell 1968, Jacoby et al. 1971, Lamont and Rothe 1971, Olson and Jacoby 1972, Anderson 1974, Assael 1987).

Most of the dimensions of service quality are "experience properties" that can be known only when the customer is purchasing or consuming (experiencing) the service (Parasuraman et al. 1985, p.48). A few recent studies have explored the impact of service quality on customers' behavioural intentions (e.g., Cronin and Taylor 1992, Boulding et al. 1993). However, there are many limitations of these studies, as described below:

- The operationalisation of behavioural intentions in these studies does not capture the full range of potential behaviours likely to be triggered by service quality. For example, Cronin and Taylor (1992) focused on purchase intentions measuring the construct with a single-item scale, while Boulding et

al. (1993), used in one of their studies a 2-item scale to measure repurchase intentions and willingness to recommend. In the second study, they used a 6-item scale that focused on intentions to say positive things about the institution and to contribute money to it.

- The lack of other customer behaviours that are often claimed as benefits of providing superior service. These behavioural intentions include for example, a willingness to pay a premium price and to remain loyal even when prices go up (Zeithaml et al. 1990).
- These studies did not take into consideration customers' complaint intentions (Singh 1990) when they have problems with a company's service.

Boulding et al. (1993) conducted an experimental and field study that discussed the relationship between disconfirmation of predictive expectations and types of should-expectation to different types of behavioural intention. In the first study, perceived service quality of a hypothesised visit to a hotel showed a positive influence on intentions to re-buy and recommend. In the second, the five dimensions of SERVQUAL were measured in an educational setting. Overall perceived service quality was found to be strongly and positively related to intentions. Knutson's (1988) study of frequent travellers suggested a link between service quality expectations and repeat behaviour. Knutson found that repeating hotel guests considered the same service quality criteria as when they initially chose the hotel. The level of these quality expectations for the hotels' service and amenities was found to vary by price segment (economy, mid-priced, luxury), though the criteria for evaluating quality and subsequent repeat purchase remain consistent regardless of price segment. A positive relationship appears likely to exist between service quality and loyalty leisure participation; one would expect an individual who perceives a high level of service quality associated with a recreation experience to exhibit higher levels of loyalty and continue to patronise the recreation agency providing the service.

(iii) Passenger satisfaction - passenger loyalty

Satisfaction and loyalty have received considerable attention in the literature of consumer behaviour. Several researchers in consumer behaviour (e.g. Bearden and Teal 1983, Surprenant 1982, Swan 1988) corroborate the connection and substantiate the nature of the relationship between the two constructs.

Consumer satisfaction is important to the marketer because, it is generally assumed to be a significant determinant of repeat sales, positive word of mouth and consumer loyalty (Bearden and Teal 1983, p.21). The centrality of the concept is reflected by its inclusion in the marketing concept that profits are generated through the satisfaction of consumer needs and wants (Churchill and Surprenant 1982, p. 491). Therefore, the hypothesis that consumer satisfaction influences behavioural intention to purchase a service from the same service provider is implied by the marketing concept.

Assael (1987) argues that satisfaction occurs when consumer expectations about a product or service are met; and that the consequence of meeting these prior expectations is the reinforcement of positive attitudes toward the brand, leading to a greater likelihood that the same brand will be repurchased (p. 46).

Many researchers have discussed the relationship between consumer satisfaction and purchase intentions (Anderson 1977, Oliver and Linday 1981, Kasper 1982, 1988). They found that post purchase intent to re-buy is a function of satisfaction and that consumer satisfaction is a factor leading to brand loyalty or repeat purchase behaviour. In a study to find the relationship between satisfaction with a restaurant and intentions to revisit because of the food/service, Swan (1988) found that intentions to revisit because of the food were predicted by both satisfaction and performance, while intentions to revisit because of the service were predicted primarily by satisfaction. Dufer and Moulins (1989) investigated the relationship between satisfaction with a product (coffee, shampoo, and detergent) intended loyalty and actual repurchase. They found that those who

expressed an intention to be loyal had a higher score for satisfaction than those who intended to change the brand. The satisfaction scores for those who repurchased the same brand were, however, not significantly different from those who bought another brand, except with the detergent. These results were explained by suggesting that although satisfaction is a good predictor of intended loyalty it is not a good predictor of actual repurchase. Dufer and Moulins (1989) acknowledged that external variables such as variety-seeking may have affected the results.

Customer satisfaction has been noticed as a special form of consumer attitude: it is a post-purchase phenomenon reflecting how much the consumer likes or dislikes the service after experiencing it (see Churchill and Surprenant 1982, p.502, Bearden and Teel 1983, p.27). Such an experienced-based, global attitude construct as customer satisfaction should strongly influence conative constructs, like: behavioural intentions and repeat purchase behaviour. Hence, customer satisfaction has been proposed, as an important hypothetical construct in models of buyer behaviour (Bennett and Mandell 1969, Howard and Sheth 1969, Howard 1977). Liljarden and Strandvik (1992) found that overall satisfaction was a better predictor of intentions to re-buy than overall or inferred service quality, and moreover, they found that the inferred disconfirmation measure (SERVQUAL Score) was found to be related to satisfaction, overall quality, and intentions, due to the effect of the performance component in the measure.

The concept of commitment provides an essential basis for distinguishing between brand loyalty and other forms of repeat purchasing behaviour (Jacoby and Chesnut 1978). Day (1969) has argued that true loyalty exists only when there is involvement with the purchase and commitment to the brand. Assael (1987) reported that “the cognitive definition of brand loyalty means that loyalty represents commitment and, therefore, involvement with the purchase... brand loyalty, is a form of complex decision making which assumes an involved

consumer”; therefore, Assael (1987) argued that a consumer’s high involvement should be seen as one precondition of brand loyalty.

(iv) Airline Service Quality- Passenger Satisfaction - Passenger Loyalty

The purpose of this section is to clarify the relationship between the three concepts: service quality, satisfaction and loyalty. Therefore, the nature of this relationship and how each concept interrelates with the others will be the subject of this discussion.

Service quality and customer satisfaction are widely recognised as key influences in the formation of consumer's purchase intentions in service environments. However, a review of the existing literature suggests that the specific nature of this relationship between these concepts in the determination of consumer's purchase intentions continues to elude marketing scholars (c.f. Gronroos 1993, Bitner and Hubbert 1994, Bolton and Drew 1994, Rust and Oliver 1994).

The relationship between purchase intentions and customer satisfaction has been addressed in several studies including Bearden and Oliver (1980), Teal (1983) and Oliver and Swan (1989). There have been a number of recent empirical attempts to validate the specific nature of the relationship between service quality and consumer satisfaction in the formation of consumers' purchase intentions (c.f. Woodside et al. 1989, Bitner 1990, Cronin and Taylor 1992). Unfortunately, the evidence to date has demonstrated conflicting results: for example, Woodside et al. (1989) propose one of the first models specifically assessing the relationships between service quality perceptions, consumer satisfaction judgements, and behavioural intentions in the marketing literature and report empirical results suggesting that consumer satisfaction is an intervening variable that mediates the relationship between service quality judgements and purchase intentions (i.e., service quality \Rightarrow satisfaction \Rightarrow purchase intentions).

Bitner (1990) investigates service quality and consumer satisfaction perceptions of travellers at an international airport. The basis of Bitner's model is an attempt

to reconcile Oliver's (1980) disconfirmation of expectations paradigm with attribution theory. Bitner hypothesises that consumer attributions mediate disconfirmation and satisfaction judgements. Service quality in turn, is hypothesised to mediate consumer satisfaction judgements and consumers' behavioural intentions. Thus, Bitner suggests an alternative ordering of the service quality and satisfaction constructs (i.e., consumer satisfaction \Rightarrow service quality \Rightarrow behavioural intentions (loyalty)). Bitner's results appear to support her hypothesised model and thus contradict the causal order reported by Woodside et al. (1989).

Cronin and Taylor (1992) report that consumer satisfaction has a significant effect on purchase intentions, and that service quality has less effect on purchase intentions than does consumer satisfaction. Moreover, Taylor and Baker (1994) explain that models of consumer decision making which include the interaction of satisfaction and service quality provide a better understanding of consumer purchase intentions than do models which simply include main effects of satisfaction and service quality in some service industries. The results also showed that the highest level of purchase intentions appear observed when both service quality perceptions and satisfaction judgements are high. The effect of satisfaction and perceived service quality on intentions to re-buy can be summarised as follows: feelings of satisfaction are said to lead to future intentions (Howard 1974, Oliver 1980a, Swan 1983, Engel et al. 1986) and intention is the determinant of actual purchase (Engel et al. 1986). It is important to say here that behavioural action like brand loyalty or brand switching are rarely investigated (Dufer and Moulins 1989, and Bloemer et al. 1990).

Thus, the results of empirical efforts to validate the specific nature of the relationship between service quality, consumer satisfaction and purchase intentions have supported both possible relationships between the three concepts (i.e., service quality \Rightarrow consumer satisfaction \Rightarrow purchase intention (loyalty), and consumer satisfaction \Rightarrow service quality \Rightarrow purchase intentions (loyalty)). Moreover, the effect of loyalty on perceptions of service quality and consumer

satisfaction will be examined through discussing the results of this research. This conflicting empirical evidence supports the need for the research reported here, to discuss the relationship between service quality and consumer satisfaction with consumer loyalty behaviour and not only with purchase intentions.

3-8 Travel Behaviour

The purpose of this section is to give a clear idea about travel behaviour. This includes reviewing certain points related to passenger segmentation and socio-demographic variables that may affect passengers' loyalty and satisfaction.

It has been suggested that the importance flyers place on service related attributes differs according to trip purpose and length (Green and Tull 1978, Ritchie et al. 1980, Good et al. 1985). Additionally, consumer satisfaction varies according to the different classes of seating in the plane.

Makens and Marquardt (1977) use 15 factors to study passengers' opinions about different airline classes and their reasons for selecting a particular class when travelling by plane. These factors are: ticket price, overall seating comfort, overall spaciousness, length of flight, noise travel, meal and table service, menu selection, prompt deplaning, attention given by hostess, privacy, luggage allowance, storage space at seat, drink price, meeting people socially and making business contacts. The perceived attitudes of respondents who preferred coach class rather than first class were in the price of a ticket; while those who preferred first class travel were less concerned about ticket price but more concerned about other factors. Generally, they found that passengers in the first class perceived a much greater difference between first class and economy class services than those who travelled in economy class. It was found that passengers who preferred first class travel held different opinions of the importance of selected factors than those who preferred travelling in economy class.

Good et al. (1985) segment the air travel market on the basis of consumers' preferences for service attributes. The two segments are the price-sensitive vacation travellers and the business travellers sensitive to minimum stay

provisions; this study indicates that carrier name and reputation are of minor importance to the pleasure / vacation segment, but the least important of any of the tested attributes to business travellers.

Recreation researchers have found mixed relationships between repeat purchase loyalty and socio-demographics. Gitelson and Crompton (1984), comparing those passengers visiting a destination for the first time with repeat visitors found that the latter are older and more likely to be visiting friends and /or relatives. Zuba (1984) found time/convenience to be a major reason for repeat purchase behaviour among municipal recreation program participants. Moreover, Carmen (1970) found that brand loyal consumers tend to have high incomes, and inferred that lower income groups are more price sensitive and open to deal oriented, brand switching behaviour.

Demographic characteristics of potential consumers is the information traditionally sought by air travel researchers. Income, education, occupation and age are all demographic variables that have been found to be associated with travel behaviour. The reason may be related to the fact that demographic information is more readily available on why air travellers purchase airline tickets or select one airline rather than another. Also demographics are easier to analyse than other types of information. It is assumed that the demographic characteristics of air passengers might affect purchasing behaviour since factors such as increased income or education may lead to air travel behaviour. Mathew (1964) states that discretionary income has a stronger influence on travel than does disposable income. Disposable income represents the money available (after taxes) for essential expenditures; that is the amount of income needed to maintain a basic standard of living. On the other hand, discretionary income is the proportion of disposable income in excess that can be saved or spent without affecting the basic living standard (Moffat 1976).

Makens and Marquardt (1977) in a study of consumer perceptions regarding first class and coach airline seating, found that on average, passengers in the first class were of a higher income level compared to those in economy. They also found that the heaviest concentration of passengers occurred in the executive/managerial and professional classification.

Airline customers are very price sensitive, if we are adding enhancements to the product in areas that the customer doesn't perceive as being valuable, we are wasting resources, although it is believed that determining what level of service customers expect for the price they are paying is often not easy.

Truitt and Haynes (1994) found that schedules and ticket prices are primary determinants to the airline consumer behaviour. Kahl (1957) indicates, occupation implies a level of education, and provides an individual's source of income which therefore determine a person's life style. Moreover, Waren (1962) found that occupation and education were related closely to income as factors determining the identity of air coach travellers. Air travellers with professional and technical occupations were the primary users of air coach services.

Pizam and Preichel (1979) tried to identify demographic and socio-economic variables to discriminate between big spenders and small spenders on travel; they found discriminating variables between the two groups, and education was the most important among these variables. So, they indicate that the propensity to spend on air travel is not a simple feature of income status but more of a socio-cultural matter. Etzel and Wahlers (1985) also found that travellers with more education and high income levels were more likely to seek information. Results showed that for non-business passengers the most important factors are: ticket price and availability of discounts; while for business passengers travel the importance shifts from economic constraints to time constraints; that is non-stop flights and time of arrival are considered a priority. All passengers appeared to

dislike stop-over and changing planes because non-stop flights ranked first in importance with business passengers and third with non-business travellers. However, Webster (1989) studied demographic variables and their relationship to service quality expectations. She found consumer demographics to be highly related to service quality in professional services. She found also, that demographic variables were inconsistent with respect to identifying segment attributes for service quality expectations.

The significance of demographic variables such as age, gender, income and education in identifying segment attributes, was found to change from study to study. Thompson and Rao (1990) suggested a need to study other consumer-based variables which might influence passenger choice of specific airlines. Thus, the preliminary indication, that consumer based variables such as psychographic and lifestyle variables can be used to segment consumers based on service quality expectations, has important implications for individuals' developing service marketing strategies.

Psychographic and lifestyle variables contain more information about the consumer than do purely demographic variables. Marketers can learn much more about a service consumer by identifying the importance of need and psychological loyalty than one can learn from strictly demographic features such as age, income, or education. The latter only identify who is the segment; the former also indicate why the consumer is in the segment. It is the "why" information which is the more powerful marketing tool since it provides insight into the reasons for service quality expectations.

Consumer contentment with and confidence in the product or service is important especially when it is a major purchase or when the product or service could affect the health or safety of the consumer. For instance, consumers need to have confidence in physicians and pharmacists (Thompson and Rao 1990).

Similarly, they need to trust airlines to take all possible measures to ensure that they will be safe and comfortable while they travel.

Mayers and Reynolds (1967) state that consumers (in general) who frequently purchase a particular product or service are more likely to pay attention to advertising for that product or service than those consumers who are not buyers of these items. On the other hand, Berelson and Steiner (1964) contend that messages that are perceived to be interesting are more influential on opinion than general undifferentiated sources. Thus, advertising messages directed to a particular group of consumers are more influential than those directed to the public at large. However, Eagly (1974) states that the message must be easy to understand in order to be most effective. Eagly also concludes that it is necessary for marketers and advertisers of products to use rational arguments and claims in favour of the product or service. Therefore, advertisements will be more effective if sources for the arguments are perceived reliable. The better understood the message, the more persuasive it will be.

In a recent study Kaynak et al. (1994) found that users of U.S. carriers showed different demographic, socio-economic and behavioural characteristics in selecting an airline for foreign travel. They found that high income middle-aged people (in their forties) tend to make their own travel arrangements; therefore, those people should be reached directly through mass advertising concentrating on schedule flexibility, superior cabin service, and on-time performance. They found also that professional job holders significantly differed from technical personnel in identifying the important factors when choosing airlines for foreign travel. Also results showed that the majority of customers used a travel agent to make travel arrangements; this emphasised the importance of travel agents in the airline industry. Therefore, the sales promotion efforts should be mainly targeted towards travel agents.

3-9 Summary

From the previous discussion, it was seen that there are many conceptual and empirical studies measuring passenger perception of service attributes in the airline industry. The literature of airline service quality, passenger satisfaction, and purchase behaviour (that is taken to represent passenger loyalty) was also reviewed in this chapter. It has been seen that the most important single factor affecting a firm's performance is the quality of its goods and services.

Chapter three has discussed the concepts of service quality, consumer satisfaction and consumer loyalty in the context of airline services. The first section concentrates on identifying the main factors of airline service quality. These factors were classified based on the stages of service provision to passengers. Table (3-10) summarises the main elements of services provided by an airline to passengers before, during and after the flight. The other two sections discuss the main aspects of passenger satisfaction and loyalty. This discussion resulted in developing a conceptual model of passenger loyalty as shown in fig. (3-8). The fourth section of the chapter covers the relationships between the three concepts as found in the previous literature, while the last section presents different issues related to travel behaviour.

This chapter helps to develop a conceptual model that clarifies the main elements of the three concepts and the possible relationships between them. The conceptual model is presented in the next chapter (fig. 4-2).

The airline industry all over the world is in a stage of rapid transformation. In this process, passenger satisfaction and repeat purchase are becoming of prime concern to airlines. Airlines are instituting certain changes that are geared towards improvement of both airport and in-flight service. Therefore, to succeed in the industry of the future, an airline will require three key components: A product that consistently meets or exceeds customer expectations, an employee group that is committed to meeting or exceeding customer expectations, and financial strength (Jenkins 1992). Thus, it is true to say that the strategy of service quality improvement may be the only way to meet successfully all these

three requirements. Trying to define customer expectations is difficult, especially in a service industry where expectations are often intangible and unstated. Moreover, there are different types of passengers with very different needs and expectations; Therefore, it is necessary to understand customer expectations before meeting them. It is important to know that airline passengers are very price sensitive, so the airline must be sure that the passenger receives the appropriate expected service and that he really perceives it as being worth the money he paid.

The airline passenger has direct contact with the employees of the airline, with physical and technical resources, such as: check in desks, the plane itself, seats, food, and contact with other passengers. This interaction with the airline's resources during the pre-flight, in-flight, and post flight stages will have a great effect on the passengers' evaluations of the service, and on the service they perceive they have received (Maddox 1981, Gronroos 1984, Hu and Bruning 1987). Finally, Jenkins (1992) explains that when talking with his employees about quality he used the analogy that "Business is like a tennis game, if you keep your eye on the score board while playing tennis or financial results in business, you will likely lose the game; it is only by keeping your eye on the ball (the customer) and by improving your technique, or process improvements, that you will win the game". Therefore, service quality improvement is a winning strategy focused on continual improvement of your game (Jenkins 1992). Travellers are numerous, widely distributed and varied in their buying requirements. Thus, through service quality dimensions we can affect the levels of passenger satisfaction and their loyalty toward airline services.

The next chapter (chapter four) will discuss topics related to research methodology such as theoretical and conceptual models, research hypotheses and classifications of statistical techniques used in this research.

Chapter Four

Research Methodology

4-1 Introduction

4-2 The theoretical model

4-3 Major constructs of the theoretical model

4-4 The theoretical linkage

4-5 Conceptual model

4-6 Research Hypotheses

4-7 Classification of statistical techniques

4-7-1 The independent sample t-test

4-7-2 Analysis of variance (ANOVA)

4-7-3 Factor analysis

4-7-3-1 Criteria for number of factors to be extracted

4-7-3-2 Criteria for significance of factor loadings

4-7-4 Regression analysis

4-7-5 Cluster analysis

4-7-6 Linear structural relations (Using LISREL 8)

4-8 The treatment of missing values

4-9 Summary

4-1 Introduction

An examination of the literature related to airline service quality revealed that relatively little research has been conducted on the topic. Moreover, the research that has been published so far, fails to provide adequate coverage of the interaction between airline passengers: specifically their satisfaction, loyalty and the quality of services provided by the airlines.

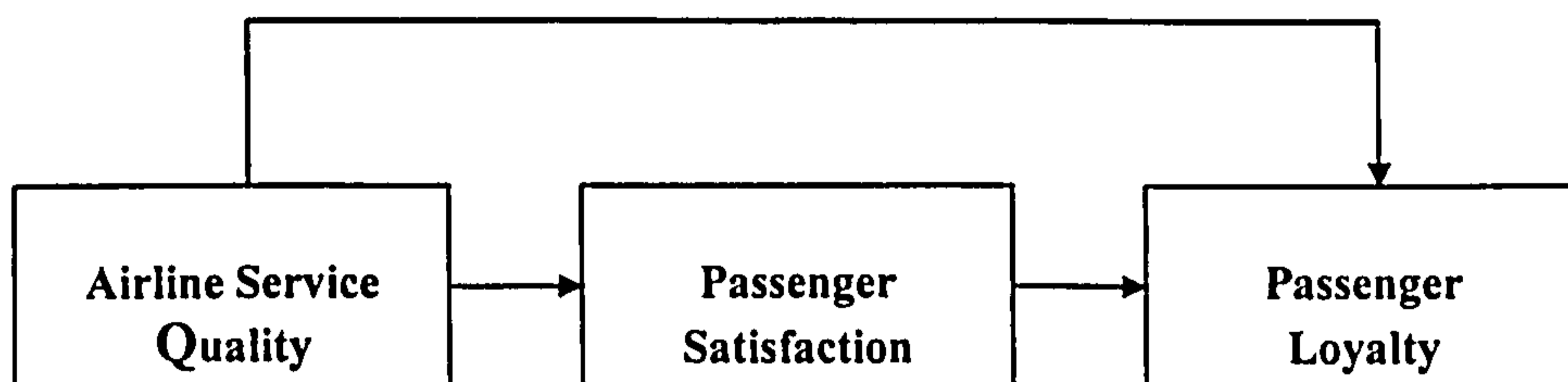
The purpose of this chapter is to develop a theoretical framework: the major constructs of the model, the theoretical linkage between these constructs and the conceptual model that represents the relationships among these variables. Finally a brief description of the statistical techniques that will be used to achieve the research objectives together with the hypotheses to be tested.

4-2 The theoretical model

The basic theoretical model of the study is shown in fig. (4-1). It represents the simplified empirical model of the study. This model has its origins in the service quality, consumer satisfaction and loyalty literature, and is composed of three major constructs:

- Airline service quality
- Passenger satisfaction
- Passenger loyalty

Fig (4-1)
The Theoretical Model



The model represents the relationships between perceived service quality, passenger satisfaction and loyalty. These relationships can be drawn in the following manner: Perceived airline service quality influences passenger satisfaction and loyalty toward that airline; also passenger satisfaction affects directly loyalty behaviour. This proposed model has its origin in the literature of service quality, consumer satisfaction and loyalty (cf. Ostrowski et al. 1993, Kelley and Davis 1994, Zeithaml et al. 1996, Spring and Mackoy 1996).

4-3 Major constructs of the theoretical model

(i) Airline service quality

In this research, service performance will be used to measure airline service quality. This approach is rooted in and supported by the previous literature. Cronin and Taylor (1992) for example, concluded that current performance best reflects a customer's perception of service quality and that expectations are not part of this concept. Cronin and Taylor found that SERVPERF instrument (performance only) performs better than any other measure (e.g. SERVQUAL) of service quality. Therefore, the researcher in this study asks passengers to "evaluate" the level of quality of the services provided by an airline based on what they had actually experienced (found) in their flights. This reduced the number of questions that passengers were required to answer, and is more likely to result in a high response rate as passengers were reluctant to respond to long questionnaires. More discussion about service quality measurement will be given in section (5-5-1).

(ii) Passenger satisfaction

Passenger satisfaction is concerned with the overall positive emotional state of the passenger following his or her last flight on the air carrier (Woodruff et al. 1983). Satisfaction is not based on a single factor, but rather, it is the result of a combination of several factors that the air passengers determine to be appropriate in the creation of satisfaction (Johnston & Lyth 1991). The degree to which passengers either confirm their prepurchase expectations for a purchased travel service, negatively disconfirm those expectations (i.e. fall short of those

expectations), or positively disconfirm (exceed) their expectations, then resulting in some level of post purchase affect towards the experience (Cardozo 1965). Madox (1982) found performance expectations and actual performance to be major factors in the evaluative process that underly consumer satisfaction. For many products there are two dimensions to product performance, instrumental and symbolic. Instrumental performance relates to the utilitary nature or physical functioning of the product, while symbolic performance relates to aesthetic or image enhancement performance (Hawkins et al. 1983).

(iii) Passenger loyalty

Dick and Kunal pointed out that:

“Customer loyalty is viewed as the strength of the relationship between an individual’s relative attitude and repeat patronage” (p. 99).

The degree to which participants exhibit repeat purchasing behaviour depends on cognitive, affective and evaluative factors of psychological commitment (Jacoby 1971 b). Thus, passenger’s service loyalty encompasses two dimensions: a behavioural dimension (i.e. repeat purchasing) and an attitudinal dimension (i.e. psychological commitment to the travel service). Passenger loyalty will be assessed in relation to a particular “brand” of travel service. The loyalty construct has already been discussed in chapter two (section 2-5).

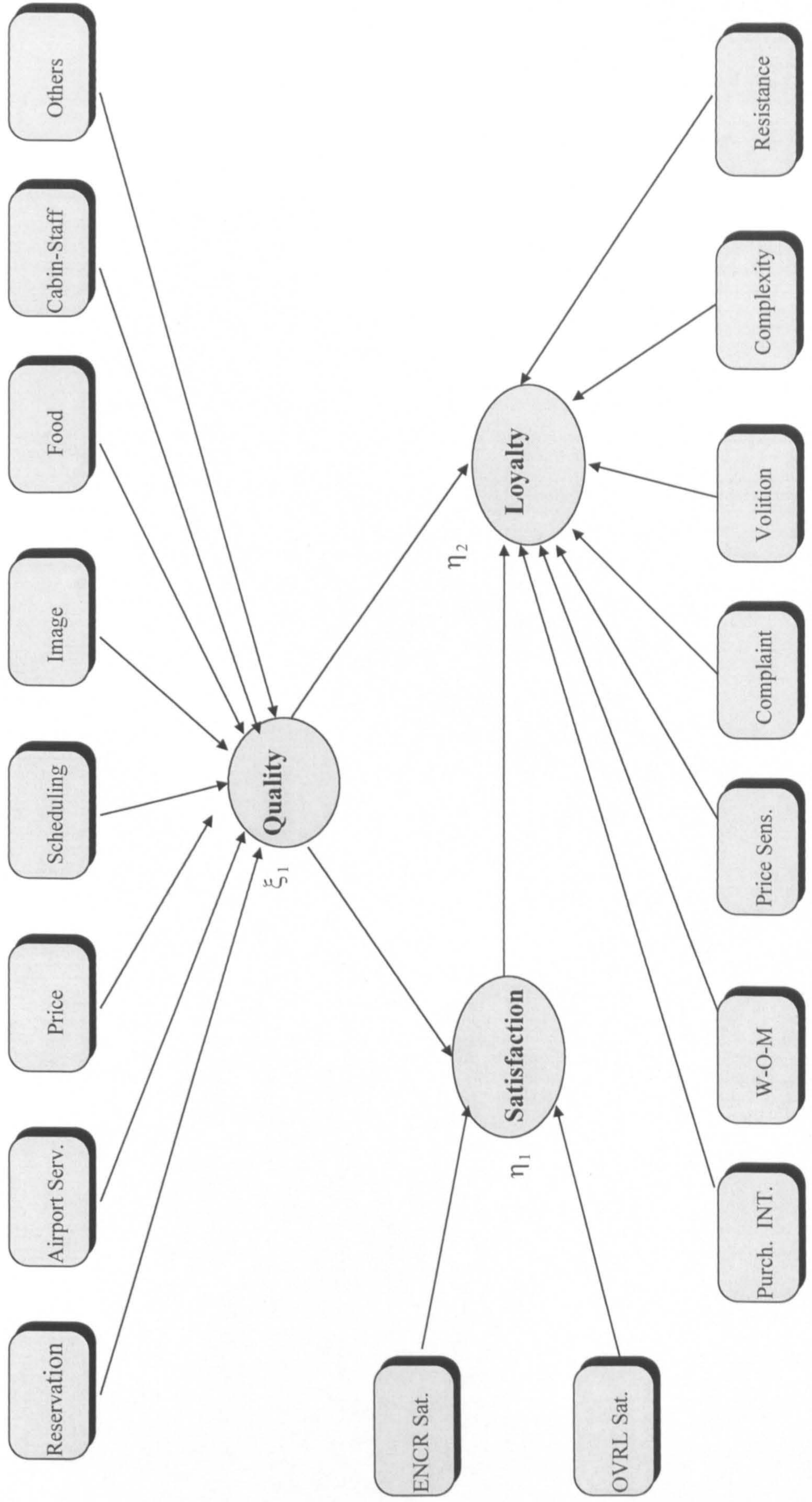
4-4 Theoretical Linkage

The relationships between the three constructs: service quality, consumer satisfaction and loyalty have their origins in the literature of marketing and consumer behaviour. However, these relationships are not clear in the literature of airline services because of the limited number of studies in this subject area. Therefore, the theoretical linkage between these constructs in the airline service sector will be drawn from the nature of these relationships within other marketing areas.

In this study, it is assumed that a high perception of airline service quality will increase the levels of passenger satisfaction, this will also produce a high degree

The Conceptual Model

Figure (4-2)



of passenger loyalty toward a specific airline. This means that service quality is an antecedent to both passenger satisfaction and passenger loyalty. It is assumed also that passenger satisfaction with the services provided by an airline is an antecedent to passenger loyalty toward that airline.

The conceptual model (proposed model) that represent the hypothesised relationships between the three constructs is shown in fig. (4-2).

4-6 Research hypotheses

This research is concerned with identifying the service factors that create passenger satisfaction and loyalty. Chapters two and three provide the basis for a conceptual model that represents the main factors identifying the three concepts: airline service quality, passenger satisfaction and passenger loyalty.

This study will therefore address the following main five issues that are linked to a series of 13 hypotheses listed in Table (4-2):

1. It is proposed that the quality of airline services can be identified based on the various stages of the service provision to passengers. Passengers were asked to evaluate the level of services provided by an airline at every stage (i.e. before starting the flight, during the flight and after the flight). This will help an airline to control the quality of its services at each stage and therefore to act immediately on identifying any problem at any stage. Hypothesis one covers this issue.
2. Service quality evaluation and passenger satisfaction were examined with respect to different flight classes and different purposes for flights. This will help to explore whether passengers travelling in different classes and for different reasons evaluate services differently and therefore have different levels of satisfaction. These issues are covered by hypotheses two, three, four and five.
3. The relationship between different demographic characteristics and passenger loyalty are examined (Hypothesis 6), and then relationships between sex of passengers and service quality, passenger satisfaction and loyalty were explored (Hypothesis 10).

4. Different psychographic characteristics are considered to examine whether factors such as price sensitivity, flight convenience, and information seeking behaviour have any influence on flight selection (the number of flights taken with a specific airline) (Hypotheses 7-9).
5. The relationships between the three constructs (service quality, satisfaction and loyalty) will be examined using structural equation methods (LISREL). This will help to identify the nature of relationships between these constructs (Hypotheses 11-13). Research hypotheses can be summarised as following:

Table (4-1)
Research Hypotheses

<p>H1: Dimensions of airline service quality can not be identified through the stages of services provision to passengers.</p> <p>H2: There is no significant relationship between a passenger's flight class and the evaluation of airline service quality.</p> <p>H3: There is no significant relationship between the purpose of flights and the evaluation of airline service quality.</p> <p>H4: There is no significant relationship between the flight class and passenger satisfaction.</p> <p>H5: There is no significant relationship between the purpose of the flight and passenger satisfaction.</p> <p>H6: There is no significant relationship between demographic characteristics of passengers and their loyalty to an airline.</p> <p>H7: Frequency of travel is not positively related to the prices of flight tickets.</p> <p>H8: Compared with infrequent travellers, frequent travellers are more likely to perceive the benefits of flight convenience.</p> <p>H9: Compared with infrequent travellers, frequent travellers are more likely to search for flight information.</p> <p>H10: There is no differences between male and female passengers in the mean scores of their:</p> <p style="padding-left: 20px;">(i) perceived service quality</p> <p style="padding-left: 20px;">(ii) satisfaction</p> <p style="padding-left: 20px;">(iii) loyalty</p> <p>H11: There is a positive relationship between overall quality and passenger satisfaction.</p> <p>H12: Higher levels of perceived service quality leads to higher levels of passenger loyalty toward an airline.</p> <p>H13: There is a positive association between passenger satisfaction and his loyalty toward a specific airline.</p>
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Table (4-2) summarises the main objectives and hypotheses of the study, and a appropriate statistical analysis used to test these hypotheses.

**Table (4-2)
Research objectives, Hypotheses and appropriate statistical tests to be used in this study**

Objectives	Hypotheses	Statistical Techniques	Justification
To identify the main attributes (dimensions) of airline service quality.	H1	Factor Analysis	Factor analysis will be used to determine whether those items that define airline service quality have the same factor loading pattern for the airline. The general purpose of factor analysis is to summarise the information contained in the large number of variables into a smaller number of factors
To determine the influence of flight classes and purpose of flights on passengers' evaluation of service quality and their satisfaction with services	H2; H3; H4; H5	ANOVA	ANOVA procedure is a test of mean differences ; but it is used when we are interested in testing for significant differences in the means for more than two groups.
To identify the nature of relationships between service quality, passenger satisfaction and loyalty.	H11 H12 H13	Multiple Regression	Multiple regression is an extension of bivariate regression analysis which allows for the simultaneous investigation of the effect of two or more independent variables on a single -interval- scaled dependent variable. Interval scaling is also a requirement for the independent variables.
To investigate the influence of both service quality and passenger satisfaction on loyalty behaviour, in particular to determine whether consumers actually purchase a ticket from an airline that has the highest level of perceived service quality or from one that they are most "satisfied" with.		Step-wise Multiple Regression	A stepwise multiple regression analysis would help to determine the order of importance of the predictors (dependent variables) because the variables will enter the regression model one at a time, in the order in which they exert influence on the independent variable after the effects of the previously entered variables have been accounted for.
		Path analysis (LISREL 8)	A path analysis using LISREL 8 was used to assess the model presented in the study. LISREL 8 was used to test the causal models and estimate the parameters of the model from the data. This helps to explore the nature of relationships between service quality, passenger satisfaction and passenger loyalty.

Continued.....

Table (4-2)

Objectives	Hypotheses	Statistical Techniques	Justification
<p>To identify the socio-demographic characteristics of loyalty clusters. To explore the influence of passengers' genders on their evaluation of: service quality; satisfaction and loyalty.</p>	<p>H6; H10</p>	<p>ANOVA; t-test; Chi-squared</p>	<p>ANOVA: as above (t-test) technique is appropriate to examine whether or not there is a significant difference in the mean for two groups, with regard to a quantitative (or continuous) dependent variable. Chi-squared: is used to examine whether passengers in the three loyalty clusters have different socio demographic variables.</p>
<p>To determine whether consumer-based variables in such categories as activities, interests, opinions and lifestyle could be used for segmenting passengers on the basis of their service quality expectations.</p>	<p>H7; H8; H9</p>	<p>Cluster analysis; ANOVA</p>	<p>Cluster analysis: used to identify homogenous groups or clusters of passengers based on their psychographic characteristics. ANOVA: as above</p>
<p style="text-align: center;">All Hypotheses</p> <p>To suggest effective marketing strategies that can be offered, based on the analysis of the relationship between service quality, consumer satisfaction, and loyalty.</p>			

4-7 Classifications of statistical techniques

There are different methods for data analysis which can be classified according to the type of data used and number of variables analysed. These methods are: univariate, bivariate, and multivariate.

(i) Univariate data analysis

These techniques will be used if there is a single measurement of each of “n” sample objects, or if there are several measurements on each of the “n” observations, but each variable is to be analysed in isolation. Examples of the techniques that can be used with the univariate data are: the central tendency measures (mean, median, mode), measures of dispersion (standard deviation, relative and absolute frequencies) and the single sample t-test.

(ii) Bivariate data analysis

These techniques allow the researcher to examine the interaction between variables taken two at a time. Among the available bivariate techniques are: linear correlation coefficient, the rank correlation coefficient, the Man Whitney u-test, the Kolmogorov-Smirnov test and the chi-square test of association (Kinnear and Taylor 1987).

(iii) Multivariate analysis

These techniques are concerned with the investigation of interactions among a set of variables. These techniques are distinguished from the univariate and bivariate methods by their focus on more than two variables at a time. The multivariate techniques can be classified as either dependent or independent. The dependent methods require that one or more variables are specified as being predicted by a set of independent variables, while the independent methods require that no variables selected as being a dependent variable.

The dependence methods include analysis of variance (ANOVA), analysis of variance and covariance (ANCOVA), multiple regression and discriminant analysis (DA). The independence methods include factor analysis, cluster analysis, latent structure analysis and non-metric multidimensional scaling.

According to Churchill (1987) the selection of the appropriate technique depends upon: the type of data (nominal, ordinal, interval or ratio); the research design (dependency of the observations, number of observations per object; number of groups being analysed,...) and the assumptions underlying the test statistics and its related consideration and the power of the test. Kinnear and Taylor (1987) reported that most successful marketing researchers share the common trait that “they rarely go to multivariate analysis until they have tested hypotheses through cross tabulation”. Thus, univariate and bivariate techniques are not only required because of the nature of the data and the researcher’s objectives, but it is also advisable for marketing researchers to start with these techniques before moving on to the multivariate techniques.

In this study, a combination of techniques from the three groups will be used. From the univariate: simple descriptive statistics such as the mean, from the bivariate: the independent samples t-test, chi-square test of independence, and finally from the multivariate: analysis of variance, factor analysis, path analysis and the multiple regression.

The statistical methods used in this study are:

4-7-1 The Independent sample t-test

The independent samples t-test is a parametric test of difference of means between two populations. Therefore, it is only applicable to the data which have at least an interval characteristic. The t- test provides the probability levels for testing whether the difference between the two samples mean scores is significant. The t-tests were used to measure the equality / inequality of the mean scores for each service provided by the airline.

In this research the independent samples t-test will be used to examine whether or not there are significant differences in the perception of perceived service quality; passenger satisfaction and degree of loyalty between male and female passengers.

4-7-2 Analysis of variance (ANOVA)

ANOVA is a parametric test which can be used to test the significance of the difference between several sample means. Therefore, it requires at least that the dependent variable is measured on an interval scale. However, the independent variable can be nominal or ordinal (Guenther 1964, Bray and Maxwell 1985). A key assumption of this test is that of equality of the sub group variances. ANOVA assumptions are presented in Appendix VII.

Although the univariate and multivariate tests of ANOVA and MANOVA allow us to reject the null hypothesis that the groups' means are all equal, they do not pinpoint where the significances lie. Many procedures are available for further investigation of specific group mean differences of interest, all of which can be classified as either a priori or post hoc (Hair et al. 1995). In this study, two common post hoc procedures are used: Duncan's multiple range test and Scheffe's test. Each method identifies which comparisons among groups have significant differences. It provides the analyst with tests of each combination of groups, thus simplifying the interpretive process. Only these two methods were used in this study because the Scheffee's test is considered the most conservative with respect to Type I error, while Duncan's test is considered the least one.

In this research one way analysis of variance ANOVA will be used:

- **to test the significance of the differences between passengers from different flight classes in their perceptions of airline service quality.**
- **to test for the significant differences between passengers travelling for different purposes in the perceptions of airline service quality, and in the level of their satisfaction of these services.**
- **to examine the relationship between different psychographic variables and travel behaviour characteristics.**

4-7-3 Factor analysis

The general purpose of factor analysis is to summarise the information contained within a large number of variables, into a smaller number of factors.

Factor analysis refers to a diverse set of techniques used to discern the underlying dimensions in phenomena. The mathematical aim of factor analysis is to determine linear combinations of variables that best describe the interrelationships between them.

This study purpose is to discover the basic structure of a given domain and to add substantive interpretation to the underlying dimensions. Factor analysis accomplishes this by combining the original variables to create new, more abstract variables called factors. Therefore, the goal of factor analysis is parsimony: to reduce a large number of variables to as few a dimensions or constructs as possible. **In this research, factor analysis will be used to identify those factors that may measure specific attributes or dimensions of service quality and to identify the factors (dimensions) of passenger loyalty.**

4-7-3-1 *Criteria for number of factors to be extracted*

There are several rules typically applied in addressing the number of factors (Kim and Mueller 1978). The most important rules involve:

- 1- Significance tests associated with the maximum likelihood and least squared solution.
- 2- Varieties of the eigen value criterion.
- 3- The scree test
- 4- The criterion of interpretability and invariance.

(i) *Significance test*

The large sample χ^2 - test associated with the maximum likelihood solution is the most satisfactory solution from a purely statistical point of view, provided that the assumptions of the method are adequately met. Application of the method has shown that for a large sample with many variables, the number of factors retained tends to be much larger than the number of factors the researcher is willing to accept. Therefore, it is recommended to apply another criterion- that of substantive significance, which applied after finding statistical significance.

(ii) Eigenvalue specification

One of the most popular criteria for addressing the number of factors is to retain factors with eigen values greater than one when the correlation matrix is decomposed.

(iii) Scree- test

This is a test advocated by Cattell (1966). The rule directs one to examine the graph of eigen values, and stop factoring at the point where the eigen values (or characteristic roots) begin to level off forming a straight line with an almost horizontal slope. Beyond this point, Cattell describes the smooth slope as “factorial litter or scree”. Some Monte Carlo studies indicate that this method is often superior to others where there are minor factors and the interest is in locating only major common factors (Tucker, Koopman, and Linn 1969). Some, like Kaiser (1970), argue that this “root-starring” criterion is often very subjective because it is not uncommon to find more than one major break in the root-graph and there is no ambiguous rule to use.

(iv) Criteria of Interpretability and Invariance

As a way to protect oneself from accepting results which are dubious, a general rule-of-thumb is to try to combine various rules, accepting only those conclusions that are supported by several independent criteria, and consider others as tentative hypotheses (Harman 1976).

Given the complexity as well as uncertainties inherent in the method, the final judgement has to rest on the reasonableness of the solution on the basis of current standards of scholarship in one’s own field. This criterion is elusive but fortunately or unfortunately, all of us must live with it in order to communicate our findings to other researchers.

4-7-3-2 *Criteria for significance of factor loadings*

Many previous researchers had considered a rule of thumb approach that takes factor loadings greater than ± 0.30 as a significant loadings (c.f. Parasuraman et al. 1988, Boumen and Wiele 1992). Hair et al. (1992) pointed out

that loadings ± 0.40 are considered more important, and if the loadings are ± 0.50 or greater, they are considered very significant.

The significance of loadings varies according to the number of variables under investigation, and should be adjusted downwards for larger samples (Smith 1995). In this research, a rule of thumb approach was adopted; whereby, a factor loading of ± 0.30 was considered to be acceptable in all the solutions presented in this study (chapter six) for both identifying quality and loyalty factors. However, when attempting to give labels or simple meaningful interpretations for some factors that include many different items attention was often focused on variables with loadings greater than ± 0.50 i.e. the label was chosen to represent mainly those items with higher loadings.

4-7-4 Regression analysis

Regression analysis is used to estimate a linear relationship between a dependent variable and one or more independent variables. This technique, contrary to correlation analysis, assumes a causal relationship between variables. It is assumed that the dependent (criterion) variable is predictively linked to the independent (predictor) variable. Moreover, regression analysis attempts to predict the values of a continuous, interval scaled dependent variable from the specific values of the independent variable.

Multiple regression analysis is an extension of bivariate regression analysis which allows for the simultaneous investigation of the effect of two or more independent variables on a single interval- scaled dependent variable. Thus, a continuous, interval-scaled dependent variable is required in multiple regression, as it is bivariate regression. Interval scaling is also a requirement for the independent variables.

Stepwise regression is a multiple procedure for obtaining coefficients for a multiple regression equation that includes all the variables we want to introduce into the model. What the system does at each step is to add to the equation the variable that is most significantly and strongly related to the dependent variable

as possible. Then it looks at the remaining set of variables, what ever variables are left out of the model, and from that pool it selects the variable that is most strongly correlated to the dependent variable. Assumptions of the regression models are presented in Appendix VII.

The objective of this particular statistical procedure is to identify those variables which best predict the variance in airline service quality, and how behavioural and attitudinal dimensions of loyalty explain the variance in passenger loyalty toward a specific airline.

4-7-5 Cluster Analysis

The purpose of cluster analysis is to group variables, objects or individuals into clusters that are more similar to each other than the variables, objects or individuals in another cluster (Douglas and Craig 1983). An essential step in the cluster analysis procedure is to obtain a measure of the similarity or proximity between each pair of objects under study. The most commonly used measures of similarity are: (1) correlation coefficients, (2) euclidean distance, (3) matching-type measure of similarity and (4) direct scaling of similarities.

In this study cluster analysis will be used firstly to classify passengers according to their psychographic characteristics; and secondly to classify passengers according to their degree of loyalty toward an airline.

4-7-6 Linear structural relations (using LISREL VIII)

The LISREL approach to theory testing represents the combination of relatively independent research traditions in the disciplines of econometrics, biometrics, and psychometrics. It combines the strengths offered by the econometric and factor analytic approaches to theory testing while overcoming the specific limitations of these approaches.

Joreskog (1969, 1971, 1973, 1982) is widely recognised as having the most significant contribution to the development of LISREL model. He developed a computer implementation of it in the LISREL computer program.

Techniques such as LISREL offer particular advantages for theory testing over more traditional methods of statistical analysis such as multiple regression. In particular, LISREL allows the explicit representation of measurement error, thereby conforming to the accepted notion that empirical measures are merely a means of representing a theoretical (and therefore unmeasurable) construct. This permits the researcher to allow for the likelihood that a perfect correspondence will not be present between an unobservable concept and a measure, and that, because of this, relationships between the empirical measures will not be identical to the relationships between the theoretical structures.

The general LISREL model consists of two components: a structural model and a measurement model. The structural model is conceptually similar to the multiple or simple regression model except that the causal relations are specified between latent (unobserved) rather than observed variables. The measurement model contains the specification of the relationships between the observed and theoretical variables. Therefore, the combination of both structural and measurement models within a single statistical technique enables the researcher to construct and test the existence of a specific theoretical structure believed to underlie the relationships between a group of observed variables.

Three components are important in the general structural equation model: path analysis, the conceptual synthesis of latent variable and measurement models, and general estimation procedures.

The initiator of path analysis as Bollen (1989) claimed, was the biometrician Sewall Wright (1918, 1921, 1960). Duncan (1969) saw the potential of path analysis and related "partial correlation" techniques as a means to analyse non-experimental data. Following this expository account, many applications of path analysis were published during the late 1960s and early 1970s.

Additionally to path analysis, the conceptual synthesis of latent variable and measurement models was important to contemporary structural equation techniques. The potential of synthesising econometric-type models with latent rather than observed variables and psychometric-type measurement models with

indicators linked to latent variables, was proposed through the work of Joreskog (1973), Keesling (1972), and Wiley (1973).

In general, linear structure relations (LISREL) can be used to analyse data from surveys, experiments, and longitudinal studies. This allows the researcher to test how well the model fits, to diagnose problems with models, to constrain model coefficients, to perform multiple group analyses and to distinguish consistently between latent concepts and observed indicators. This statistical approach implementing structural equation methods is characterised as “theory oriented” by Joreskog and Wold (1982, p.270). It is most beneficial to “scientists who are thoroughly familiar with their subject matter....[and] who are also willing and able to spend a portion of each day in quiet, analytical thought, thinking through and anticipating possible challenges to their models as actually defined, and designing new studies or re-analysis of available data to meet those challenges” (Cooley 1979, p.xii).

The advantage of LISREL over Path analysis

Both path analysis and the use of LISREL involve testing causal models and estimating the parameters of the models from the data. LISREL and path analysis have certain similarities, however there are several important differences as follows:

In typical path analysis, an assumption is made that the residuals are uncorrelated, there is unidirectional flow, and the observed variables are perfectly correlated with the latent variables they measure. These assumptions can be relaxed by using LISREL. This technique can allow for residuals that are correlated and for reciprocal flow in the models to be tested. The assumption that observed variables are perfectly correlated with latent variables can be relaxed by using a multiple indicator model or by incorporating the estimated reliability in the LISREL analysis for each construct used.

LISREL also has the advantage of calculating an overall goodness of fit. The overall goodness of fit measure that is used by LISREL follows the chi-square distribution. By contrast, the focus of interest in path analysis is to ascertain if

the standardised beta coefficients are significant. Even if they are, this does not necessarily prove that the appropriate causal ordering of the variables has been identified. Further, whereas the LISREL technique allows the user to test the differential fit of competing models, the regression based path analysis does not provide a means for compare competing models. Comparing LISREL to regression-based path analysis as a method of exploring causal relationships, Gregson (1992) reported that not only are the strength of the relationships indicated by LISREL analysis stronger than those indicated by path analysis, but also the relationships between the variables not identified by path analysis are improved.

Model Specification

In this research LISREL will be used to explore the following causal relationships: the relationship between airline service quality and passenger satisfaction, the relationship between airline service quality and passenger loyalty and the relationship between passenger satisfaction and passenger loyalty.

Specification of a general structural equation model requires detailing the pattern of elements in each of eight matrices- $B, \Gamma, \Lambda_Y, \Lambda_X, \Phi, \Psi, \Theta_\epsilon, \Theta_\delta$. To do this, we must designate explicit information about : (1) the number of endogenous concepts; (2) the number of exogenous concepts; (3) the number of endogenous observed variables; (4) the number of exogenous observed variables; (5) the relationships among observed variables and latent concepts; and (6) the relationships among error terms and observed variables. This information will assist us to locate all the concepts, variables and linkages in our model.

The first component of the structural equations is the latent concept model:

$$\eta = \beta\eta + \Gamma\xi + \zeta \quad (4.1)$$

In equation (4.1) η is the vector of latent endogenous concepts. In this study there are two latent endogenous concepts, namely satisfaction (η_1), and loyalty (η_2). The Greek letter ξ is the vector of latent exogenous concepts. There is

only one exogenous construct in this research model, which is, service quality. β is the 2×2 coefficient matrix showing the influence of the latent endogenous concepts on each other. The Greek letter Γ is the 2×1 coefficient matrix for the effects of ξ on η . The Greek letter ζ is the disturbance vector that is assumed to have an expected value of zero [$E(\xi) = 0$] and which is uncorrelated with ξ . To illustrate the specification of the proposed model the discussion turns to a review of the hypothesised statements formulated in section (4-6). For this model, the latent endogenous concept, passenger satisfaction (η_1), is thought to be influenced by exogenous concept, airline service quality (ξ). The hypothesised linkage also suggested that passenger loyalty (η_2) is derived from service quality (ξ). Furthermore, passenger satisfaction (η_1) is thought to have a direct influence on passenger loyalty (η_2). Therefore, the relationships in the proposed model can be translated into the following structural equations:

$$\eta = \beta\eta + \Gamma\xi + \zeta$$

$$\begin{bmatrix} \eta_1 \\ \eta_2 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ \beta_{21} & 0 \end{bmatrix} \begin{bmatrix} \eta_1 \\ \eta_2 \end{bmatrix} + \begin{bmatrix} \gamma_{11} \\ \gamma_{21} \end{bmatrix} \xi + \begin{bmatrix} \zeta_1 \\ \zeta_2 \end{bmatrix}$$

where, as the mathematical representation for the proposed model in relation to structural equation can be specified as follows:

$$\eta_1 = \gamma_{11}\xi + \beta_{12}\eta_2; \beta_{12} = 0; \text{ Therefore; } \eta_1 = \gamma_{11}\xi + \zeta_1$$

$$\eta_2 = \gamma_{21}\xi + \beta_{21}\eta_1 + \zeta_2$$

The entries in β and Γ are structural coefficients that express the endogenous concepts as linear combinations of all other concepts.

The second component of the general system is the measurement model. The two measurement equations link the conceptual variables to their observed indicators. One equation links the endogenous concepts to the endogenous indicators (Eq 4-2), and the other equation links the exogenous concepts to the exogenous indicators (Eq. 4-3). The value of observed indicator variables (x's and y's) are

thought to arise from the underlying concepts, so the observed x and y variables can be expressed as linear combinations of the conceptual variables.

$$y = \Lambda_y \eta + \varepsilon \quad \dots\dots 4-2$$

$$x = \Lambda_x \xi + \delta \quad \dots\dots 4-3$$

The y (9x1) and the x (8x1) vectors are observed variables in proposed model; Λ_y (9x2) and Λ_x (8x1) are the coefficient matrices that show the relation of y to η and x to ξ , respectively; and ε (9x1) and δ (8x1) are the errors of measurement for y and x, respectively. The error of measurement are assumed to be uncorrelated. The matrix equations corresponding to Eq. 4-2, and Eq. 4-3 for the proposed model are:

$$\begin{aligned} y_1 &= \lambda_{11} \eta_1 + \varepsilon_1 \\ y_2 &= \lambda_{21} \eta_1 + \varepsilon_2 \\ y_3 &= \lambda_{32} \eta_2 + \varepsilon_3 \\ y_4 &= \lambda_{42} \eta_2 + \varepsilon_4 \\ y_5 &= \lambda_{52} \eta_2 + \varepsilon_5 \\ y_6 &= \lambda_{62} \eta_2 + \varepsilon_6 \\ y_7 &= \lambda_{72} \eta_2 + \varepsilon_7 \\ y_8 &= \lambda_{82} \eta_2 + \varepsilon_8 \\ y_9 &= \lambda_{92} \eta_2 + \varepsilon_9 \end{aligned}$$

which can be written in matrix form as:

$$\begin{pmatrix} y_1 \\ y_2 \\ y_3 \\ y_4 \\ y_5 \\ y_6 \\ y_7 \\ y_8 \\ y_9 \end{pmatrix} = \begin{pmatrix} \lambda_{11} & 0 \\ \lambda_{21} & 0 \\ 0 & \lambda_{32} \\ 0 & \lambda_{42} \\ 0 & \lambda_{52} \\ 0 & \lambda_{62} \\ 0 & \lambda_{72} \\ 0 & \lambda_{82} \\ 0 & \lambda_{92} \end{pmatrix} \begin{pmatrix} \eta_1 \\ \eta_2 \end{pmatrix} + \begin{pmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \varepsilon_3 \\ \varepsilon_4 \\ \varepsilon_5 \\ \varepsilon_6 \\ \varepsilon_7 \\ \varepsilon_8 \\ \varepsilon_9 \end{pmatrix}$$

Matrix equation corresponding to Eq. 4-3 can be presented as:

$$x_1 = \lambda_{11}\xi_1 + \delta_1$$

$$x_2 = \lambda_{21}\xi_1 + \delta_2$$

$$x_3 = \lambda_{31}\xi_1 + \delta_3$$

$$x_4 = \lambda_{41}\xi_1 + \delta_4$$

$$x_5 = \lambda_{51}\xi_1 + \delta_5$$

$$x_6 = \lambda_{61}\xi_1 + \delta_6$$

$$x_7 = \lambda_{71}\xi_1 + \delta_7$$

$$x_8 = \lambda_{81}\xi_1 + \delta_8$$

which can be written in matrix form as:

$$\begin{pmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \\ x_5 \\ x_6 \\ x_7 \\ x_8 \end{pmatrix} = \begin{pmatrix} \lambda_{11} \\ \lambda_{21} \\ \lambda_{31} \\ \lambda_{41} \\ \lambda_{51} \\ \lambda_{61} \\ \lambda_{71} \\ \lambda_{81} \end{pmatrix} \xi_1 + \begin{pmatrix} \delta_1 \\ \delta_2 \\ \delta_3 \\ \delta_4 \\ \delta_5 \\ \delta_6 \\ \delta_7 \\ \delta_8 \end{pmatrix}$$

Having specified the four matrices of structural coefficients for the proposed model (β , Γ , Λ_x , Λ_y), the discussion turn now to the remaining four covariance matrices that complete the specification of the model. The Φ (phi) matrix contains the variance/ covariance for the single exogenous concept ξ and hence is a 1x1 matrix. The remaining three matrices are variance/ covariance matrices among the three types of error terms that appear in the model: error in prediction of the endogenous concepts (η 's) by the conceptual level variables (contained in Ψ); errors in measurement of the exogenous concepts (contained in Θ_ξ); and errors in measurement of the endogenous concepts (contained in Θ_ϵ). The model specifies that although some error is expected in the prediction of the endogenous concepts, no covariance is expected among these error variables. Thus the Ψ (psi) is a diagonal matrix of the form:

$$\Psi = \begin{bmatrix} \Psi_{11} & 0 \\ 0 & \Psi_{22} \end{bmatrix}$$

The Θ_{ϵ} (theta epsilon) and Θ_{δ} (theta delta) matrices contain the error variances and covariances for measuring the endogenous and exogenous variables, respectively.

$$\Theta_{\epsilon} = \begin{bmatrix} \epsilon_{11} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \epsilon_{22} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \epsilon_{33} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \epsilon_{44} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \epsilon_{55} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \epsilon_{66} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \epsilon_{77} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \epsilon_{88} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \epsilon_{99} \end{bmatrix}$$

$$\Theta_{\delta} = \begin{bmatrix} \delta_{11} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \delta_{22} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \delta_{33} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \delta_{44} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \delta_{55} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \delta_{66} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \delta_{77} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \delta_{88} \end{bmatrix}$$

Assessment of Fit in the LISREL Model:

The goodness of fit of the whole model may be judged by means of four measures of overall fit:

- Chi-square (χ^2)
- Goodness-of-fit index (GFI)
- Adjusted goodness-of-fit index (AGFI)
- Root mean squared residual (RMR).

(i) Chi-square:

The χ^2 - measure may be viewed theoretically as a test statistic for testing the hypothesis that the population covariance matrix Σ is of the form implied by

the model against the alternative that Σ is unconstrained (see Joreskog, 1977). The LISREL program calculates this ratio χ^2 , its associated degrees of freedom, and probability. The smaller χ^2 values indicate better fitting models, and that an insignificant χ^2 is preferable, because it shows the model's predicted Σ is sufficiently close to the observed covariance matrix S for the remaining differences to be only sampling fluctuations.

The degrees of freedom for the χ^2 test are calculated as the differences between the total number of unique entries in the covariance matrix (the observed variance/covariance's) and the total number of coefficients estimated in the model. The equation for degrees of freedom is:

$$df = 1/2 [(p + q)(p + q + 1)] - t, \text{ where:}$$

$p + q$ = the number of observed variables analysed (p endogenous, q exogenous)

t = the total number of estimated coefficients (independent parameters estimated)

The P- value reported by the program is the probability level of χ^2 , that is, the probability of obtaining a χ^2 - value larger than the value actually obtained, given that the model is correct.

Chi-square and Sample Size

The issue of sample size is very important in latent variable structural equation models (Tanaka 1987). One feature of the statistic χ^2 is that with large sample sizes, even minute differences tend to be detectable as being more than only sampling fluctuations and hence significant (Hayduk 1987). Joreskog and Sorbom (1989) pointed out that χ^2 - measure is sensitive to sample size and very sensitive to departures from multivariate normality of the observed variables. Large sample sizes and departures from normality tend to increase χ^2 over and above what can be expected due to specification error in the model. Joreskog (1969) has proposed calculating χ^2/df as a measure if sample size is large. Wheaton et al. (1977) has suggested that a χ^2 five times the degrees of freedom

is reasonable, and Carmines and McIver (1981) have stated two or three times is more acceptable.

Hoetler (1983) has provided another formula against using of the $\chi^2/d.f.$ procedure, for what is called the “critical -N”. He reports that critical N of 200 is a reasonable cut point. Andreson and Derbing (1984) have concluded that reasonably robust estimates could be obtained in sample sizes smaller than 200. However, Hayduk (1987) questioned that for some models, sample size of 50 produced convergence in 99% of the LISREL runs, and he suggested that the substantial difference between the results for different types of models make generalisation difficult, but N’s less than 100 certainly deserve extra attention.

Therefore, LISREL analysis conducted in this study is performed on a sample size of 200 selected randomly by SPSS program from the total original sample size of 500 .

(ii) Goodness of Fit Indices

The goodness of fit index is defined as

$$GFI = 1 - \frac{(S - \Sigma)'W^{-1}(S - \Sigma)}{S'W^{-1}S}$$

The numerator in equation is the minimum of the fit function after the model has been fitted, the denominator is the fit function before any model has been fitted.

The goodness -of- fit index adjusted for degrees of freedom, or the adjusted GFI, AGFI, is defined as:

$$AGFI = 1 - \frac{(p + q)(p + q + 1)}{2d.f.} (1 - GFI);$$

where d is the degrees of freedom of the model. This corresponds to using mean squares instead of total sums of squares in the numerator and denominator of 1-GFI. Both of these measures should be between zero and one, although it is theoretically possible for them to become negative. (This should not happen, of course, for it means that the model fits worse than any model at all.) Although GFI does not depend explicitly on sample size, its distribution does.

(iii) Root mean squared residual

The root mean squared residual RMR is defined as:

$$\text{RMR} = \left[2 \sum_{i=1}^{p+q} \sum_{j=1}^i (s_{ij} - \sigma_{ij})^2 / (p+q)(p+q+1) \right]^{\frac{1}{2}}$$

RMR is a measure of the average of the fitted residuals and can only be interpreted in relation to the sizes of the observed variances and covariances in observed data S . This measure works best if all observed variables are standardised.

The root mean squared residual can be used to compare the fit of two different models for the same data. The goodness of fit index can also be used for this purpose but has the advantage that it can also be used to compare the fit of models for different data.

4-8 The treatment of Missing Values

There are two types of missing values in this research: the first one related to un-answered questions. It was found that respondents sometimes did not choose any of the alternatives given in the scale of measurement.

The second type of missing values was recorded on the questionnaire as the “Don’t Know” answers on the service quality scale. These were coded and retained for the initial examination of frequencies but were later considered as missing values.

In the SPSS program, missing values can be treated in three different ways:

- Exclude cases listwise: where only cases with valid values for all variables are used in the analysis. This is the default alternative.
- Exclude cases pairwise: here, exclude cases with missing values on a correlation-by-correlation basis. Therefore, in computing a correlation, SPSS uses all cases having valid values for both variables (even if those cases have missing values on other variables).
- Replace with mean: under this alternative, missing values are replaced with the variable mean, and uses all cases in (the factor analysis and regression analysis) tests.

Using the first two alternatives will exclude all the cases with “Don’t Know” answer, which the researcher believes it is a real answer and not a missing values. Therefore the third alternative will be used especially in the factor analysis procedure, to assure a sufficient number of cases to run this test. This will enable us to use all the cases which may give more thoroughly answers.

4-9 Summary

This chapter had discussed research methodology. In particular reference has been made to:

- explanation of what methods have been used to attempt handling the research hypotheses and why these have been selected.
- Consideration of the LISREL method for analysing the suitability of the suggested model for this research study.

The main elements of theoretical model were reviewed. Then a conceptual model that shows all the variables affecting airline service quality, passenger satisfaction and passenger loyalty was identified.

As seen in fig (4-2), service quality was identified by three stages that contains the main factors (dimensions) of the services provided to passengers. On the other hand, passenger loyalty was identified by both attitudinal and behavioural aspects, while satisfaction as will be discussed in section (5-5-2) is measured in two levels: encounter satisfaction and overall satisfaction. More details about the scale of measurement will be shown in section (5-5).

The next Chapter will discuss the research design and data collection method.

Chapter Five

Research Design and Data Collection

5-1 Introduction

5-2 Sources of Data

5-3 Sample design and Data collection

5-3-1 Target Population

5-3-2 Sample Size

5-3-3 Sampling Mechanism

5-3-4 Collecting of the Data

5-4 Structure of the questionnaire

5-4-1 Questionnaire design and development

5-5 The Measurement Process

5-5-1 Measurement of service quality

5-5-2 Satisfaction measurement

5-5-3 Loyalty measurement

5-6 Validity and Reliability

5-6-1 Validity

5-6-2 Reliability

5-7 General Assumptions

5-8 Summary

5-1 Introduction

This chapter aims to discuss different issues related to research design and data collection methods. Firstly, topics of data collection methods, target population, sampling mechanism, sample size will be discussed. Then other issues such as: the structure of the questionnaire, scale of measurement and validity and reliability will be explored.

5-2 Sources of Data

Data can be collected from various settings and in many different ways:

- From secondary sources such as company records or archives.
- In lab experimental settings where variables are controlled and manipulated
- From a panel of respondents specifically set up by the researcher whose opinions may be sought from time to time.
- Through field surveys

The data needed for this research can be classified into two types: secondary data and primary data.

Secondary data can be defined as “ data already collected and published for purposes other than the specific research needs at hand” (Kinnear and Taylor 1987). Secondary data involves two types of data:

1. **internal data** which refers to any material that can be obtained from the records of the firm sponsoring the particular study, and
2. **external data** which refers to all information obtained from sources other than one’s own company (Ferber et al. 1964 and Kinear and Taylor 1987).

Secondary data has many advantages including:

- It helps to state better the problem under investigation,
- It suggests better methods to tackle the problem,
- It provides comparative data by which primary data can be interpreted more significantly,
- Secondary data can save in cost and time compared with primary data.

The secondary data that used in this research are related to the existing literature concerned with the research problem. This source of information has been used to establish a good understanding of the problem and to determine the required data and suitable methods for collecting it.

Primary data collection is the most appropriate source for descriptive research (Aaker and Day 1983). Sekaran (1987) lists interviewing, administering questionnaires, and observing people and phenomena as the three main data collection methods in survey research. These methods will be considered in more detail in the following discussion.

- **Personal interviews** can be used to collect two kinds of information. One method is to discover the views, attitudes, and opinions of respondents, primarily with the aim of making cross-sectional studies. The other method is to collect accounts from reality by asking about specific events.
- **Focus group interviews** are conducted by a trained moderator in a nonstructured and natural manner with a small group of respondents (a suitably selected panel of 8-10 people). The main purpose of focus groups is to gain insights by listening to a group of people from the appropriate target market talk about issues of interest to the researcher (Malhotra 1993). The method saves time and is thus cheaper than personal interviews. Moreover, The value of this technique lies in the unexpected findings often obtained from a free-flowing group discussion. There is however, a problem in handling sensitive information in the presence of several strangers. Another danger is that one very specific category of people may be over represented in the group.
- **The questionnaire:** Questionnaires can also be used in cross-sectional studies of consumer attitudes and customer behaviour. The method is relatively simple and many respondents can be reached in a short time. But the results depend very much on the way the questions are formulated. The questionnaire technique is cheaper but gives less satisfactory results than the personal interview technique (Wiedersheim-Paul & Eriksson 1987, p. 80).

- **Observation:** Participatory or direct observation is a good means of collecting information about the behaviour of actors in a given situation. It is possible to obtain detailed descriptions and identify factors which affect service quality. There is a problem in that the presence of the observer may have an effect on the object of the study. Another method is observation with the aid of a diary (e.g. the researcher can make a note of his experience of a service over a period of time). The diary method can also be used with several observers who make notes of their experiences. Observation methods may differ in three ways: the mode to observe (human or mechanically), directness (direct or indirect), and degree of concealment (Grove and Fisk 1992).
- **Experimentation:** Experiments may be conducted in laboratory or field environment. A laboratory environment is an artificial one, where artificial controls and manipulations are introduced to establish cause-effect relationships (Malhotra 1993 and Sekaran 1987). On the other hand a field experiment is an experiment done in the natural environment in which events normally occur, but with the difference that there will be a treatment given to one or more groups. Therefore, in the field experiment, even though it may not be possible to control all of the exogenous variables because members cannot be either randomly assigned to groups or matched, treatments can still be manipulated (Sekaran 1987).

Laboratory experiments have the following advantages over field experiments (Malhotra 1993):

- (1) The laboratory environment offers a high degree of control because it isolates the experiment in a carefully monitored environment, therefore, the effect of history can be minimised.
- (2) A laboratory experiment also tends to produce the same results if repeated with similar subjects, this leads to high internal validity.

(3) Laboratory experiments tend to use a small number of test units, last for a shorter time, be more restricted geographically, and are easier to conduct than field experiments. Therefore, they are generally less expensive as well.

Compared with field experiments, laboratory experiments have the following disadvantages:

- (1) The artificiality of the environment may cause reactive error, which means that the respondents react to the situation itself, rather than to the independent variable (Barnes and Seymour 1980). Also the environment may cause demand artefacts: a phenomenon in which the respondents attempt to guess the purpose of the experiment and respond accordingly.
- (2) Laboratory experiments are likely to have lower external validity than field experiments, and because a laboratory experiment is conducted in an artificial environment, the ability to generalise the results to the real world may be diminish.

The experimentation and analogous methods were not appropriate for this study because of the wide subject area covered in the research, the limits of time and budget, and the specific objectives of the study, which required contacting the respondents. Communication (questioning or response) methods were used as they provide various advantages such as versatility or its ability to collect information on the many types of primary data necessary in this research (e.g. service quality dimensions, passenger satisfaction and loyalty), and its ability to reduce the time and cost needed for data collection.

5-3 Sample design and Data Collection

A main objective in the design of any sample is that, the data collected from a limited number of cases will enable the researcher to make valid inferences about the wider population which the sample is supposed to represent. Thus, an important issue in the validity of these inferences is whether or not the sample is representative. According to statistical sampling theory, the representativeness of a given sample is determined by the mechanism used to

select it from the population in question. It is therefore important to design the sample in such a way that it is likely to be representative of the most attributes under investigation; this will vary according to the objectives of the survey (Owtram 1989).

5-3-1 Target Population

The target population was defined as those passengers flying with Royal Jordanian Airline (RJ) and departing from Queen Alia International Airport (QAIA). The average number of total passengers travelling with RJ is about 1,200,000 each year. The next stage was to select the group of passengers from which the sample would actually be selected, termed the sampling frame. Ideally, the sampling frame should be identical to the target population since it is desirable that all members of the target population are potential members of the sample. However, the target population and sample frame often differ, for reasons due to data collection methods, research access, time or resource availability. The sampling frame for the present research comprises all passengers travelling with RJ and departing from QAIA during two months (July and August 1996). These two months are considered heavy traffic months for RJ in terms of having the maximum number of passengers travelling with RJ. From the RJ statistics, the average number of passengers in each month is about 130,000. Therefore, the actual number of passengers travelling from QAIA during one year and during the two selected months can be estimated as 600,000 and 260000 passengers respectively (assuming half of the total passengers with RJ are departing from QAIA).

5-3-2 Sample Size

The sample size was determined by considerations pertaining to the resources available, the requirements of data analysis and by the quality of the research access.

Maisel and Persell (1996) suggested a procedure for determining the right sample size when estimating a proportion. This procedure is as follows:

1. Decide the confidence level and confidence interval. Let us decide to use a 90% confidence level and with a confidence interval of 0.04. So, INT = 0.04 i.e. the interval produced will be of width $\pm 4\%$ and will contain the population proportion with a probability of 90%.
2. Get the value of Z. The value of Z for the 90% confidence interval is 1.65.
3. Estimate the population standard deviation. The value of standard deviation can be calculated by the shortcut formula:

$$\text{ST.DEV. (PROP)} = \sqrt{\text{PROP} * \text{NOPROP.}}; \text{ where}$$

PROP means the proportion in the population.

$$\text{NOPROP.} = 1 - \text{PROP.}$$

There are two ways to decide the value of PROP.:

- Use past experience,
- Take the worst possible case (i.e. PROP. = 0.5). This will give the largest standard error, which in turn will force to select the largest possible sample size. This will ensure that we have sufficient precision, though it may generate a large sample size than necessary.

Therefore, $\text{ST.DEV. (PROP.)} = \sqrt{0.5 * (1 - 0.5)}$; which is equal to 0.5.

- 4 Calculate the standard error by using the following formula:

$$\text{INT.} = Z * \text{ST.ERR.} = (Z * \text{ST.DEV.}) / \sqrt{n}$$

$$n = \left(\frac{Z * \text{ST.DEV.}}{\text{INT.}} \right)^2;$$

$$n = \left(\frac{1.65 * 0.5}{0.04} \right)^2 = 425.39$$

Thus, the target sample size should be at least 426 passengers.

Assuming that the response rate for such studies may vary between 20% - 30%, the total number of questionnaires to be distributed should have been between 1420-2130.

Another approach to select the appropriate sample size assumes that a sample of five to ten times the number of variables is considered adequate for factor

analysis (Hair et al. 1992) and in multivariate research (which include multiple regression analysis). Following this approach, it means also that a sample size of at least 170 passengers (17 variables x 10) will be required to conduct this research.

5-3-3 Sampling Mechanism

There are several methods for sampling described in the marketing research literature (see for example Douglas and Craig 1983). Generally, these techniques can be classified into two major groups: non-probabilistic sampling and probabilistic sampling. The major distinction between these two kinds of sampling is that in probability sampling, each respondent in the target population has an equal chance of being in the sample. Whereas, non-probability samples involve personal judgement somewhere in the selection process, and in establishing the criteria on the basis of which respondents are to be selected (more discussion about these types of sampling appears in Douglas and Craig 1983, Parasuraman 1986, Churchill 1987, and Kinnear and Taylor 1987).

The mechanism used for the selection of the sample for the present research was developed after taking the following conditions into consideration:

- 1- The assistance available from the cabin-crew was limited as RJ policy is to keep the number of attendants as low as possible in order to keep expenditure down. Cabin-crew sometimes show low levels of co-operation in distributing the questionnaire, or they did not give this matter sufficient attention. In discussing with cabin-crew they complained that they are too busy to the degree that they have no time for extra work (e.g. to distribute the questionnaire); therefore, the researcher found that it is not recommended to ask them for more assistance i.e. distribute a large numbers of questionnaire in each flight.
- 2- RJ distributes its own questionnaire on most of its flights, and RJ officials were reluctant to distribute both questionnaires on the same flights.
- 3- As seen in the pilot study (Appendix III), passengers are reluctant to respond to such questionnaires, especially when the questionnaire is a long one.

- 4- Because the research questionnaire is long, and in order to guarantee the maximum response rate, only flights that take more than four hours were considered. This means that cabin crew have enough time to do their usual jobs (e.g, providing food and drink, and other services) and to distribute the questionnaire.
- 5- As found in the pilot study, it was important to distribute the questionnaires sufficiently in advance of the landing time (i.e. not less than one hour). This should be after providing the main meal, in order to give passengers enough time to respond to the questionnaire in a relaxed atmosphere.

Therefore, it was decided that to assure a high response rate, only 20-30 questionnaires should be distributed on each flight, to any passenger agrees to respond.

The Royal Jordanian's route network covers a total of 46 cities located in four continents serving passengers and cargo. The existing weekly frequencies are 136, of these only 94 take more than four hours to reach the end destination starting from QAIA at Amman. Bearing these factors in mind, it was decided to use, quota sampling of passengers. Quota sampling is a form of proportionate stratified sampling in which a predetermined proportion of people are sampled from different groups, but on a convenience basis. The sample may not be totally representative of the population; hence the generalizability of the findings will be restricted. However, the convenience it offers in terms of the reduction of effort, costs and time makes quota sampling attractive for some research studies.

The sample was selected as follows:

- 1- All the flights of more than four hours duration and that cover all destinations were selected initially (the number of these flights is 94 per a week as seen in Table 5-1).
- 2- A quota sample of 10% of these flights was obtained stratifying by final destination. This 10% sample was spread over the 2 month period under consideration to reduce the total number of flights that take more than four

hours and to guarantee distributing questionnaires to a more representative sample during the two months of data collection.

Table (5-1)
Weekly RJ Flights to Different Destinations

Strata	No. of Flights**	10 % of Flights	Selected Flights
Arab Countries	30	3	3
European Countries	35	3.5	4
Asian Countries	15	1.5	2
U.S.A & Canada	14	1.4	2

** Flight chosen are those that need more than four hours to reach final destinations started from QAIA at Amman

5-3-4 Administering of the questionnaire

In this study the data were collected by distributing a questionnaire directly to passengers who agreed to contribute in the study. 1800 questionnaires were distributed on 88 selected flights at a rate of 20-30 questionnaires for each flight (Table 5-2). Because of the large number of flights and difficulties related to time and effort constraints, including the major difficulty in getting visa to visit all these countries, the researcher was unable to distribute the questionnaires himself. Therefore RJ officials agreed to allow their staff to distribute the questionnaires, collect them at the end of the flight and then bring them back to an RJ co-ordinator who controlled the process together with the researcher. The selected flights were chosen as described in the previous section (5-2-2). Although questionnaires were distributed only to those passengers who agreed to participate, only 585 questionnaires were returned giving a response rate of 32.5%. The reason why only 585 questionnaires from the distributed 1800 were returned, may be due to either the passengers themselves (i.e. they were not serious in responding and returning the questionnaires) or to the RJ cabin staff (i.e. they did not give enough attention to collecting questionnaires or they did not distribute the questionnaires to passengers on some flights). After careful scrutiny of the data, 500 questionnaires were retained for analysis (actual response rate 28%). The excluded questionnaires were either incomplete or had inaccurate responses.

The completed questionnaires were coded and statistically analysed using the SPSS package, and LISREL VIII.

Table (5-2)
Selected flights on the Eight Weeks of Collecting the Data

Destination	1st	2nd	3rd	4th	5th	6th	7th	8th
London	*			*			*	
Berlin	*			*				*
Madrid	*				*			*
Amsterdam		*			*			*
Paris		*			*			
Geneva		*				*		
Vienna			*			*		
Brussels			*			*		
Moscow			*				*	
Frankfort				*			*	
Aden	*		*			*		
Sanaa	*		*			*		
Muskat	*			*		*		
Dhahran	*			*			*	
Casablanca		*		*			*	
Dubai		*		*			*	
AL Ain		*			*		*	*
Abu Dhabi		*			*			*
Duha			*		*			*
Bahrain			*		*	*		*
Jakarta	*			*				*
Singapore	*				*			*
Kuala Lumpur		*			*			
Bangkok		*				*		
Calcutta			*			*		
Delhi			*				*	
Colombo				*			*	
Chicago	*		*		*		*	
New York	*		*		*		*	
Montreal		*		*		*		*
Toronto		*		*		*		*

5-4 The structure of the questionnaire

There are four types of classifications that can be made according to the questionnaire structure and directness. These classifications are:

- (i) Structured-direct, (ii) Un-structured-direct, (iii) Unstructured-indirect, and (iv) Structured-indirect.

Churchill (1987) defines structure as the degree of standardisation imposed on the questionnaire, while directness (disguise) is the amount of knowledge about the purpose of a study communicated to respondents.

The structured-direct technique will be used in this study. This technique requires asking the questions exactly with the same wording and the same sequence for all respondents. The reason for this standardisation is to ensure that all respondents are replying to the same question (Churchill 1987). According to Kinnear and Taylor (1987) “conclusive research projects typically require a structured-direct questionnaire, the standardised questions and fixed response alternatives can evolve from previous research which used less structured techniques”.

There are many limitations to the structured-direct technique. These limitations can be summarised as follows: (i) There are limited options available for the respondent to choose, this may affect the validity of the data, (ii) The respondent may not be willing to provide the data, (iii) The respondents may not be able to provide the desired data, and (iv) It is possible to misunderstand the questions which may bias the data.

The instrument used to conduct **this study** was a questionnaire that consisting of four parts: The first part contains a scale to measure airline service quality; the second one deals with passenger satisfaction; the third part includes a scale to measure passenger loyalty; and the fourth part deals with demographic and psychographic variables that will be used to give a clear idea about the sample profile, and the effect of these variables on passenger satisfaction and loyalty. Questions from the survey were used to test the (13) hypotheses formulated for this study. More details about scales of measurement used in this research will appear in section (5-5).

Items in the questionnaire were developed based on the literature review related to the three constructs (service quality, consumer satisfaction and loyalty) and taking into consideration the specific nature of airline services and passenger behaviour.

Table (5-3)
Structure of the Questionnaire

<i>Subject</i>	<i>Question</i>
Part one: Pre-flight & On-board services	1- 43
<u>Pre-flight Services</u>	
1- Reservation Process	1-2
2- Airport Services	3-12
3- Scheduling	13-15
4- Price (Cost)	16-17
5- Image	18-21
<u>On-board Services</u>	22- 40
1- Cabin staff services	22-31
2- Food & Drink	32-34
3- Others	35-40
Overall service quality	41-43
Satisfaction Measurement	44-51
Loyalty Measurement	52-65
Part Two: Psychographic & Demographic Variables	66-82
1- Psychographic Characteristics	66-71
2- Demographic & Socio-Economic Characteristics	72-82

5-4-1 Questionnaire design and Development

This section reviews the main procedures followed to develop the appropriate questionnaire to this study.

Churchill (1987) has suggested a nine-step procedure regarding the development of the questionnaire (as seen in fig. 5-1).

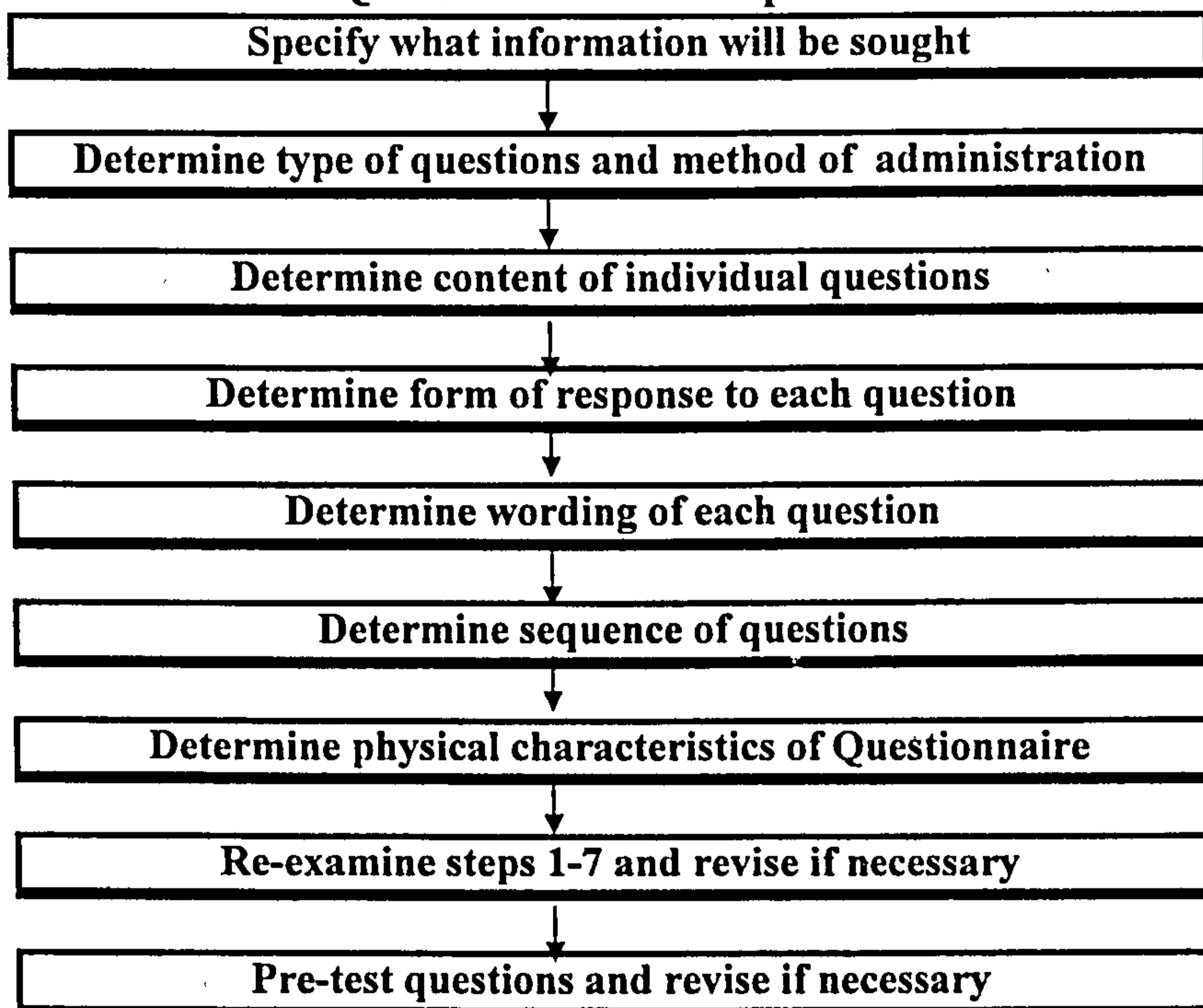
The procedures followed in this research were:

- 1- Searching through the previous literature in the areas of service quality, consumer satisfaction and loyalty. This helped to identify the main variables that should be covered to conduct this study.
- 2- Supervisors comments and advice.
- 3- A sample of Ph.D. students in the school were asked to comment on the structure and content of the questionnaire.
- 4- A group of RJ managers were asked to give their comments according to their experience in the airline industry (content validity be discussed further in section 5-6-1).
- 5- An Arabic translation of the questionnaire was prepared. This translation was reviewed by many specialists in Arabic language, and a professor of business

studies in Jordan University, together with the RJ managers who checked the Arabic translation of airlines terminologies.

- 6- Members of staff in the management school were asked to give their comments according to their experiences in the areas of business statistics and questionnaire design.
- 7- Pre-test (pilot test): a sample of 30 passengers were surveyed during a flight from Amman to London through Berlin. This survey was conducted in two ways:
 - An interview with 10 passengers while they completed their questionnaires.
 - Distributing a questionnaire to a sample of 20 passengers by cabin staff to see how they dealt with the questionnaire (this is exactly the method followed in the main study).

Fig. (5-1)
Questionnaire Development



.....
Adapted from Churchill (1987), p. 360

5-5 The Measurement Process

There are several measurement scales that are suggested in the marketing research literature. The reason for selecting any scale is related to the type of data required; for example attitudinal variables (agree-disagree) requires a Likert type scale and many socio-demographic variables require: a nominal scale (e.g., sex) or ordinal scale (e.g., educational level, age,..).

5-5-1 Measurement of Service Quality

Service quality measurement is an area of growing interest to researchers and managers. It is an area characterised by debate concerning the need for measuring customer expectations and how they should be measured. Many authors agree that measures of service quality may either be hard or soft (Voss 1985, Smith 1987, Silvestro et al. 1988). Hard measures are those which are quantifiable or objective, such as airline's on- time departure and arrival record. Soft measures are those which are qualitative, judgmental, subjective, and based on perceptual data; (e.g. passengers' satisfaction with speed of service). Service firms tend to measure only what is easy to measure and quantify, and are reluctant to use soft, qualitative measurements (Kaplan 1983, Johnston and Morris 1985).

The methods used to measure service quality are based on different schools of thought that mainly can be classified into three groups: attribute based method, incident based methods (Stauss and Hentschel 1991) and observational methods (Baker 1968).

(i) The attribute-based methods

These methods tend to force the respondent to assume some sort of normal performance level. The most widely used method is SERVQUAL, which has been discussed in previous sections.

(ii) The incident-based methods

These methods focus on deviations from the normal case. Recently these methods have attracted the interest of many scholars. For example, Critical Incident Technique (CIT) and phenomenographic methods have been applied to map interaction processes in banks and automobile repair shops to reveal understanding mechanisms behind positive and negative outcomes (Edvardsson 1988, Stauss and Hentschel 1991, Olsen and Thomasson 1992). CIT was originally developed by Flanagan (1954) to identify critical job requirements. Generally there are five steps to applying the CIT approach (Flanagan 1954); these steps are:

- (1) Identifying the activity of interest and the general aim or objective of the activity.
- (2) Developing the plans and specifications for the study.
- (3) Collecting the data.
- (4) Analysing the data.
- (5) Reporting the results.

CIT enables researchers to investigate and gain a greater understanding of situations where quality fails (i.e, where a critical incidents occurs). Data on critical incidents can be collected in several ways such as: personal interviews, focus group interviews, and direct or participatory observation. The main advantage of CIT is that it generates detailed process descriptions of critical incidents as those interviewed (e.g customers) perceive them. The customer has the opportunity of describing the situation in his own words, and finally it is a useful method of identifying and analysing defects in service quality. The weakness of the method is primarily that the interviewer can filter, misrepresent or unconsciously misunderstand the respondent, which is true for all verbal methods (Edvardsson 1992). Also, there is a difficulty associated with clarifying and interpreting the incidents.

(iii) Observational Methods

These methods have been discussed in section (5-2).

From the previous discussion it was seen that choosing any of these methods will depend largely on the ability to select suitable data collection methods that are able to capture details and complexity during a person to person encounter. For example using attribute methods may be appropriate to collect information from a large sample (by a questionnaire) and about many issues, while CIT can be used to investigate and discuss certain issues from a smaller sample size. Since the modern view on service quality assumes that the researcher agenda must be multi-disciplinary and cross-functional in nature (Lasceller 1992), therefore, the use of a variety of methods is recommended to have a comprehensive and clear idea about the studied subject.

Finally, it is possible to say that the problem of measuring service quality is related to its definition, which comes from the nature of the service itself (Silvestro et al. 1988). The unique characteristics of services contribute to the complexities involved in assessing and managing service quality. They complicate both the consumer's assessment of service quality and the providers ability to control it. Since service is usually the result of the interaction between the customer and the service system, it is the interaction that results in the characteristics of services. Service quality cannot be objectively measured as can technical quality in manufacturing. It is an elusive and abstract construct, in part because of several features unique to services such as: intangibility, inseparability, heterogeneity and perishability. Further, and more importantly, service quality has not, as Patterson and Johnson (1993) argue, been adequately defined conceptually.

The previous literature (as summarised in Table 5-4) had developed a variety of measurement scales with which to measure service quality. The main purpose of this table is to give a clear idea about previous related studies; this will help to suggest a similar scale to conduct this research.

Table (5-4)
A Review of the Major Scales used to Measure Service Quality

Authors	Service Quality Measurement		Comments
	Items quality	Overall quality	
Parasuraman et al (1988,1991)	7-point Likert scale with verbal anchors "strongly agree" and "strongly disagree", but with no verbal descriptions for points 2-6	4-point scale (Excellent, good, fair, poor).(1988) at (1991) they use 10-point scale ranging from extremely poor =1/and extremely good =10	22-items to measure 5-dimensions, each of the 22 items was recast into two statements (expectations & perceptions); then gap score (P-E) was measured
Fick & Ritchie (1991)	7-point Likert scale ranging from strongly disagree =1/strongly agree =7, no labels are applied to the points between 1&7	***	A study to measure service quality in the travel & tourism industry using gap analysis (P-E) --SERVQUAL-
Finn and Lamb (1991)	5-point scale ranging from "strongly agree" (=5) to "strongly disagree" (=1)	***	A research examined the usefulness of SERVQUAL in retail settings where the results do not support the proposition that the instrument can be used to assess perceived service quality in retellings.
Saleh & Ryan (1991)	5-point scale strongly disagree/strongly agree	***	A study applying SERVQUAL model in hospitality industry
Babakus & Mangold (1992)	5-point scale ranging from strongly disagree to strongly agree	5-point scale with end points labelled "very good" and "very poor"	An empirical study conducted on hospital services by adopting SERVQUAL scale
Cronin & Taylor (1992)	7-point scale, strongly disagree=1/strongly agree= 7; no verbal description for points (2-6)	7-point semantic scale, very poor =1; excellent =7	Performance-based measure of service quality improves the means of measuring the SERVQUAL construct

*** means: not covered in these studies

Continued....

Table (5-4) Continued

Authors	Service quality		Comments
	Items quality	Measurement	
		Overall quality	
Bouman & Wiele (1992)	Both section (expectation and perceptions) are covered by one question, on the left hand side of the specific question the respondent answers according to his expectations of the service in the car service industry in general by using 7-point scale ranging from 1= very unimportant, 7= very important. On the right hand side the respondent answers according to his perceptions of the actual service received by using 7-point scale with end labels 1= definitely not appropriate; 7= definitely appropriate	***	A study to build and test an instrument to measure service quality in the car service industry.
Liljander & Strandvick (1992)	5-point scale ranging from much better than I expected to much worse than I expected	4-10 "school scale"; 4= fail; 10= excellent. This scale has been recommended as a valid scale in Finland as it is the scale used to grade pupils from junior to high school.	A study to discuss the relationship between service quality, consumer satisfaction and intentions using perception-expectations (P-E) for service quality.
Brown et al (1993)	7-point scale ranging from much worse than I expected to much better than I expected. Verbal description is attached to each scale position.	Single item global measure of overall service quality	Measuring service quality without relying on the disconfirmation paradigm. This measure performs as well as perceptions component of SERVQUAL yet includes a comparison of perceptions to expectations.

Continued....

Table (5-4) Continued

Authors	Service quality Measurement		Comments
	Items quality	Overall quality	
Headley & Miller (1993)	7-point likert scale with end labels of strongly disagree, and strongly agree	overall quality measured on 3-point scale where; excellent 1; good= 2; fair/good= 3	A study conducted by adopting SERVQUAL scale for medical care services. The objectives are to measure service quality and its relationship to future consumer behaviour
Richard & Allaway (1993)	5-point scale anchored by "strongly disagree" (1), and "strongly agree" (5)	***	A study to investigate the importance of service quality as predictor of actual choice behaviour
Teas (1993)	7-point scale ranging from strongly disagree= 1/strongly agree= 7	two scales are used a- 10-point scale; 0= extremely low quality/10= extremely high quality b- 5-point scale; 5= strongly agree/1= strongly disagree	The study was about expectations, performance evaluation and consumers' perceptions of quality. The author examines conceptual and operational issues associated with the (P-E) perceived service quality model.
Vandamme & Leunis (1993)	7-points Likert type scale ranging from strongly disagree to strongly agree	7-point Likert scale ranging from strongly disagree to strongly agree.	Study conducted in a general hospital in Belgium using SERVQUAL Instrument
Avkiran (1994)	5-point scale ranging from much worse than I expected to much better than I expected (all other response options were verbally labelled)	***	A study conducted to develop an instrument to measure customer service quality in branch banking in Australia. Each quality item was surveyed directly on a 5-point Likert type scale. similarly a 5-point importance scale was followed each quality item. These responses are ranging from "not important" to "very important".

Continued.....

Table (5-4) (Continued)

Authors	Service Quality Measurement		Comments
	Items quality	Overall quality	
Kelly & Davis (1994)	7-point Likert scale with anchors ranging from Poor to Excellent	***	Service quality was measured using only perceptual items from the SERVQUAL battery
Bitner & Hubbert (1995)	***	3-different scales were used: 5-point scale with anchors superior/Inferior 5-point scale, with anchors Strongly agree/Strongly disagree 5-point scale, with anchors Excellent/poor	A study conducted to explore three interrelated concepts encounter satisfaction versus overall satisfaction versus quality
Pit et al. (1995)	7-point scale ranging from strongly agree to strongly disagree; no verbal description for points (2-6)	7- point scale ranging from poor =1/ to excellent =7; no verbal description for points 2-6	A study conducted to discuss service quality and measuring of the information systems effectiveness by using the same methodology as SERVQUAL
Reynoso & Moores (1995)	6-point scale ranging from "extremely fails to meet our expectations" to "Exceeds our expectations"	5-point scale "strongly disagree/agree"	A study directed towards the measurement of internal service quality; this study conducted in a NHS teaching hospital in Germany
Smith (1995)	7-point scale ranging from strongly agree to strongly disagree	7-point Likert scale ranging from excellent to extremely poor; all response options were verbally labelled	A study to measure service quality in health care organisation, and to discuss the appropriateness of SERVQUAL to measure service quality.

Airline services were classified in this research into pre-flight services, In-flight services and other services. Therefore, passengers were asked to respond to different statements that assessed their perceptions of the quality of the services provided by RJ in all the stages of the flight (Table 5-6). Each item used a 7-point scale with end points strongly disagree/strongly agree. The seven point agree-disagree scale was selected because it was anticipated that the majority of respondents would score on the positive side of the scale, and it was therefore

important to provide several scale points to ensure the measure was sufficiently sensitive. This is also the reason for selecting similar 7-points scales for the other constructs in this study. Overall service quality was measured using 7-point scale similar to that used by Smith (1995) as shown in Table (5-5).

Table (5-5)

Scale to measure overall service quality

Excellent	Very Good	Good	Acceptable	Poor	Very Poor	Extremely Poor
7	6	5	4	3	2	1

Table (5-6)

Attributes used to measure airline service quality

Part one: Pre-flight Services

Reservation Process

Airport services

- The way of answering telephones
- Helpfulness of ground staff
- Courtesy of employees
- Smart appearance of employees
- Assistance in case of delays
- Terminal announcement
- Clarity of signs at airport
- Airport facilities (e.g. cafe, toilets,..)
- Check-in procedures
- Baggage handling
- On- time departure
- Security procedures

Scheduling

- Frequency of flights
- Convenient flight schedules
- Convenient operating hours
- Non-stop flights

Price

- Availability of discounts
- Special prices for children

Image

- Airline reputation
- Safety feelings
- Modern looking planes
- Availability of different classes

Continued....

Table (5-6) (Continued)

On-board services

Cabin-staff services

- Courtesy toward passengers
- Friendliness of the staff
- Individual attention toward passengers
- Prompt services
- Willingness to help
- Foreign language skill
- Cross-cultural awareness
- Smart appearance of cabin-crew
- Clarity of cabin announcements
- Services for children
- Adherence to smoking/non smoking regulations

Food

- Quality of meals
- Quantity of meals
- Menu selection

Others

- Cleanliness of plane
- In-flight entertainment (e.g., Videos and Reading materials)
- Security conscious
- Transit facilities
- Help in case of delay
- Complaint system
- Seat and width pitch

5-5-2 Satisfaction measurement

There are many different approaches to measure satisfaction. Cronin and Taylor (1992) define and measure service satisfaction as a one-item scale that captures the consumers' overall feelings toward the organisation. This definition does not acknowledge that satisfaction is likely to be multidimensional, nor does it include measures of encounter satisfaction. Oliva et al. (1992) have suggested that overall service satisfaction is "latent construct with multiple indicators at the attribute level" (p. 86), and that overall satisfaction is viewed as a function of satisfaction with multiple experiences or encounters with the organisation (Bolton and Drew 1991).

Moreover, other researchers (Crosby & Stephens 1987, Surprenant & Solomon 1987, Oliver & Swan 1989, Bitner & Hubbert 1995) recognise that service

satisfaction occurs at multiple levels in the organisation, including satisfaction with the contact person, satisfaction with the core services experienced by the consumer and satisfaction with the company overall. More discussion about satisfaction was presented in the second chapter (section 2-5).

Generally, satisfaction can be measured at three different levels:

- **Individual satisfaction:** An important issue in the measurement of satisfaction is whether the measuring instrument should be monadic or comparative. There may be conditions under which one approach or the other may be more appropriate. For example, in many product and service categories (e.g., in banking services, legal services, and automobiles), a monadic approach may be reasonable.
- **Service encounter satisfaction:** The service encounter has been defined as that period of time during which the consumer and service firm interact in person, over the telephone, or through other media (Shostack 1985). Bitner and Hubbert (1995) define service encounter satisfaction as: “the consumer’s dissatisfaction with a discrete service encounter (e.g., a haircut, an experience at a hotel check-in desk)”. Therefore, service encounter satisfaction reflects the consumer’s feelings about a discrete interaction with the firm, and will result from the evaluation of the events and behaviours that occur during the definable period of time (Bitner 1990, Bitner et al. 1990).
- **Overall satisfaction:** This is the consumer’s overall dis/satisfaction with the organisation, based on all encounters and experiences with that particular organisation. Therefore, overall satisfaction is distinguished from encounter satisfaction in that the overall construct reflects the customer’s feelings about multiple encounters or experiences, and that these multiple encounters may include several interactions with one person as well as experiences with multiple contact persons in the same firm (Oliva et al. 1992). Thus, to measure consumer overall satisfaction, respondents are asked to “step back” from the one encounter they had described and to think about all experiences with that specific service provider.

Table (5-7) summarises both items and overall satisfaction measurements for many previous studies.

Table (5-7)
Scales for measuring Items and Overall Satisfaction

Contribution	Satisfaction Measurement		Comments
	Items	Overall	
Oliver (1980)	six items 7-point semantic differential scale ranging from "the (attribute) was worse than expected" to "better than expected"	***	A cognitive model is proposed which expresses consumer satisfaction as a function of expectation and expectancy disconfirmation
Churchill & Surprenant (1982)	1- attribute-specific (beliefs); 7-point scale ranging from strongly agree to strongly disagree 2- attribute-specific (affect); 7-point scale: like-dislike	1- global (verbal); 7-point scale ranging from completely satisfied to completely dissatisfied 2- global (faces); 6-pictures	A study to investigate the determinants of customer satisfaction. the direct performance - satisfaction link accounts for most of the variation in satisfaction.
Crosby & Stephens (1987)	***	7-point semantic differential scales; satisfied-dissatisfied; pleased-displeased; favourable-unfavourable	A study to investigate the effect of relationship marketing on satisfaction, retention and prices in the life insurance industry. Results shows that though relationship marketing adds value to the service package; it is not a substitute for having a strong, up to date core service
Saleh & Ryan (1991)	5-point scale ranging from 5= highly dissatisfied to 1= highly satisfied.	***	A study applying SERVQUAL model in hospitality industry
Cronin & Taylor (1992)	***	One item to measure overall consumer satisfaction using a 7-point scale with anchors 1= very unsatisfied/ 7= very satisfied; points (2-6) are undescribed	An attempt to discuss the relationship between service quality, consumer satisfaction and purchase intentions.

Continued.....

Table (5-7) Continued

Contributions	Satisfaction Measurement		Comments
	Items	Overall	
Spreng & Olshavsky (1993)	Disconfirmation of expectations by 7-point scale anchored by "worse than I expected (desired) and "better than I expected (desired) with "exactly as I expected (desired) as the midpoint.	Was measured with two items; the first item asked "how satisfied would you be with the overall experience of buying and using your new camera "7", and was anchored with "very dissatisfied/ very satisfied" with "indifferent: neither satisfied nor dissatisfied" as the midpoint. The second item asked how the subject would feel about the experience and was anchored with "terrible" and "delighted"	The study proposes consumer desires based on means-end theory, as the comparison standard. Results of an experiment show that the extent to which performance is congruent with desires is a powerful antecedent to satisfaction, while the effect of disconfirmation of expectation is nonsignificant.
Teas (1993)	***	Overall satisfaction was measured using 5-point Likert scale with anchors 1= strongly disagree/ 5= strongly agree	In this study ; shopping preferences, purchase intentions, and overall satisfaction were measured by four items with 5-point Likert scale
Bitner & Hubbert (1994)	Service encounters was measured using nine 7-point scale as shown in Table (5-8)	Four items with 5-point Likert scale were used; then an open ended question asked respondents to describe what led them to rate their overall service satisfaction/ dissatisfaction as they had as shown in Table (5-9)	Different scales are used to measure encounter and overall satisfaction. These scales have origins in previous literature
Halstead et al. (1994)	5-point Likert scale anchored by strongly disagree to strongly agree	***	A study conducted to measure multisource effects on the satisfaction formation process. The model proposes that alumni satisfaction with higher education is a function of two performance and disconfirmation attributes: intellectual environment and employment preparation.

Continued.....

Table (5-7) continued

Contributions	Satisfaction	Measurement	Comments
	items	Overall	
Kelly & Davis (1994)	5-point Likert scale was used, eleven items with end points of very dissatisfied and very satisfied were used.	***	A study to discuss antecedents to customer expectations for service recovery. Consumer satisfaction was measured using items similar to that of Oliva et al. (1992) .
Pieters et al. (1995)	Six items 7-point Likert scale ranging from "very dissatisfied" (1) to "very satisfied" (7)	7-point Likert scale ranging from "completely disagree" (1) to "completely agree" (7)	A study developed and tested a dynamic model of service satisfaction formation. The study build mainly on investigating the assimilation processes in service satisfaction formation.
Reynoso & Moores (1995)	***	5-point scale "very dissatisfied/ satisfied"	Toward the measurement of internal service quality. a study conducted in a NHS teaching hospital in Germany.
Smith, Anne (1995)	***	7-point scale with anchors 1= terrible/ 7= extremely pleased ; the other points from (2-6) are fully described as shown in Table (5-5)	A study to discuss service quality measurement and main criticisms to SERVQUAL. This study was conducted on a clinical organisation.
Wirtz & Bateson (1995)	7-point like-dislike & Westbrook (1980) delighted-terrible scale	***	An exploratory study examining halo effects on attribute-based disconfirmation and satisfaction measured. The results showed that halo effects can contaminate attribute specific satisfaction measure.

In this research, satisfaction with the encounter was measured using six items on a 7-point scale (Table 5-8). One item with satisfied / dissatisfied end points, and five satisfaction items similar to these suggested by Oliver (1980). Overall satisfaction with RJ was measured using six 7-point scales. The items were listed in Table (5-9). This is similar to the approach followed by Bitner and Hubbert (1995). The researcher believes that following this approach has two

main advantages: (i) it gives a clear measurement scale for passenger satisfaction; and (ii) it helps to reduce the length of the questionnaire (we are not measuring passenger satisfaction of each individual service provided by an airline, but measuring his overall satisfaction with the encounter satisfaction).

Table (5-8)
Questions to measure encounter Satisfaction

- 1- How did you feel about your service experience after flying with RJ
- 2- I was satisfied with RJ services.
- 3- I was satisfied with my decision to fly with RJ this time.
- 4- My decision to fly with RJ was a wise one.
- 5- I think I did the right thing by choosing to fly with RJ.
- 6- If I had to fly again, I would fly with RJ.

Notes

- * Question one: Fully anchored; end points: Satisfied/Dissatisfied
- * Questions (2-6): Anchored at end points: Strongly agree/ Strongly disagree

Table (5-9)
Questions to measure overall passenger satisfaction

- 1- Based on all of your own experience, how satisfied overall are you with RJ's services?
- 2- Based on all of your own experience, how satisfied overall are you with airport services?
- 3- Based on all of your own experience, how satisfied overall are you with on-board services?
- 4- Compared to other, similar airlines that you have fly with before, how would you rate your satisfaction with RJ.
- 5- Based on all of my experience with RJ airline, I am
- 6- In general, I am satisfied with RJ services.

Notes

- * Questions (1-5): Fully anchored; endpoints: Very satisfied/Very dissatisfied
- * Question 6 : Anchored at endpoints: Strongly agree/Strongly disagree

5-5-3 Loyalty Measurement

The concept of loyalty has evolved through several conceptual and operational interpretations. The most widely accepted of these definitions are multi-dimensional in nature, incorporating the attitudinal and behavioural

measures of commitment and repeat purchase (e.g. Day 1969, Jacoby 1971, Muncy 1983, Selin et al. 1988).

As shown in section (2-6) three distinctive approaches to loyalty measurement are developed in the literature:

- **Behavioural measures of brand loyalty:** In this approach, brand loyalty studies were operationalised through the behavioural interpretation of loyalty as a form of repeat purchasing of a particular brand over time (Brown 1952, Cunningham 1956, Frank 1962, Tucker 1964, Sheth 1968).
- **Attitude measures of brand loyalty:** Attitudes are considered to be the psychological construct most capable of providing an explanation of the process that has led to purchase behaviour (Day 1970).
- **Composite measure of brand loyalty:** This takes into considerations both attitudes and behavioural aspects of loyalty.

From the previous discussion, it was seen that the loyalty construct has evolved through several conceptual and operational interpretations. The most widely accepted of these definitions are multi-dimensional in nature, incorporating the attitudinal and behavioural measures of commitment and repeat purchase (e.g., Day 1969, Jacoby 1971a, Muncy 1983, Selin et al. 1988). Therefore, a loyal travel consumer will repeatedly purchase or use a particular travel service and possess a positive sense of attitudinal commitment toward that service provider.

Moreover, Jones and Sasser (1995) have discussed the measures of loyalty and explained that “customer loyalty is the feeling of attachment to, or affection for, a company’s people, products, or services. These feelings manifest themselves in many forms of customer behaviour”. They explained also that there are alternative measurements of loyalty that can be grouped into three major categories:

- (i) **Intent to repurchase:** This measure has many important advantages. First, when asking customers about their future intentions to repurchase a product or a service companies can capture this information when they measure satisfaction, making it relatively easy to link intentions and satisfaction for analytical purposes. Second, intent to repurchase is a very strong indicator of future behaviour.
- (ii) **Primary Behaviour:** Companies often have access to information on various transactions at the customer level and can measure five categories that show actual repurchasing behaviour: recency, frequency, amount, retention, and longevity (Jones and Sasser 1995). These provide glimpse of overall share and are most useful as an indication of changes over time.
- (iii) **Secondary Behaviour:** In this occasion, customer referrals, endorsements, and spreading the word are extremely important forms of consumer behaviour for a company. In most product and service categories, word of mouth is one of the most important factors in acquiring new customers (frequently, it is easier for a customer to respond honestly to a question about whether he/she would recommend the product or service to others than to a question about whether he/she intended to repurchase the product or service.

Previous studies shows different approaches with different measurement scales to measure customer loyalty. Examples of these studies are shown in Table (5-10).

Table (5-10)

Loyalty Measurement

Contribution	Scale	Comments
Babakus & Mangold (1991)	One intention to return statement measured on a 5-point "strongly agree"- "strongly disagree" scale. "if I were to find myself in the same situation I was in when I went to.... hospital, I would want to receive my treatment there again"	An empirical study conducted on hospital services by adopting the SERVQUAL instrument.
Pritchard (1991)	7-point scale ranging from strongly disagree to strongly agree. Points (2-6) have no label descriptions.	A study conducted to develop a psychological commitment instrument for measuring travel service loyalty. (Attitudinal measure of loyalty)
Cronin & Taylor (1992)	One item, 7-point scale ranging from not at all to very frequent. Points (2-6) have no label descriptions	This scale was to measure future purchase behaviour. The study was conducted in 4- industries (pest control, dry cleaning, banks, fast food)
Liljander & Strandvik (1992)	5-point scale (5= I would definitely visit the restaurant again) to 1 = I would definitely not visit the restaurant again. The middle scale value, i.e, 3, implies indifference, uncertainty)	This study was to measure a re-buy behaviour (measures the behavioural consequences of visiting a restaurant)
Headley & Miller (1993)	Behavioural intent items included on the post-encounter survey asked the respondent to indicate strength of intent along a 7-point scale ranging from "definitely" to "definitely not" for each of 5-intent behaviour (repeat purchase, complimenting, complaining, switch providers, opt not to use any service.	A study conducted by adopting SERVQUAL scale for medical care services. The objectives are to measure service quality and its relationship to future consumer behaviour
Parasuaraman et al. (1994)	13 items, each item was accompanied by a 7-point likelihood scale (1= not at all likely; 7= extremely likely)	A battery of behavioural intentions was proposed to include; word-of-mouth communication, purchase intentions, price sensitivity, and complaining behaviour.
Taylor and Baker (1994)	7- point scale ranging from strongly disagree to strongly agree. (no label descriptions to points 2-6).	Purchase intentions was measured by 3- direct measures using the 7- point Likert scale

In this research, the main factors that was used to measure passengers loyalty are listed in Table (5-11). A 7-point Likert scale with end points “Extremely Likely”= 7; “not at all Likely” =1 was the scale of measurement. This is similar to the approach followed by Parasuaraman et al. (1994).

Table (5-11)
Loyalty dimensions

Dimensions	Variables	Loyalty Measures
Behavioural Measures	Purchase Intentions	1- Consider XYZ your first choice to buy a service from 2- Do more business with XYZ in the future.
	Word -of- mouth communications	1- Recommend XYZ to some one who seeks your advice.
	Price Sensitivity	1-Buy a service from another competitor who offers more attractive prices. 2- continue to deal with XYZ if its prices increase some what.
	Complaining Behaviour	1- Switch to a competitor if you experience a problem with XYZ service. 2- Complain to XYZ employees if you experience a problem with XYZ service. 3- Complain to external agencies if you experience a problem with XYZ service
Attitudinal Measures	Resistance	1- Changing my preference from XYZ to another would require major rethinking. 2- Even if a close friend recommends another competitor, I would not change my preference for XYZ.
	Volition	1- My preference for XYZ is my own decision. 2- I am fully responsible for the decision to use XYZ service.
	Complexity	1- I do not really know that much about XYZ services.

**** all questions are measured by 7-point Likert scale where; 1= not at all likely/ and 7= extremely likely**

5-5-4 Measurement of psychographic characteristics

Psychographic research was defined by Wells (1975) as:

“quantitative research intended to place consumers on psychological-as distinguished from demographic- dimensions” (p. 197).

This research yields particularly useful information on the lifestyle of selected groups (Lesser & Hughes 1986). Thompson and Kaminski (1993) found that customer-based variables in categories such as activities, interests, opinions and life-style could be used for segmenting consumers on the basis of their service expectation. They pointed out that loyalty and need perception (both consumer-

based variables) were found to be related to service quality expectation. Previous research (Reynolds et al. 1977, Cassill and Drake 1987, Perri 1990, Jasper and Rosa Lan 1992, Kamakura and Wedel 1995) had identified many psychographic and lifestyle characteristics. For example it has been found that time pressure is an important influence on consumer behaviour, thus the more the consumers work, the less time for leisure and shopping they are likely to have. Moreover, it was found that the more information provided the more efficient the purchasing decisions (Sprols et al. 1978). Also Green (1988) concluded that people who are information sensitive tend to have higher confidence in the degree to which they are able to control their environment.

In this research several psychographic and lifestyle characteristics were used as bases to identify different market segments as perceived by passengers, and to identify the effect of these characteristics on passenger satisfaction and loyalty. These characteristics are shown in Table (5-12). Respondents were asked to indicate their extent of agreement or disagreement with eight psychographic constructs using 7-point Likert scale; with end points Strongly disagree (1), and Strongly agree (7), this scale is similar to other scales used to measure attitudinal characteristics (e.g., Gilbert and Warren 1995).

Table (5-12)
Psychographic characteristics

Characteristics	Questions
Activities	1- I like travelling to foreign countries on vacations.
Price sensitivity	2- I carefully compare prices before buying a ticket
Self confidence	3- My preference to fly with RJ is my own decision, freely chosen from several alternatives. 4- I am fully responsible for the decision to fly with RJ
Information Seeking	5- It is important to have more information about any trip before deciding to travel.
Promotional influences	6- Advertisements and other promotional tools have been the main influences on my choice to buy a RJ ticket.
Time sensitivity	7- I am more impatient than most waiting in check out lines.
Convenience	8- Convenience of flight schedule is of major importance in selecting an airline to buy a ticket from.
Loyalty	9- My choice to fly with RJ is a wise one. In addition to other questions as in Table (5-11)

5-6 Validity and Reliability

Validity and reliability of the measurement instrument is an important step to be examined in the research process. Douglass and Craig (1983) have explained that the examination of the validity and reliability of the data is particularly important in countries or contexts where little research has been conducted, or with which the researcher has little prior experience.

5-6-1 Validity

Validity refers to the relationship between a construct and its measures. This means that, validity refers to the degree to which the instrument measures what it reports to measure. It can be defined as the extent to which the measurement process is free from both systematic and random error (Kinear and Taylor 1987). There are at least two kinds of errors (systematic and random) that may exist and deviate the instrument from measuring what it is designed to measure. Systematic error refers to the kind of errors that cause a constant bias in the measurement, whereas random error is not a constant error, but rather is due to transient aspects of the person or measurement situation (Churchill 1987). Validation can be classified as: internal and external types, or as construct, content, face, concurrent and predictive validity.

Internal validity is related to the degree of unambiguity with which one can draw conclusions about the set of observations. Conversely, external validity refers to the degree to which one can generalise the findings of the study beyond the specific conditions and observations of the study (Moutinho 1982).

1. **Construct validity** is most directly concerned with the question of what is the nature of the underlying variable or construct measured by the scale (Parasuraman 1986). It can be assessed by computing the correlations of a set of variables with another set of variables that one might expect a kind of correlation that could exist. Therefore, if the observed relationship was found to be in the expected direction, then one can conclude that the construct

validity is preserved in the research. There are two kinds of construct validity: convergent and discriminant.

- **Convergent validity** refers to the strong correlation between measures that one expects to have a strong relationship. Therefore convergent validity pertains to the extent to which scale items assumed to represent a construct do in fact “converge” on the same construct (Parasuraman et al 1993). The reliability of a scale as measured by coefficient alpha reflects the degree of cohesiveness among the scale items and it is therefore an indirect indicator of convergent validity.
 - **Discriminant validity** refers to the weak correlation’s between measures that are expected not to have a strong relationship. Moreover, according to Brown et al (1993); **discriminant validity** refers to the degree to which measures of theoretically unrelated constructs do not correlate highly with one another.
2. **Content validity** focuses on the adequacy with which the domain of the characteristics is captured by the measure (does the scale items capture key facets of the unobservable construct being measured) (Parasuraman et al. 1988). It involves a subjective judgement by experts as to the appropriateness of the measurement. Therefore, content validity refers to the extent to which an instrument covers the range of meanings included in the concept (Babbie 1992; p.133).
 3. **Face validity** is a subjective criterion reflecting the extent to which scale items are meaningful and appear to represent the construct being measured (does the scale appear to measure what it is supposed to)
 4. **Concurrent validity** is concerned with the relationship between the predictor variable and the criterion variable when both are assessed at the same point in time. If the results of the correlation were sufficiently high, then it might be possible to conclude that the measure has concurrent validity.
 5. **Predictive validity** refers to the ability of the measure at a certain point in time to yield relatively similar results for the same phenomenon at a future time.

In this research two important steps have been taken to ensure the validity of the data. These two procedures are related to content validity and construct validity.

(1) *Content validity and face validity were examined through the following steps:*

- The existing literature relating to the research domain: service quality, passenger satisfaction, and loyalty was reviewed. All the relevant variables were listed, and the most relevant ones were used in the questionnaire.
- The initial questionnaire was reviewed by the researcher's supervisors to ensure the completeness, and wording of the questionnaire. Also this questionnaire was reviewed by the Royal Jordanian (RJ) managers who gave their comments based on their practical experience.
- The questionnaire was pre-tested by a sample of respondents similar to the study respondents (i.e. pilot study), and a few changes were made. These changes are discussed in pilot study results (Appendix III).

(2) *Construct validity* involves the understanding of the theoretical rationale underlying the obtained measurements. Construct validity increases as the correlation between the variables is within the expected (theoretical) direction.

To assess convergent validity, the following tests were undertaken:

- The reliability of a scale as measured by coefficient alpha reflects the degree of cohesiveness among the scale items and is therefore an indirect indicator of convergent validity. Therefore, a high reliability coefficient for the three constructs assures convergent validity (reliability coefficient for whole the scale =.98)
- A more stringent test of convergent validity is whether the scale items expected to load together in a factor analysis actually do so (Parasuraman et al. 1991). As seen in Table (6-4) the main factors resulted from factor analysis test included (to a great extent) similar items in each factor (group) to those in the questionnaire. This was also an indicator of convergent validity.

- As mentioned before, causality and causal structure model (using LISREL) is considered a useful tool to test construct convergent-discriminant validity. This will be discussed in section 6-7 while discussing the path analysis.

5-6-2 Reliability

Reliability refers to the degree to which observations are consistent or stable (Rosental and Rosnow 1984). Thus, the reliability of the scale of measurement refers to the extent to which the measurement is free from random error.

Reliability differs from validity in that it measures the agreement between two attempts to measure the same trait through maximally similar methods, while validity is concerned with the agreement between two attempts to measure the same trait through maximally different methods (Churchill 1987).

To check the reliability of the study one or more of the following methods can be used:

- Test-re-test reliability,
 - Internal consistency and
 - Alternative forms reliability.
1. **Test-re-test reliability:** In this method one measures the stability of ratings over time which involves administering the scale to the same group of respondents at different times under relatively similar conditions. Thus, if the ratings generated through the two measurements were highly correlated, then it could be assumed that the scale meets the test-re-test reliability.
 2. **Internal consistency:** This method concerns the degree to which different items on a multi-item scale formed to represent a construct. The split-half reliability and alpha correlation coefficient (Cronbach alpha) are examples of this method. In the split-half reliability, the researcher tries to measure the degree of consistency across items within a scale. This involves dividing the multi-item measurement device into two equivalent sized groups, then a correlation test is performed to find out how much these groups are

correlated. If the correlation between the groups is sufficiently high, the scale is assumed to be reliable. The alpha correlation coefficient (Cronbach alpha) test is relatively similar to the split-half reliability procedure, in that the procedure is established in testing the similarity among the correspondents ratings for the same variable. The Cronbach alpha can be calculated using the SPSS “reliability” test.

3. **Alternative-forms reliability:** Here the same objects are measured by two alternative forms which are judged to be equivalent but not identical. If the results of the two instruments were found to be highly correlated then the measure is judged to be reliable.

In this research the alpha correlation method (Cronbach alpha) was used to assess the reliability of the data. This is due to the fact that Cronbach alpha is the single most meaningful measure of internal consistency reliability (Nunnally 1967). Cronbach’s alpha coefficient requires the least restrictive assumptions (Gerbing and Anderson 1988, Bollen 1989) and is most often used by marketing researchers (Peter 1979). In general, a low coefficient alpha indicates that the sample of items perform poorly in capturing the construct which motivated the measure; while a high alpha is an indicator that the variables are correlating well with true scores. Nunnally (1967) suggested that the reported reliability of 0.50-0.60 is acceptable for early stages of basic research.

5-7 General Assumptions

The researcher assumed that the passengers who participated in the study gave candid and honest answers, because they asked first if they are interested to respond to the questionnaire questions. Also the researcher assumed that the information gathered was a good representation of the general flying population, since the questionnaires were distributed to passengers during 8- weeks and on different flights to different destinations.

5-8 Summary

This chapter has documented various themes associated with the empirical approach adopted for this study. These have included: sampling design and data collection, the structure of the questionnaire, scales of measurement for the three (constructs: service quality, passenger satisfaction and passenger loyalty), and finally validity and reliability issues.

The sample design and data collection used was the specification of procedures for target population and sampling mechanism and the collection of the data. In this study, the data was collected by distributing a questionnaire directly to passengers departing from “Queen Alia International Airport” . The justification for this method was provided in the discussion appeared in section (5-3-4).

The consequent discussion, after delineating the methods of data collection, then moved to the questionnaire development process.

Various important issues were addressed including: scale of measurement for the three constructs (airline service quality, passenger satisfaction and passenger loyalty) and validity and reliability.

The following chapter provides an account of research findings generated from the statistical exercises documented in chapters four and five.

Chapter Six

Data Analysis and Hypothesis Testing

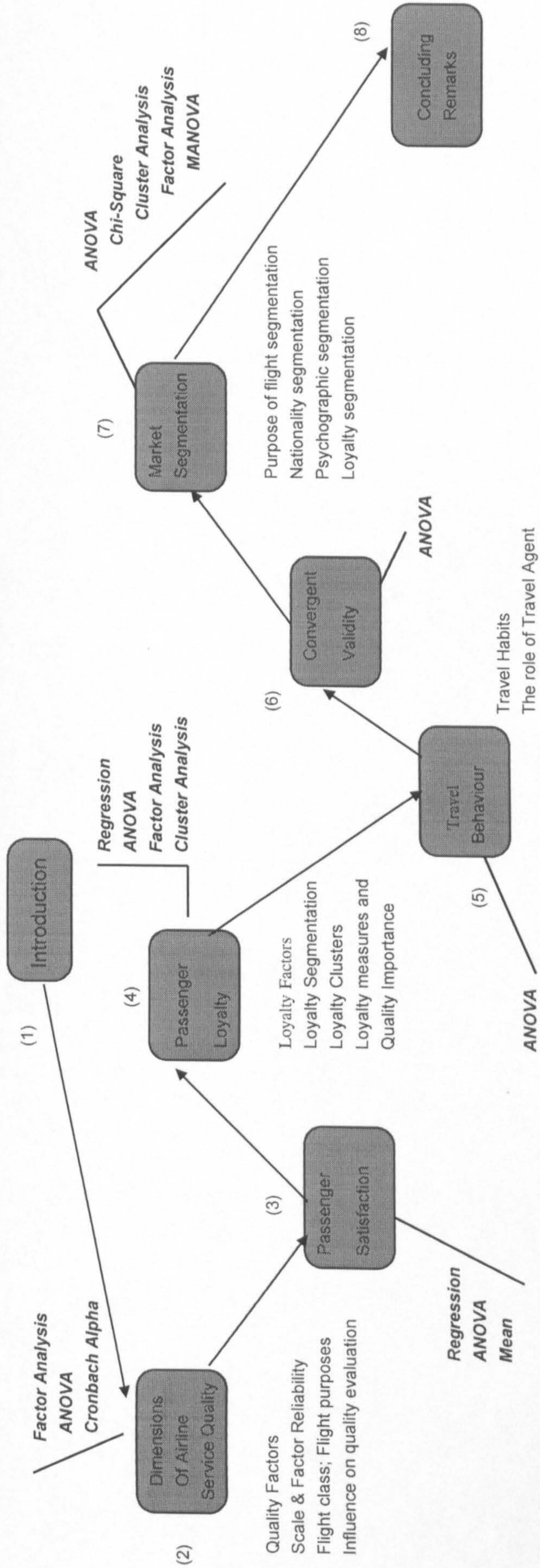
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- 6-1 Introduction**
 - 6-2 Identifying the major dimensions of airline service quality**
 - 6-3 Passenger Satisfaction**
 - 6-4 Passenger Loyalty**
 - 6-5 Travel Behaviour**
 - 6-6 Convergent Validity of the Measurement Scale**
 - 6-7 The Relationship between Service quality, Passenger Satisfaction and Loyalty**
 - 6-8 Market Segmentation**
 - 6-9 Concluding Remarks**
-

6-1 Introduction

The purpose of this chapter is to present the analysis of the data collected and testing of the hypotheses outlined in chapter four (section 4-6). In this study a number of relationships between airline service quality and both passengers' satisfaction and loyalty were examined. Appendix IV lists the items comprising each variable by acronym identifiers and offers a description for each item measured. Each item measuring service quality was computed as a perception score (performance measures); which is exactly the same procedure adopted by Cronin and Taylor (1992) when developing (SERVPERF). For example CAB1 (the measure of cabin crew courtesy toward passengers) means how passengers evaluate the level of cabin crew courtesy during the flight using a 7-point scale with end points strongly agree/strongly disagree.

This chapter comprises eight main sections (fig. 6-1). The first section presents an introduction that summarises the main contents of this chapter and a descriptive profile of the sample of passengers contributing in this study. The second section presents the main dimensions of airline service quality derived from factor analysis. The relationships between passenger characteristics (e.g., age, sex, education, occupation, etc.) and the dimensions of service quality are also examined. The third section discusses the construct of passenger satisfaction. The fourth discusses passengers' loyalty and investigates the appropriateness of loyalty measurement for market segmentation and the relationship between loyalty dimensions and perceived service quality. The fifth section presents a discussion on travel behaviour covering topics such as travel habits, the role of travel agent, the relationship between service quality and passenger characteristics, the influence of psychographic characteristics, nationality of passengers and purpose of flights on passenger choice selection of an airline. The sixth section, presents an assessment of the validity of the different measurement scales used to measure service quality, satisfaction and loyalty. The seven section presents different segmentation approaches to classify airline passengers, and the last section outlines the concluding comments for this chapter.

Figure (6-1)
The Structure of Chapter Six



6-1-1 Passengers' Profile

As discussed in section 5-3-4, 1800 questionnaires were distributed to passengers of RJ airlines. A total of 585 questionnaires were returned giving a response rate of 32.5%. Eighty five questionnaires were not used in the tabulation due to reasons of incompleteness or inaccuracy in responding to the questions. Therefore, the actual number of questionnaires used was 500, yielding a response rate of 28%. Among the 500 useable responses to the survey, 55 (11%) were air passengers flying first class, 91 (18.2 %) travelled business class, and 354 (70.8%) were passengers flying economy class.

The main reasons for travel were company business (28.6%), tourism (26.8%), to visit friends and family members (20.2%) and the remaining (24.4%) included governmental work, studying and for medical purposes (see Table 6-1).

The data provided by the survey respondents was used to develop descriptive information of passengers, then to examine different relationships as shown in this chapter.

The profile data concerning the sample reveal that the vast majority were either Jordanians (33.2%) or came from Western European countries (31.2%). Respondents came from all age groups with a reasonable representation of older passengers. They came from both sexes and tended to be well educated, with more than 57 % holding a university degrees (Table 6-1).

**Table (6-1)
Respondent Profile**

“ by Flight class, Purpose of the trip, Nationality, Education level, Number of flights last year, Sex, and Age ”

Factor	Category	Frequency	Percent
Flight Class	First	55	11
	Business	91	18.2
	Economic	354	70.8
Purpose of the Trip	Company Business	143	28.6
	Government work	67	13.4
	Studying	43	8.6
	Visiting family, Friends	101	20.2
	Tourism	134	26.8
	Medical Purposes	12	2.4
Nationality	Jordan	166	33.2
	Arab Countries	54	10.8
	Asian Countries	44	8.8
	Western Europe Countries	156	31.2
	Australia	32	6.4
	USA	48	9.6
Education Level	Primary School	23	4.6
	High School	76	15.2
	College	114	22.8
	Under graduate	159	31.8
	Post Graduate	128	25.6
Flights (Last Year)	None	96	19.2
	1-3	175	35
	More than Three	229	45
Sex	Male	284	56.8
	Female	216	43.2
Age	25 or less	62	12.4
	26-35	147	29.4
	36-45	158	31.6
	46-59	99	19.8
	60 or more	34	6.8

N = 500

6-2 Identifying the major dimensions of airline service quality

Hypothesis

H1: Dimensions of airline service quality cannot be identified according to the stages of providing (introducing) the services to passengers.

Factor analysis was used in this study to identify the major dimensions of airline service quality and to eliminate unnecessary questionnaire items. Usually the procedure begins by clustering together like items; that is, items that are highly correlated with each other and highly correlated to a theoretical construct that is observed to underlie their mathematical grouping. This construct is called a latent variable or factor. More discussion about this procedure was included in section (4-7-3). In this study, airline service quality was measured using 40 items describing different services provided to passengers (e.g., reservation, airport services, cabin-staff services, food, etc.). These items were summarised into 8-categories as shown in Appendix V.

Four different solutions to the problem of determining the number of factors (dimensions) of airline service quality were obtained. These factor solutions are:

6-2-1 The Eight Factors Solution (A priori Criterion)

The 40- items used to measure airline service quality were subjected to the factor analysis procedures for the total sample of 500 passengers. Principal component axis with an oblique rotation was used to analyse the scale. The reason for using oblique factor rotation procedures was to allow factors to be correlated after rotation, which as (Tinsley and Tinsley 1987) claimed may arguably provide a better representation of psychological reality than if correlation is not allowed. Therefore, the 40- items were entered into a principal axis factoring procedure, and the analysis was constrained a priori to 8-factors (exactly the same number of the groups listed in the questionnaire to measure airline service quality). When the 8- factors solution was rotated orthogonally, no

clear pattern emerged. Many of the items had high loading on several factors, thereby implying that the factors may not be independent of one another. So the 8-factor solution was subjected to oblique rotation (using the OBLIMIN procedure) in SPSS-X to allow for intercorrelations among the dimensions and to facilitate interpretation, (This is similar to procedure followed by Parasuraman et al 1988 in developing SERVQUAL).

The rotated factor matrix for the 40- items included in the questionnaire to measure airline service quality is shown in Table (6-2). As stated in section (4-7-3), only factor loadings of 0.3 or more are considered to be acceptable for all factor solutions presented in this chapter (this is similar to many previous studies, e.g., Parasuraman et al. 1988, 1991).

The 8- factors solution included now 38 items with loadings in excess of ± 0.3 and accounted for (57 %) of the total variation in the data after rotation. Only two items failed to load onto any factor. It was noticed that the remaining items represent all the groups (factors) listed in the questionnaire to measure airline service quality but allocated some items into different factors (dimensions).

Table (6-2)
PAF Oblique Rotation Pattern Matrix for the 40- item pool
Eight - Factors Solution

Item	F1	F2	F3	F4	F5	F6	F7	F8	Comm- unality
PORT7	0.73	-.02	-.01	-.08	-.03	.03	.06	-.10	.67
PORT8	0.64	.02	.07	-.04	-.10	.16	-.01	-.18	.65
PORT6	0.56	.02	.13	-.03	.10	-.10	.08	-.07	.45
PORT10	0.48	-.09	.08	-.01	.05	.15	-.05	-.15	.45
IMAGE2	0.37	-.36	.02	.18	.09	-.07	.08	-.12	.49
CAB3	.05	-0.83	-.001	-.08	-.007	.14	-.03	.11	.75
CAB4	.08	-0.83	.02	-.12	-.05	.03	-.07	.06	.73
CAB2	-.05	-0.81	-.10	-.13	-.01	.08	.10	-.01	.73
CAB1	.06	-0.80	-.03	-.08	-.09	.11	-.008	.04	.70
CAB6	-.17	-0.72	-.008	-.05	.12	.006	.08	-.11	.63
CAB5	.04	-0.67	.07	.11	.12	-.07	-.08	-.008	.50
CAB7	.004	-0.64	.13	.17	-.006	.06	.14	-.06	.59
IMAGE4	.24	-0.26	.13	.24	.11	.03	.15	-.03	.46
FOOD1	.06	-.04	0.79	-.05	.007	.11	.02	.14	.67
FOOD2	.21	-.08	0.73	-.01	.09	.08	-.09	.21	.66
FOOD3	-.05	.02	0.72	-.06	-.02	.09	.24	-.06	.56
OTHER3	-.07	.05	0.56	-.12	.08	-.02	.17	-.22	.54
OTHER1	.25	-.07	0.40	.08	-.08	-.009	.15	-.14	.46
IMAGE3	.23	-.11	0.37	.02	-.07	-.24	.01	-.30	.51
OTHER5	-.02	-.09	.23	-0.62	.21	-.10	-.002	-.09	.63
OTHER6	.05	-.25	.11	-0.60	.21	.01	.05	-.05	.68
OTHER4	.30	.04	.12	-0.37	.09	.01	.24	-.02	.45
PORT2	.26	-.31	.02	-0.36	-.32	.27	.09	.01	.67
PORT1	.27	-.19	.015	-0.36	-.26	.29	.14	-.07	.63
PRICE2	.08	-.078	-.079	-.14	0.78	.06	.09	.12	.67
PRICE1	-.01	.03	.08	-.02	0.62	.10	-.01	-.14	.49
RES2	-.02	-.10	.05	.051	.12	0.73	.04	-.10	.68
RES1	.005	-.03	.18	.006	.05	0.72	-.02	-.06	.62
CAB10	.07	-.14	.21	.26	.14	0.27	.03	-.11	.35
PORT4	.09	-.01	-.18	-.09	.11	.08	0.74	-.03	.66
PORT5	.35	.04	.005	.02	.15	-.08	0.66	.12	.65
OTHER2	-.22	.004	.28	-.06	-.04	.04	0.62	-.05	.54
CAB8	-.08	-.28	.18	.22	-.13	-.25	0.42	-.09	.44
PORT3	.06	-.11	-.02	-.33	-.13	.24	0.33	-.18	.54
SCHED1	.14	.055	-.057	-.05	.06	.13	-.09	-0.75	.65
PORT9	.11	.05	-.02	-.006	-.07	.04	.01	-0.75	.60
SCHED2	.12	-.02	-.16	.04	.08	.13	.20	-0.50	.46
IMAGE1	.13	-.18	.17	-.21	.02	-.05	-.001	-0.38	.46
CAB9	-.11	-.32	.17	-.11	.14	-.24	-.002	-0.36	.45
SCHED3	-.05	-.06	.05	.02	.21	.25	.10	-0.32	.36
Eigen value	12.0	2.5	1.89	1.46	1.42	1.27	1.16	1.08	---
Variance Explained	30 %	6.3 %	4.7 %	3.6 %	3.5 %	3.2 %	2.9 %	2.7 %	57 %

N= 500

Table (6-3) shows the content of the 8-factors according to the items representing services provided at different stages of the flight. The purpose of this Table is to provide a comparison of the items which constitute the 8 factors here and their relationships with the items in the 8 main subcategories in the questionnaire. On this occasion, the most obvious split is between items measuring image, airport services and scheduling.

Table (6-3)

The Content of the Eight-Factors

Factor	Items	Factors (as in the questionnaire)	
F1	5 - items	Airport services (4- items)	Image (1 item)
F2	7 - items	Cabin-staff services (7- items)	
F3	6 - items	Image (1- item)	Food (3- items)
		Others (2-items)	
F4	5 - items	Airport services (2-items)	Others (3-items)
F5	2 - items	Price (2-items)	
F6	2 - items	Reservation (2- items)	
F7	5 - items	Airport services (3-items)	Cabin-staff services (1-item)
		Others (1-item)	
F8	6 - items	Airport services (1-item)	Scheduling (3-items)
		Image (1 item)	Cabin-staff services (1-item)

As seen in Table (6-3), the first factor includes 4 items measuring airport services, and one item measuring safety on the airline flights as an image variable. Since check-in procedures, and baggage handling have the highest loadings in this factor; it will be labelled as “airport operations” factor.

Factor two, includes 7 items all measuring cabin-staff services; therefore, it will be called “cabin-staff services”. Factor three, includes 6 items, three of them measuring food services had the highest loadings, two measuring other services related to seat comfort, and cleanliness of plane interior and the last item measures perception of airline image, e.g. modern looking planes. Therefore, this factor will be named “Tangibles”. Factor four, includes 5 items: 2 measuring

airport services (i.e., courtesy of employees, sincere concern when delays), while the other 3 items which had the highest loadings were describing services provided after the flight, i.e., following appropriate complaint system, dependability when having service problems, and good transit facilities; therefore this factor can be interpreted as "Post-flight services". Factor five, includes 2 items related to ticket prices and discounts offered; therefore, it will be named "Special fares". Factor six, includes two-items related to reservation matters, therefore it will be named "Reservation". Factor seven, includes 5 items, three describe airport services, i.e., clear terminal announcements and clear signs at the airport, where the other two items were measuring in-flight entertainment and clarity of cabin announcements. Therefore, this factor will be labelled "Communications". The last factor, factor eight includes 6 items; three were measuring scheduling matters, and the other three were concerned with punctuality of departure, good reputation among passengers and providing appropriate services to children. Therefore, this factor can be called "Scheduling & Image". Table (6-4) summarises these factors (dimensions), and the appropriate interpretation of each factor.

Table (6-4)
Service Quality Factors (8-Factor Solution)

Factor	Label	Item Subjects
F1	Airport Operations	1- Clean airport facilities 2- Efficient check-in procedures 3- Quick baggage handling 4- Efficient security procedures (at airport) 5- Have a safe journey with an airline
F2	Cabin-Staff Services	1- Courteous cabin staff 2- Giving passenger individual attention 3- Provide prompt services to passengers 4- Willingness to help passengers 5- Ability to speak foreign language 6- Awareness of cross cultural differences 7-Smart appearance of cabin crew.
F3	Tangibles	1- Good quality of food 2- Sufficient quantity of food 3- Menu selection 4- Comfortable plane seats 5- Clean aircraft interior 6- Modern looking planes
F4	Post-Flight Services	1- Good transit facilities 2- Appropriate complaint system 3- Dependability when passengers have problems 4- Courteous ground staff employees 5- Helpful ground staff
F5	Special Fares	1- Discount prices for children tickets 2- Competitive ticket prices
F6	Reservation	1- Friendly response to reservation calls 2- Good flexibility in changing reservation
F7	Communications	1- Showing sincere concern when delays 2- Clear terminal announcement at airport 3- Clear signs at airport 4- Clear cabin announcements 5- Interesting in-flight entertainment
F8	Scheduling & Image	1- Reliable (unchanging) flight schedule 2- Punctuality in departures 3- Convenient flight schedule 4- Good reputation among passengers 5- Offering appropriate services for children 6- Offering many non-stop flights

6-2-2 The Three-Factors Solution (A Priori-Criterion)

For this solution, the same procedures as in section (6-2-1) were performed but with the difference of choosing a priori three factors (exactly the same as the number of service categories i.e. pre-flight, in-flight and post-flight services). The resulting factors explained 41 % of the total variance (Table 6-5). Factor one explained 30 % of the total variance and included 18 items with loadings greater

than 0.30, with only one other item with a loading of less than 0.30 (therefore, it was excluded).

Table (6-5)
Three Factor solution

Item	Factor 1	Factor 2	Factor 3	Community
PORT7	.71	.03	.02	.50
PORT8	.70	.05	.07	.53
SCHE1	.66	.14	.06	.43
PORT1	.63	-.30	-.18	.52
PORT9	.61	.14	.08	.37
SCHE2	.60	.04	.02	.52
PORT3	.59	-.20	-.07	.44
PORT2	.54	-.43	-.21	.52
PORT4	.54	-.03	.05	.34
PORT10	.52	-.06	.12	.37
OTHER4	.48	.01	.18	.35
RES2	.47	-.24	-.07	.34
PORT6	.43	.10	.27	.33
RES1	.42	-.20	-.02	.27
PORT5	.42	.07	.28	.34
IMAGE1	.37	-.12	.28	.38
SCHE3	.35	-.05	.19	.25
OTHER6	.34	-.27	.19	.39
IMAGE2	.26	-.24	.25	.35
CAB3	.05	-.82	.04	.74
CAB4	.04	-.80	.06	.71
CAB1	.10	-.80	-.02	.69
CAB2	.12	-.79	.0007	.71
CAB6	-.01	-.66	.20	.56
CAB5	-.12	-.57	.27	.44
CAB7	-.05	-.56	.32	.52
FOOD1	-.11	-.12	.72	.52
FOOD2	-.11	-.12	.70	.49
FOOD3	-.05	-.04	.68	.45
OTHER3	.09	.05	.66	.49
IMAGE3	.18	-.005	.53	.40
OTHER1	.22	-.05	.46	.39
CAB9	.02	-.19	.43	.30
OTHER2	.13	-.06	.40	.26
PRICE1	.14	.11	.40	.20
CAB8	.03	-.26	.34	.26
IMAGE4	.15	-.19	.32	.28
PRICE2	.14	-.004	.32	.17
OTHER5	.21	-.10	.30	.25
CAB10	.14	.14	.30	.21
Eigen Value	12.00	2.50	1.89	---
Variance Explained	30 %	6.3 %	4.7 %	41 %

These 18 items represent airport services, scheduling, reservation, image and other services. Therefore, this factor will be named “pre-flight services”. Factor two, included seven-items with loadings greater than 0.30, and explained 6.3 % of the total variance. All these seven services represent cabin-services, so it will be named “cabin-staff services”. Factor three, included 14-items and explained 4.7 % of the total variance in the overall service quality. These 14-items, representing different types of services related to: food, image, price, cabin services and other services. Since the first five services that had the highest loadings (> 0.50) were measuring food and aircraft characteristics. This factor will be named “Tangibles”.

Table (6-6)
The Content of Three-Factors Solution

Factor	Service Category	Variables (Services)
F1: pre-flight Services	<ul style="list-style-type: none"> -Airport (10 items) - Schedule (3-items) - Reservation (2-items) - Image (1-item) - Others (2-items) 	<ul style="list-style-type: none"> 1- Check-in procedures are efficient 2- Baggage handling is quick 3- Reliable (un changing flights) schedule 4- Ground staff are very helpful 5- Flight departures are punctual 6- Convenient flight schedule 7- Employees show sincere concern at delays 8- Employees are consistently courteous 9- Clear terminal announcements at QAIA 10- Efficient security procedures 11- Good transit facilities 12- Friendly response to reservation calls 13- Airport facilities are very clean 14- Flexibility in changing reservation 15- Signs at QAIA are clearly written 16- Have a good reputation among passengers 17- Offering many non-stop flights 18- Dependable when having service problems 19- Have a safe journey while travelling
F2: Cabin-Staff Services	<ul style="list-style-type: none"> - Cabin Services (7-items) 	<ul style="list-style-type: none"> 1- Provide prompt service to passengers 2- Cabin crew are always willing to help 3- Courteous cabin crew 4- Giving passengers individual attention 5- Awareness of different cultures 6- Cabin crew can speak foreign languages 7- Cabin-crew have a smart appearance
F3: Tangibles	<ul style="list-style-type: none"> - Food (3-items) - Others (4-items) - Image (2-items) - Cabin Services (3-items) - Price (2-items) 	<ul style="list-style-type: none"> 1- Provide good quality meals 2- Provide a sufficient quantity of food 3- A menu selection is available 4- comfortable plane seats 5- Modern looking planes 6- The aircraft interior is very clean 7- Providing appropriate services for children 8- Interested in-flight entertainment 9- Offering competitive ticket prices 10- Cabin announcements are clear 11- Offering different flight classes 12- Offering discount prices for children 13- Following an appropriate complaint system 14- Following acceptable smoking regulations

6-2-3 The Nine-Factors Solution (Latent root criterion)

This solution was obtained after using the criterion of eigen values greater than one (Latent root criterion) as an extraction method (section 5-7). Oblique rotation (OBLIMIN) produced nine factors explaining 59.6 % of the total variance. The resulting nine factors are shown in Table (6-7).

Table (6-7)
PAF Oblique Rotation Pattern Matrix
Nine-Factor Solution

Item	F1	F2	F3	F4	F5	F6	F7	F8	F9	Commun- ality
PORT7	.71	-.03	-.04	-.08	-.001	.05	.09	-.09	.10	.68
PORT8	.63	.02	.06	-.04	.005	.16	.03	-.17	.06	.65
PORT6	.51	.03	.18	-.01	.08	-.12	.16	-.12	-.01	.46
PORT10	.43	-.09	.17	.002	.03	.11	.06	-.22	-.13	.48
CAB3	.04	-.821	.05	-.07	-.01	.13	.001	.09	-.08	.75
CAB4	.08	-.82	.05	-.12	-.05	.03	-.04	.04	-.04	.73
CAB2	-.06	-.80	-.06	-.12	-.02	.08	.11	-.03	-.04	.73
CAB1	.06	-.799	-.01	-.08	-.09	.11	-.0004	.04	-.03	.70
CAB6	-.18	-.71	.009	-.04	.11	.001	.07	-.13	.006	.63
CAB5	.04	-.66	.065	.11	.13	-.07	-.089	-.003	.04	.50
CAB7	.000	-.63	.052	.16	.01	-.04	.07	-.02	.22	.60
IMAGE2	.34	-.36	-.035	.19	.09	-.071	.11	-.13	.06	.49
FOOD2	.15	-.05	.82	.009	.04	.04	.02	.09	-.09	.74
FOOD1	.01	-.01	.82	-.04	-.04	.09	.05	.06	.05	.73
FOOD3	-.09	.04	.69	-.06	-.05	.08	.01	-.10	.14	.59
OTHER5	-.03	-.08	.21	-.64	.21	-.11	.005	-.11	.05	.63
OTHER6	.03	-.24	.12	-.59	.21	.004	.07	-.08	-.006	.68
OTHER4	.29	.03	-.05	-.39	.16	.07	.12	.09	.36	.55
PORT2	.27	-.32	-.03	-.37	-.29	.296	.06	.05	.11	.68
PORT1	.28	.19	-.07	-.37	-.22	.32	.08	-.01	.18	.65
PRICE2	.05	-.07	.01	-.12	.77	.03	.18	.09	-.18	.67
PRICE1	.005	.03	-.03	-.05	.67	.14	-.08	-.05	.18	.54

Followed....

Table (6-7) Continued

Item	F1	F2	F3	F4	F5	F6	F7	F8	F9	Communa lity
RES2	-.009	-.10	.05	.05	.13	.75	.02	-.07	-.03	.68
RES1	.007	-.02	.20	.005	.05	.72	-.02	-.06	-.06	.62
CAB10	.056	-.14	.19	.26	.14	.28	.02	-.09	.07	.35
SCHED3	-.046	-.06	-.04	.01	.24	.28	.03	-.26	.18	.37
PORT4	.005	.0001	-.04	-.05	.047	.04	.82	-.11	-.09	.74
PORT5	.25	.047	.11	.05	.098	-.11	.74	.05	-.01	.70
PORT3	.018	-.11	.047	-.31	-.16	.22	.37	-.23	-.05	.57
CAB8	-.11	-.27	.11	.22	-.11	-.007	.34	-.06	.26	.44
SCHED1	.099	.067	.007	-.02	.02	.10	.002	-.81	-.10	.71
PORT9	.079	.06	-.005	.01	-.10	.03	.05	-.78	.01	.64
SCHED2	.11	-.02	-.23	.04	.11	.16	.15	-.45	.16	.47
CAB9	-.13	-.31	.18	-.097	.11	-.26	.022	-.40	.04	.48
IMAGE1	.12	-.17	.11	-.22	.03	-.04	-.03	-.37	.15	.46
IMAGE3	.24	-.11	.10	-.01.	.005	-.16	-.08	-.16	.59	.61
OTHER3	-.06	.06	.30	.15	.14	.05	-.02	-.09	.55	.61
OTHER2	-.23	.007	.08	-.08	-.006	.09	.43	.056	.51	.58
OTHER1	.25	-.07	.20	.06	-.03	.04	.02	-.04	.45	.51
IMAGE4	.24	.26	.03	.22	.16	.07	.071	.04	.27	.42
Eigen value	12.0	2.5	1.9	1.46	1.42	1.27	1.16	1.08	1.03	
% Variance	30 %	6.3 %	4.7 %	3.6 %	3.5 %	3.2 %	2.9 %	2.7 %	2.6 %	59.6 %

N=500

Factor one included four items describing the following: efficient check-in procedures; quick baggage handling; clean airport facilities and finally efficient security procedures. Therefore, this factor will be named “check-in & baggage handling”. This factor explained 30% of the total variance. This means, it had the highest contribution in explaining the total variance in service quality.

Factor two included eight-items describing several cabin services, so it will be labelled as “cabin-staff services”. Factor three included three items describing food matters, all these three items have loading values > 0.30 . Therefore, this factor will be named “food”.

Factor four included five items. These items were measuring different “after flight” services such as: following appropriate complaint system; dependability when having service problems; good transit facilities; and finally courtesy and helpfulness of employees on the ground. Therefore, this factor will be named “post-flight services”. Factor five included two items describing cost matters (e.g., offering competitive ticket prices and offering discount prices for children). Therefore, this factor will be labelled as “special fares”. Factor six included four items, only two had loadings > 0.30 and measure reservation matters. The other two items are describing smoking regulation and providing none stop flights. These items had loading values less than 0.30, thus they were excluded from the selected items. This factor will be named “reservation”. Factor seven included four items describing the following: clear terminal announcements; clear signs at the QAIA; employee helpfulness and concern when delays and clear cabin announcements. Therefore, this factor will be named “communications”.

Factor eight included five items measuring: reliable (un changing) schedules, punctual flight departures, convenient flight schedule, providing appropriate services for children and finally having good reputation among passengers. The first three factors had the highest loadings, so this factor will be named “scheduling”. Factor nine included four items describing the following: modern looking planes, comfortable plane seats, interested in-flight entertainment and

clean aircraft interior. Therefore, this factor will be named “aircraft characteristics”.

Table (6-8) summarises the main features and gives a meaningful interpretation of each factor.

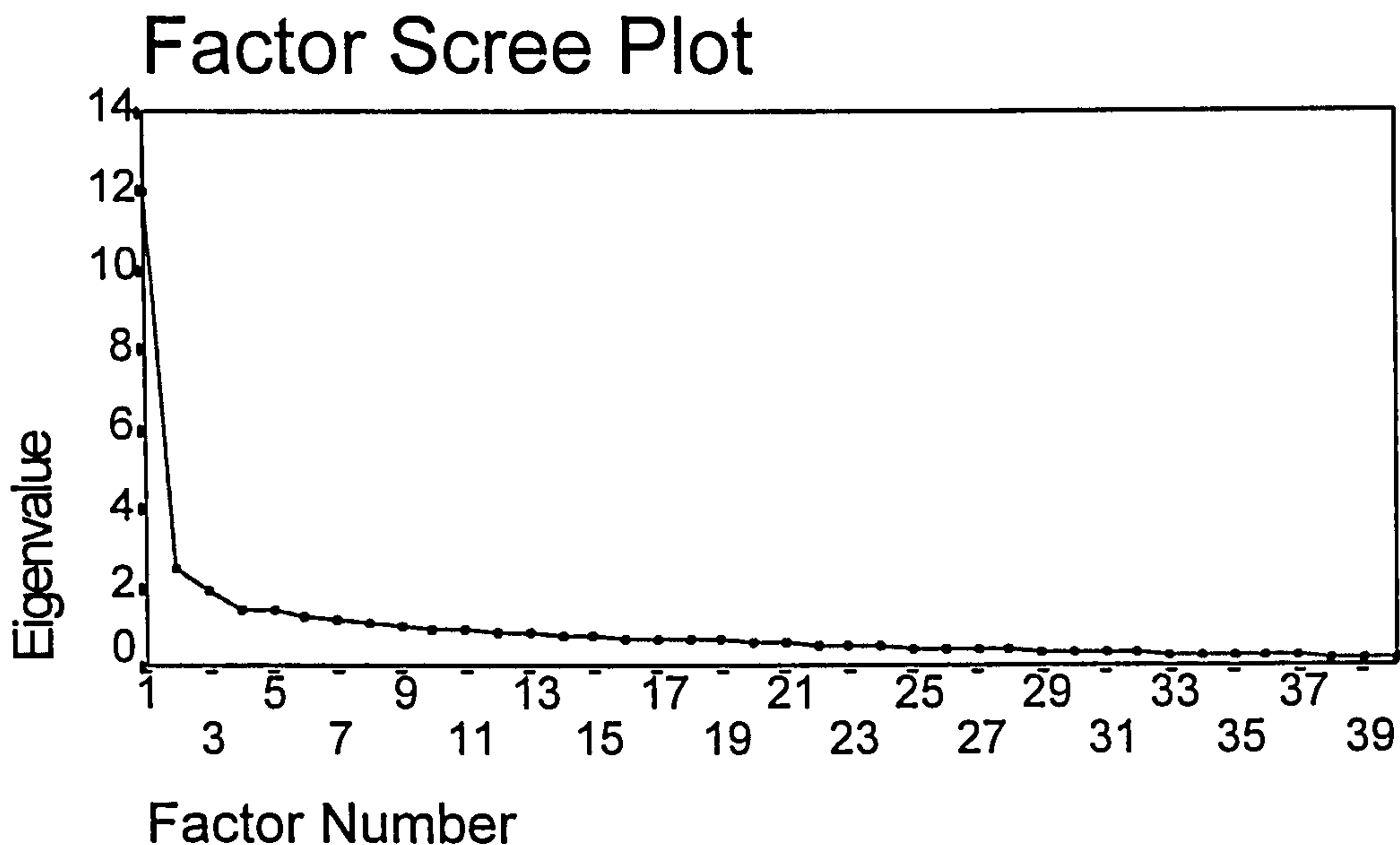
Table (6-8)
Contents of the nine-Factor Solution

Factor	Service Category	Variables (services)
F1: Check-in and baggage handling	-Airport services (4-items)	1- Efficient Check-in procedures 2- Quick baggage handling. 3- Clean airport facilities . 4- Efficient security procedures
F2: Cabin-staff Services	-Cabin services (7-items) -Image (one item)	1- Provide prompt service to passengers 2- Cabin crew are always willing to help 3- Giving passengers individual attention 4- Courteous cabin crew 5- Awareness of different cultures 6- Cabin crew can speak foreign languages 7- Cabin-crew have a smart appearance 8- Have a safe journey while travelling
F3: Food	-Food (3-items)	1- Provide a sufficient quantity of food 2- Provide good quality meals 3- A menu selection is available
F4: Post-flight services	-Others (3-items) -Airport services (2-items)	1- Employees are consistently courteous 2- Ground staff are very helpful 3- Employees show sincere concern at delays 4- Good transit facilities 5- Following an appropriate complaint system
F5: Special fares	-Price (2-items)	1- Offering competitive ticket prices 2- Offers discount prices for children.
F6: Reservation	-Reservation (2- items)	1- Flexibility in changing reservation 2- Friendly response to reservation calls
F7: Communications	-Airport (3-items) -Cabin services (one-item)	1- Clear terminal announcements at QAIA 2- Signs at QAIA are clearly written 3- Sincere delays when delays. 4- Clear cabin announcements.
F8: Scheduling	-Scheduling (2-items) -Airport (1-item) -Cabin services (one-item) -Image (one-item)	1- Reliable (un changing flights) schedule 2- Punctual flight departures 3- Offering many non-stop flights 5- Offering appropriate service for children 6- Good reputation among passengers
F9: Aircraft - characteristics	-Other (3-items) -Image (one-item)	1- Modern looking planes 2- comfortable plane seats 3- Clean aircraft interior 4- Interesting in-flight entertainment 5- Clean aircraft interior

6-2-4 The Five-Factors Solution

This solution was derived using the maximum Likelihood (Norusis 1994) extraction method which indicates that at least 5- common factors are needed to adequately represent the data. In addition the Scree plot indicates that four or five may be an appropriate number of factors (fig.6-2).

Fig. (6-2)



Moreover, it was noted that many previous studies (e.g., Parasuraman et al . 1988; 1991) had prescribed that there are five factors (Dimensions to service quality). Thus, it appears that this is an opportunity to make some comparisons between the 5- factors representing SERVQUAL (Parasuraman et al. 1988; 1991) and the 5- factors resulting from this study. The oblique rotation using a 5- factors selection as extraction method produced five factors explaining 48.2 % of the total variation in service quality. Each of these five factors has an eigen value (after rotation) >1.0 (Table 6-9). As shown in Table (6-9), factor one included 14 items and explained 30 % of the total variance. Twelve items had loading values > 0.30 . The items measure eight aspects of airport service (as shown in Table 6-10); one item measure image and the other measure reservation quality. This factor will be named "airport services".

Table (6-9)
PAF Oblique Rotation Pattern Matrix
Five - Factor Solution

Item	F1	F2	F3	F4	F5	Communality
PORT7	.71	.008	.12	-.10	-.21	.58
PORT8	.70	.02	.14	-.09	-.14	.57
SCHED1	.64	.05	-.11	-.006	.30	.52
PORT9	.64	.05	-.06	.06	.20	.44
SCHED2	.60	-.06	-.15	.043	.23	.44
PORT10	.51	-.10	.12	-.06	-.04	.39
PORT6	.48	.07	.28	.02	-.05	.36
PORT4	.48	-.07	.004	-.11	.11	.34
PORT5	.47	.02	.26	.04	-.008	.36
PORT3	.39	-.17	.02	-.39	-.004	.48
IMAGE2	.38	-.36	.11	.21	-.006	.45
RES2	.34	-.28	-.13	-.20	.14	.36
IMAGE1	.29	-.15	.22	-.14	.16	.39
RES1	.29	-.20	-.01	-.24	.07	.29
CAB3	-.06	-.86	.0003	-.13	-.05	.74
CAB2	-.006	-.84	-.08	-.15	.03	.72
CAB1	.006	-.83	-.04	-.12	-.10	.70
CAB4	-.06	-.83	.04	-.13	-.08	.71
CAB6	-.08	-.74	.006	-.008	.22	.62
CAB7	.04	-.66	.16	.21	.015	.58
CAB5	-.08	-.66	.09	.16	.09	.48
CAB8	.16	-.35	.22	.23	-.03	.33
IMAGE4	.28	-.29	.18	.23	.02	.36
CAB10	.22	-.24	.13	.18	.12	.26
FOOD1	-.10	-.08	.78	-.08	-.02	.62
FOOD2	-.08	-.096	.74	-.03	-.03	.57
FOOD3	-.05	-.016	.69	-.06	.07	.50
OTHER3	.09	.04	.59	-.04	.23	.50
IMAGE3	.29	-.06	.46	.14	.004	.45
OTHER1	.33	-.09	.45	.11	-.078	.46
OTHER2	.12	-.07	.37	-.05	.10	.26
OTHER6	.029	-.20	.23	-.54	.27	.64
OTHER5	-.08	-.005	.36	-.53	.32	.56
PORT2	.32	-.35	.04	-.47	-.31	.67
PORT1	.41	-.23	.04	-.46	-.23	.62
OTHER4	.32	.06	.28	-.35	.06	.42
PRICE2	.02	-.06	.06	-.10	.61	.44
PRICE1	.09	.03	.11	.01	.59	.42
SCHED3	.31	-.13	-.002	-.007	.33	.33
CAB9	.01	-.27	.23	.053	.32	.35
Eigen Value	12.00	2.5	1.89	1.46	1.42	---
Variance Explained	30 %	6.3 %	4.7 %	3.6 %	3.5 %	48.2 %

N = 500

Factor two included 8 items with loadings > 0.30 and described cabin services. This factor will be labelled "cabin-staff services". Factor three included 7 items

with loadings > 0.30. These items describe food matters, plane interior and image. This factor will be called “tangibles”. Factor four included 5 items with loadings >0.30. These items describe different service provided after the flight (3-items), and employee courtesy and helpfulness at the airport. Therefore, this factor will be labelled “post-flight services”. Factor five included 4 items, all of them have loading values > 0.30. These items describe ticket prices and the provision of appropriate services to children. Since prices items had the greatest loading values, this factor will be called “special fares”.

Table (6-10)
Content of the Five-Factor solution

Factors	Service Category	Variables (services)
F1 Airport Services	- Airport services (8-items) - Scheduling (2- items) - Image (1- items) - Reservation (1-item)	1- efficient check-in procedure 2- quick baggage handling 3- clear signs at QAIA 4- punctual flight departure 5- efficient security procedures. 6- sincere concern when delays 7- reliable schedule 8- clear terminal announcement 9- convenient flight schedule 10- clean airport services 11- safe journey 12- good reputation among passengers
F2 Cabin-staff Services	- Cabin-staff services (8-items)	1- giving individual attention 2- prompt services 3- willingness to help 4- courteous cabin crew 5- awareness of different cultures 6- smart appearance 7- clear cabin announcement 8- ability to speak foreign languages
F3 Tangibles	- Food (3- items) - Others (3- items) - Image (1-item)	1- good quality meals 2- sufficient quantity food 3- menu selection 4- comfortable plane seats 5- clean plane interior 6- interested entertainment 7- modern looking planes
F4 Post-flight Services	- Others (3 -items) - Airport services (2-items)	1- appropriate complaint system 2- dependable when having problems 3- courteous employee 4- helpful ground staff 5- good transit facilities
F5 Special Fares	- Prices (2- items) - Scheduling (1 -item) - Cabin-staff (1- item)	1- competitive ticket prices 2- discount tickets for children 3- offering non-stop flights 4- provide services for children

A comparison of the solutions:

Choosing any of these solutions may not be an easy decision, each one has its own advantages. The first one produced eight-factors covering most of the services provided during the flights and contained 38 items of the 40's that measure airline service quality as shown in the study questionnaire (Appendix II). Moreover, it was found that all the resulting eight-factors had (after rotation) an eigenvalue > 1.0 . This satisfies the latent-root criterion.

The second solution comprises three factors and explained 41 % of the total variance. As seen, this solution condensed the seven categories of services used in the questionnaire into three factors which can be easily identified but it explained a low amount of the variance compared with the first solution which had been developed according to the same criteria. In addition the first solution represents the categories of services in clear identifiable factors, which helps the airline to evaluate the quality of its services in a more comprehensive way for all categories of services.

The third solution, includes 9- factors explaining 59.6 % of the variance. The main point supporting this solution is the basis or the criterion used to extract the factors, the latent root criterion (eigen value >1.0). This is the most commonly used technique (Hair et al. 1990) (this is the default solution in the SPSS extraction methods).

The fourth solution, provided 5- factors including 36 of the 40 items included in the questionnaire. It explained 48.2 % of the variance and, most importantly it was determined using the Scree plot and maximum likelihood criteria.

Table (6-11) summarises the characteristics of the four factor solutions.

In this research, the 8 factor solution will be retained for the further analysis. This is because this solution accounts for substantially more of the variance than solutions two and four, and it gives a good representation of the different categories of services provided to passengers (compared with the 9 factor solution). In addition, each of the factors from this solution had an eigen value greater than one (after rotation) satisfying the latent root criterion.

Table (6-11)

Comparisons Between the Content of the Four Factor Solutions of Airline Service Quality

First Solution <i>A Priori Criterion</i>	Second Solution <i>A priori Criterion</i>	Third Solution <i>Latent root Criterion</i>	Fourth Solution <i>Scree-plot Criterion</i>
1- Airport operations 2- Cabin-staff services 3- Tangibles 4- Post-flight services 5- Special fares 6- Reservation 7- Communications 8- Scheduling & Image	1-Pre-flight services 2-Cabin-Staff services 3-Tangibles	1-Check-in & Baggage handling 2-Cabin-staff services 3-Food 4-Post-flight services 5-Special fares 6-Reservation 7-Communications 8-Scheduling 9-Aircraft characteristics	1-Airport services 2-Cabin-staff services 3-Food characteristics 4-Post-flight services 5-Special fares
Explained 57 % of the variance in the data.	Explained 41 % of the variance in the data.	Explained 59.6 % of the variance in the data.	Explained 48.2 % of the variance in the data.

6-2-5 Airline Quality Factors

In the following sections we shall examine the 8-factor solution in more detail, categorising the eight factors according to the three main stages of service provision. These stages are as follows:

6-2-5-1 *Pre-flight Services*

Pre-flight services can include the following:

- (i) **Airport operations:** This factor includes five items measuring cleanliness of airport facilities, efficient check-in procedures, quick baggage handling, efficient security procedures and safety perceptions during the flight. The presence of the last item with the other four airport services can be explained by the fact that assuring safety during the flight depends heavily on efficient security procedures and good maintenance programmes which actually were conducted on the ground (at the airport). This factor was found to explain most of the variance (30%) and contains many important services that were identified in the previous literature. For example baggage handling and check-in procedures are an important aspect of the ground services; they affect punctuality in departure and, therefore, affect passenger satisfaction as will be seen later. This relationship is also supported by the previous literature,

indicating the importance of this service. For example, Tanner (1966) indicates that inadequate levels of baggage handling service can produce sizeable delays for departing aircraft, and Lele and Sheth (1987) noted that punctuality and timely baggage delivery were critical in customer satisfaction.

- (ii) **Special fares:** This factor reflects the ability of the airline to offer competitive ticket prices and the possibility of offering different kinds of discounts. In this study, passengers perceived the cost “ticket price” as one of the quality dimensions of airline services which indeed reflects the importance of having tickets with reasonable prices. Many previous studies fail to identify price to be a factor relating to quality (Parasuraman et al. 1988, Cronin and Taylor 1992). However, other studies recognised that passengers used fares (ticket prices) as the primary factor in their selection of an airline (c.f. Ritchie, Johnston and Jones 1980, Coyle, Bardi and Cavinato 1986, Borenstein and Rose 1990).
- (iii) **Reservation:** This factor includes variables related to the employee helpfulness and flexibility when making a reservation. One of the most controversial aspects of deregulated airline markets has resulted from the growth in importance of computer reservation systems (CRSs) (Kleit 1992). CRSs have automated the travel agency business, making it possible for travel agency customers to receive the latest flight information and conveniently purchase tickets on numerous airlines. Airline travel between two particular cities (countries) is generally provided by several competing airlines. The services offered by each carrier may exhibit price and service characteristics that vary significantly overtime. In order to make an informed purchase decision, a prospective traveller needs access to timely and accurate information concerning the available options. The traveller will also desire the ability to reserve space and / or purchase tickets on his preferred flight. Thus, not only an airline must offer the services that customers desire, but it must also market these services so that customers know that the products are available and they can purchase them conveniently.

(iv) **Scheduling & Image:** This factor is associated with scheduling matters, and with factors necessary to build a good image for an airline. The importance of these factors in airline transportation had been observed in many previous studies. Corporate image is best described as the total impression made on the minds of customers (Dichter 1985), and it is closely tied to the manner in which a service offering is positioned in the minds of market segments (Reilly 1990, Lewis 1981) and to promises of customer satisfaction. Conceptually, image has been described as an overall impression greater than the sum of its parts, be they factual or emotional (Oxen-Feldt 1974). It has also been referred to as a set of attitudes based upon evaluation of characteristics deemed important by customers (James, Durand and Dreves 1976, Zimmer & Golden 1988), and as a global or overall impression (Dichter 1985). This view is also supported by Gronroos (1990) who believes that corporate image/attitudes held about the firm can act as a filter. If a client holds a positive image (attitude) then minor mistakes will be overlooked, and vice versa.

6-2-5-2 *In-flight Services*

In-flight services include the following :

- (i) **Cabin-staff services:** This factor includes services related to the contact personnel during the flight. It consists of the special attention and personal touch given to passengers by personnel. This factor is also linked to variables that describe the knowledge and skills required to achieve effective service delivery, and to the smart appearance of employees. As seen, this factor contains activities representing direct interaction between passengers and airline employees. The nature of such interaction has always been recognised as an important determinant of satisfaction with a service (Czepil et al. 1985).
- (ii) **Tangibles:** this factor is associated with menu selection, food quality and quantity, and includes also plane characteristics. Many researchers have pointed out that flight attendants and meals are quite visible to passengers and would affect overall customer-perceived service quality. In addition, plane

characteristics such as plane size had been recognised as an important quality of service variable (Russon & Hollingshead 1989). The existence of this factor is also supported by Jones and Cooke (1981) who found that there exists evidence that air travellers indeed discriminate among types of aircraft according to a number of flight-specific attributes.

(iii) **Communications:** This factor includes variables such as assistance in case of delays, clear announcements, clear signs at airport, and interesting in-flight entertainments. The “Communications” factor is considered important by the passengers who contributed to this study. A high percentage of them (25.2 %) perceived a problem with the quality of audio-visual materials (one of the communications’ variables), and the majority of complaints concerned with the quality of sound and music in the plane.

6-2-5-3 *Post-flight services*

Post-flight services, consist of variables that describe “after flight” services such as: transit facilities, an appropriate complaints system and the variables related to helpfulness of employees. The importance of these services has been shown in many previous studies that emphasise mainly the crucial role of handling passengers’ complaints. Edvardsson (1992) noted that successful airlines believe that in order to maintain a high level of service, it would seem necessary to develop more customer-oriented complaint management. Interviews with business passengers and the airlines complaint departments indicate that complaints procedures are often felt to be complicated and time-consuming by passengers. It is important here to emphasise that better co-ordinated activities between the airline and the companies providing ground transport is required and the offering or service system should be so designed that the different customer needs are satisfied. The core service is often described in terms of the flight, but a number of support services are required to meet the needs of the customer in connection with the flight. Thus transport to and from the airport is an essential part of the total service package and is often experienced as an integrated part of the core service.

6-2-6 Scale and Factor Reliability

6-2-6-1 Cronbach's Alpha

A final measure of the success of the factor analysis results was the reliability of the factors covered by the analysis (Reliability of measures and approaches to reliability testing have been discussed in section 5-6-2).

The measure customarily applied to such factors is the Cronbach alpha coefficient. Coefficient Alpha can be thought of as a theoretical correlation coefficient measuring the degree of association between the scale (factor) of interest and a theoretical scale comprised of all possible items that could be used to measure a construct. Many researchers e.g. Parasuraman et al. (1988, 1991), Babakus and Boller (1991) provide coefficient alpha as evidence of the internal consistency of both individual factors and the total scale. Churchill (1979) describes Cronbach's Alpha as the recommended measure of the internal consistency of a set of items.

According to Nunnally (1978) and Carmines and Zeller (1979), coefficients of 0.7 or more are acceptable for research purposes. As shown in Table (6-12) the results document good internal consistency among items for each of the dimensions, and a high alpha coefficient for scale items.

Table (6-12)

Reliability Analysis for the 38- item scale- (8-factor solution)

Dimension (Factor)	Items	Mean	Range	Standard Deviation	Alpha
F1	5- items	5.23	.92	.37	.80
F2	7-items	5.838	.311	.105	.93
F3	6-items	5.266	.786	.27	.82
F4	5-items	4.923	.625	.243	.87
F5	2-items	4.906	.087	.062	.74
F6	2-items	5.500	.120	.085	.83
F7	5-items	4.769	.822	.365	.76
F8	6-items	4.666	1.241	.489	.82

Alpha Coefficient for all items of the scale = 0.98

6-2-7 The Influence of (flight class and purpose of flights) on passenger evaluation of service quality.

The purpose of this section is to investigate whether passengers travelling in different classes and for different purposes had different perceptions of the quality of services provided by the airline. This will allow the airline to examine the reasons for these differences (if any), and will also help to clarify the effect of each quality factor on passenger satisfaction across passenger segments.

Hypotheses:

H2: There is no significant relationship between passengers flight class and the perception of airline service quality.

H3: There is no significant relationship between the purposes of flights and the perception of airline service quality.

The ANOVA model was applied to test the differences in population means for the variables used to measure airline service quality, across levels of the variables flight class and purposes of flights. One way ANOVA was performed to account for the unbalanced data (e.g. N = 55 first class; N = 91 Business class; N = 354 Economy class). If the solution indicates that the null hypothesis should be rejected, then the alternative hypothesis is accepted indicating that the factor level means are not all the same; therefore the group (category) with a higher mean value will mean the greater the level of rating or evaluation (on the seven-point scale) is placed on the service dimension. In this case, subsequent tests (e.g., Duncan, Scheffe,) were performed to reveal which factor levels (if any) were significantly different from the others. Table (6-13) summarises the results of the ANOVA test for hypotheses 2, 3, as follows:

**Table (6-13)
Results of ANOVA Test For Hypotheses (2,3)**

Hypotheses	Test	P-value
H-2	Class vs. Overall service quality	.1226
H-3	Purpose vs. Overall service quality	.0036

- The results give a non significant P-value for Hypothesis 2 (P = .1226, which is greater than 0.05). Thus we can not reject the null hypothesis, that

hypothesis, that passengers in the three different flight classes have no significant differences in their perception of the overall quality of services provided by the RJ airline. When the same test (ANOVA) was applied between flight class and each dimension of airline service quality, the results showed that passengers travelling in different classes had different perceptions of the quality on the “airport operations” factor (P= 0.0079). These differences existed mainly between passengers in the first class and those in business and economy class. Passengers in the economy class had given this factor (airport operations) the highest rating or evaluation (they had the highest mean score); while those in the first class gave it the lowest rating (mean values in the first, business, and economy classes were 4.78, 5.20, 5.33 respectively). This indicates that passengers in first class were less happy with the quality of all services related to “airport operations” factor such as: clean airport facilities; efficient security procedures and safety measures than those in other classes. No significant relationships were detected between flight class and the other factors of airline service quality. This implies that passengers in the three classes gave equal evaluation to these factors (Table 6-14).

Table (6-14)

Relation ship between flight class and dimensions of airline service quality

Hypothesis	Test *	P-value	Duncan test with significant level 0.05 (differences among flight classes)
H2-1	Class vs F1	0.0079	2,3 & 1
	Class vs F2	0.0716	No two groups are significantly different at the .05 level
	Class vs F3	0.7890	No two groups are significantly different at the .05 level
	Class vs F4	0.1295	No two groups are significantly different at the .05 level
	Class vs F5	0.7934	No two groups are significantly different at the .05 level
	Class vs F6	0.2324	No two groups are significantly different at the .05 level
	Class vs F7	0.6524	No two groups are significantly different at the .05 level
	Class vs F8	0.1672	No two groups are significantly different at the .05 level

* The interpretation of factors (1-8) is as shown in Table (6-3).

- Hypothesis Three examined whether passengers travelling for different purposes had different perceptions of the quality of services provided by an airline. The ANOVA analysis was performed here to test the relationship between each of the eight quality factors and the purpose of the flight. The idea behind this analysis was to see how passengers travelling for different reasons evaluate the quality of provided services. The higher the mean score for each purpose category the higher the evaluation or rating given by passengers to that quality factor. The results (Table 6-15) reveal significant ($P < 0.05$) differences between different groups of passengers travelling for different purposes in their perception on the quality of all service factors. Duncan and Scheffe tests (Table 6-15) were performed to determine where these differences existed. Results indicate the following:
 - (i) The relationship between purpose of the flight and each factor of airline service quality (column two).
 - (ii) The mean values for each group of passengers according to their flight purposes (column three). The higher the mean, the greater the level of evaluation placed on the service dimension).
 - (iii) P- values (column four) which helped to identify the significant relationships (i.e. $P < 0.05$ means significant relationship). This means, wherever P-value is less than 0.05, there exists significant differences between passengers travelling for different reasons in their perception of the quality of services provided by an airline.
 - (iv) Where the differences between the groups occurred. Duncan and Scheffe tests were used (column five).

Table (6-15)

Relationships Between purpose of the Flight & Service Quality Dimensions

Hypothesis	Test	Mean	P-value	Group Differences	
				Duncan	Scheffe
H-3	Purpose vs "Airport operations"	5.03	.0003	---	---
	-Company business (1)	5.28		---	---
	-Government work (2)	4.86		---	---
	-Studying (3)	5.43		4 & 1,3	---
	-Visit family & friends (4)	5.33		5 & 3	---
	-Tourism (5)	6.50		6 & 1,2,3,4,5	6 & 3,1
	-Medical reasons (6)				
	Purpose vs "Cabin-staff"	5.64	.0088	---	---
	-Company business	5.89		---	---
	-Government work	5.70		---	---
	-Studying	6.10		4 & 1	---
	-Visit family & friends	5.92		---	---
	-Tourism	6.50		6 & 1,3	---
	-Medical reasons				
	Purpose vs "Tangibles"	5.05	.0011	---	---
	-Company business	5.30		---	---
	-Government work	4.93		---	---
	-Studying	5.38		4 & 1	---
	-Visit family & friends	5.43		5 & 1,3	---
	-Tourism	6.28		6 & 1,2,3,4,5	6 & 3,1
-Medical reasons					
Purpose vs "Post-flight services"	4.93	.0078	1 & 2	---	
-Company business	5.49		---	---	
-Government work	4.97		---	---	
-Studying	5.22		---	---	
-Visit family & friends	4.08		---	---	
-Tourism	6.25		6 & 1,3,4,5	---	
-Medical reasons					
Purpose vs "Special fares"	4.47	.0017	---	---	
-Company business	4.98		---	---	
-Government work	4.82		---	---	
-Studying	5.18		4 & 1	---	
-Visit family & friends	5.37		5 & 1	5 & 1	
-Tourism	4.50		---	---	
-Medical reasons					

Continued.....

Table (6-15) Continued

Hypothesis	Test	Mean	P-value	Group Differences	
				Duncan	Scheffe
	Purpose vs "Reservation"		.0247		
	-Company business	4.98		---	---
	-Government work	5.58		2 & 1	---
	-Studying	5.22		---	---
	-Visit family & friends	5.53		4 & 1	---
	-Tourism	5.21		---	---
	-Medical reasons	5.96		---	---
	Purpose vs "Communications"		.0633		
	-Company business	4.75		---	---
	-Government work	5.05		---	---
	-Studying	4.97		---	---
	-Visit family & friends	5.18		4 & 1,5	---
	-Tourism	4.79		---	---
	-Medical reasons	5.41		---	---
	Purpose vs "Scheduling & Image"		.0404		
	-Company business	4.64		---	---
	-Government work	4.91		---	---
	-Studying	4.70		---	---
	-Visit family & friends	4.90		---	---
	-Tourism	5.08		5 & 1	---
	-Medical reasons	5.49		---	---

* Differences between the groups were obtained according to Duncan and Scheffe tests with significant level 0.05.

According to the results presented in Table (6-15) , the following was noted:

- There were significant relationships between purpose of the flight and all the factors of airline service quality except for the "communications" factor where a weak relationship exists (P-value = 0.0633; significant at 10% level). This means that passengers travelling for different purposes had different evaluations of quality on each factor of the services provided by an airline.
- Passengers who travelled for medical reasons gave all the dimensions (factors) of service quality (except the "special fares" factor) a higher evaluation (e.g., the highest mean score on the seven-point scale) than passengers who travelled for other reasons. This means that this group of passengers perceive high quality levels of the services provided, but do not believe that RJ give competitive ticket prices.

- Passengers who travelled for study purposes gave the lowest evaluation to both “airport operations” and “tangibles” factors, while those travelled for company business gave the lowest evaluation to: “cabin-staff services”, and “scheduling & image”, and passengers travelling for tourism gave the “post flight services” the lowest evaluation.

These results enable the airline to identify which services gained low evaluations from passengers according to their reasons for travel. For example as seen from the results, passengers travelled for studying gave “airport operations” and “tangibles” factors the lowest evaluation, i.e., their perception of the quality of these factors was not as high as that of passengers who were travelling for other reasons. This will help an airline to examine why students gave such low evaluation to these factors, and what are the main attributes that affect student evaluations of services. Also the same questions arose: why passengers travelling for tourism purposes gave “post-flight services” low evaluation. Is that related to inconsistency of the level of services provided by RJ employees, or to the special needs for those groups of passengers that had not been taken into consideration by an airline.

knowledge of problem areas concerning weak evaluations of the quality of services as perceived by different categories of passengers will enable the airline to target problem areas and possibly to provide certain kinds of services that are not covered before. This will affect passengers satisfaction and their willingness to fly with an airline in the future.

- The fifth column of Table (6-15) shows the main differences (in perception of airline service quality factors) between groups of passengers according to their purpose of flights. These differences are obtained by Duncan and Scheffe tests. To show how to interpret the results in this column, one Duncan test result and one Scheffe test result will be discussed for the first factor (dimension) “airport operations” as an example. Thus, results of Duncan test, show that there were significant relationship between different groups of passengers who travelled for different reasons and “airport

operations” factor. This means that passengers’ groups differ in the levels of their evaluation of this factor. These differences existed between passengers who travelled for medical reasons and other groups of passengers who travelled for other reasons. Also significant differences were shown between passengers travelled for tourism purposes with those who were travelling for studying, and finally significant differences were identified between passengers who travelled to visit family and friends and those who travelled for company business and for studying. Scheffe test results showed that significant differences occurred only between passengers who travelled for medical reasons and those who travelled for both company business and for studying.

6-3 Passenger Satisfaction

The process of measuring passenger satisfaction was discussed in section (5-5-2). In this research, passenger satisfaction was measured at two levels:

- (i) ***Service encounter satisfaction***: This as Bitner (1990), Bitner et al. (1990) explained, reflects the consumer’s feelings about a discrete interaction with a firm, and will result from the evaluation of the events and behaviours that occur during a definable period of time. Therefore, satisfaction with the specific travel encounter was measured using three items measured on a 7-point scale with “strongly agree / strongly disagree” end points similar to these suggested by Oliver 1980 (as shown in Table 6-16).
- (ii) ***Overall satisfaction***: This reflects overall passenger dis/satisfaction with the airline based on all encounters and experiences with that airline. Therefore, overall satisfaction with an airline was measured using five “very dis/satisfied” (7-points) scale. These items were listed in Table (6-16).

Table (6-16)
Questions to measure Encounter & Overall Satisfaction

<p><u>Questions to measure encounter satisfaction</u></p> <p>1- My decision to fly with RJ was a wise one. 2- If I had to fly again, I would fly with RJ. 3- In general, I am satisfied with RJ services.</p> <p><u>Notes</u> <i>Questions are anchored at end points with: Strongly agree "7"/ Strongly disagree "1"</i></p>
<p><u>Questions to measure overall satisfaction</u></p> <p>1- Based on all of your own experience, how satisfied overall are you with RJ's services? 2- Based on all of your own experience, how satisfied overall are you with airport services? 3- Based on all of your own experience, how satisfied overall are you with on-board services? 4- Compared to other, similar airlines that you have flown with before, how would you rate your satisfaction with RJ. 5- Based on all of my experience with RJ airline, I am</p> <p><u>Notes</u> <i>* Questions (1-5): Fully anchored; endpoints: Very satisfied "7"/Very dissatisfied "1"</i></p>

6-3-1 Passengers' satisfaction Ratings

It can be noticed that passengers had high levels of satisfaction with respect to the 8-items as shown in Table (6-17).

Overall, the majority of mean scores suggest that passengers were more than satisfied (have mean score values greater than 4 on a 7-point scale) across the items under investigation. The highest levels of satisfaction were recorded for "on-board services", while "airport services had the lowest mean scores. Table (6-17) indicates also that few passengers expressed any dissatisfaction with the airline. When considering that the answers numbered (1,2,3) on the 7-point satisfaction scale represent dissatisfaction, 4 represents neutral, and (5,6,7) represent satisfaction, we can see that 21% (i.e 104 passengers) of the passengers were dissatisfied with airport services, while 22% (i.e. 109 passengers) chose neutral (4); which may mean that they are neither satisfied nor dissatisfied (they can not decide whether they are satisfied or dissatisfied). This means that passengers perceive low levels of satisfaction compared with "on-board" services, on which passengers show high levels of satisfaction (75% i.e 377 passengers). Comparing these results with those in Appendix VI shows that passengers faced problems with the following services (punctuality of departures, terminal

announcements, sincere concern when delays, airport facilities e.g.; cafeteria, toilets,..., and check-in procedures). Passengers' perceptions of these services tended to be low, punctuality of departure (33.2 % of the respondents believed that RJ was not punctual on its flight departure) which represents a real problem for the airline.

**Table (6-17)
Ratings of Passenger Satisfaction**

	No. of Respondents	Mean	% A	% B	% C
SAT1 fly with an airline next time	494	5.07	9.4	31	58.4
SAT2 wise decision to fly with an airline	498	5.26	9.8	24.2	65.4
SAT3 in general , I am satisfied with an airline	495	5.27	11.2	21.6	67.0
SAT4 satisfaction with airport services	496	4.74	20.8	21.8	56.4
SAT5 satisfaction with on-board services	497	5.35	8.2	15.6	75.4
SAT6 rate your satisfaction with this airline compared with other airlines	490	4.98	14.6	19.6	63.8
SAT7 satisfaction based on your experience with this airline	473	5.15	10.4	20.8	62.2
SAT8 your feeling after flying with an airline	486	5.14		65.8	2.8
SATAVG Average satisfaction	500	5.15			

A = Respondents (1,2,3) answers on the 7-points satisfaction scale

B = Respondents (5,6,7) answers on the 7-points satisfaction scale

C = Respondents Neutral (4) answer on the 7-points satisfaction scale

6-3-2 Satisfaction Measures and Importance of Quality Dimensions

It may will be the case that the different dimensions of service quality will vary in importance to respondents for each satisfaction measure. The word **importance** here represents the number of times each quality factor appears in the stepwise regression between satisfaction items and quality factors. Therefore, the most important quality factor in explaining passenger satisfaction is the one of more appearance in all regression models as shown in (Table 6-18).

Multiple regression analysis was used to investigate this possibility in analysing the quality of airline services. Each satisfaction item was treated as a separate dependent variable and each of the eight dimensions of airline service quality was used as independent variables in a stepwise multiple regression analysis. Table (6-18) reflects the relationships found and order of entry for each dimension.

The results showed that satisfaction items can be explained by different quality dimensions. Significant relationships were found for all satisfaction items and of particular managerial interest are the dimensions found to be statistically significant among the satisfaction measures. It was noticed that “tangibles” such as food, and “post-flight services” appeared in all the regression models indicating that these two factors were more influential in determining passenger satisfaction. Also, it was found that “scheduling & image” appeared in seven models, “airport operations” appeared in six models, “cabin-staff services” appeared in five models, “reservation” in three models, and finally “special fares” and “communications” appeared in only one model; which indicated that these two factors had the lowest influence (importance) in determining passenger satisfaction.

These results show a significant relationship between perceived service quality and passenger satisfaction, and that the dimensions of service quality vary in their influence on passenger satisfaction.

Table (6-18)
Multiple Regression Analysis of Satisfaction measures with Underlying Dimensions of Service Quality

Item	Dimension	B	SE B	Beta	t-value	F-value	R ²
SAT1 fly certainly with RJ next time	F1	.62	.05	.49	11.7	136.97	.24 (0.00)
	F4	.33	.05	.30	6.20		
	F6	.18	.04	.18	4.07		
	F3	.20	.06	.15	3.19		
	F8	.14	.06	.11	2.17		
SAT2 wise decision to fly with RJ	F4	.63	.04	.57	14.5	211.27	.32 (0.00)
	F8	.35	.05	.29	6.64		
	F3	.25	.06	.19	4.39		
	F1	.18	.06	.14	2.87		
	F5	.09	.036	.10	2.54		
	F6	.08	.04	.08	2.07		
SAT3 satisfied with RJ (in general)	F8	.66	.05	.55	13.64	185.92	.30 (0.00)
	F4	.38	.05	.35	8.10		
	F3	.33	.06	.26	5.96		
	F1	.20	.06	.16	3.20		
	F6	.11	.04	.11	2.67		
	F2	.14	.06	.10	2.28		
	F7	-.13	.06	-.11	-2.30		
SAT4 satisfaction with airport services	F1	.74	.05	.58	14.87	221.02	.33 (0.00)
	F4	.37	.05	.33	7.42		
	F3	.23	.06	.18	4.01		
	F8	.18	.06	.15	3.14		
	F2	-.12	.06	-.09	-2.06		
SAT5 satisfaction with on-board services	F3	.53	.045	.49	11.77	138.62	.24 (0.00)
	F2	.34	.05	.29	6.42		
	F1	.24	.05	.23	4.77		
	F4	.10	.047	.11	2.16		
SAT6 satisfaction with RJ compared to other airlines you have flown with	F3	.66	.051	.53	13.07	170.74	.28 (0.00)
	F4	.31	.046	.40	9.12		
	F8	.23	.055	.20	4.24		
	F2	.22	.06	.16	3.48		
SAT7 satisfaction based on your experience with RJ	F4	.56	.045	.52	12.41	153.92	.27 (0.00)
	F3	.43	.054	.35	7.93		
	F8	.24	.056	.20	4.3		
	F1	.13	.064	.11	2.03		
SAT8 feeling about service experience after flying with RJ	F3	.63	.048	.54	13.2	174.40	.29 (0.00)
	F4	.36	.042	.35	8.32		
	F8	.23	.051	.21	4.56		
	F2	.16	.057	.13	2.78		

F1= "airport operations"; F2= "cabin-staff services"; F3= "tangibles";
F4= "post-flight services"; F5= "special fares"; F6= "reservation";
F7= "communications"; F8= "scheduling & image"

6-3-3 The Influence of flight class and purpose of flight on Passenger Satisfaction

The purpose of this section is to examine and test whether passengers travelling in different classes and for different purposes will have different levels of satisfaction with the services provided by an airline.

Hypotheses:

H4: There is no significant relationship between the flight class and passenger satisfaction.

H5: There is no significant relationship between the purpose of the flight and passenger satisfaction.

Table (6-19) summarises the results of the ANOVA test for Hypotheses 4 and 5 as follows:

**Table (6-19)
Results of ANOVA Test For Hypotheses (4 and 5)**

Hypothesis	Test	Mean	P-value	Duncan test with significant level 0.05 (differences among flight classes)
H-4	Class VS Satisfaction		0.038	2-3
	1- First Class	5.02		
	2- Business Class	4.87		
	3- Economy Class	5.24		
H-5	Purpose VS Satisfaction		0.011	1-4 3-4
	1- Company business	4.90		
	2- Government work	5.21		
	3- Studying	4.80		
	4- Visit family & friends	5.43		
	5- Tourism	5.17		

- The results show that P-values for Hypotheses Four and Five were significant (less than 0.05), which means that passengers travelled in different flight classes, and for different purposes had different levels of satisfaction with the services provided to them by the airline (H-4, H-5). For Hypothesis Four, it was seen that passengers in the economy class were more satisfied with the services than passengers in the first class, while those in the business class had the lowest satisfaction level. Duncan's test with significance level .05

showed that there were significant differences between the means of group three (Economy class) and group two (Business class) in passenger satisfaction with the services provided, with business class having the lower satisfaction levels.

The reason why passengers in first and business classes were less satisfied with the services may be due to that they had paid more money than passengers in economy class without perceiving the high level of services which they expected i.e., price paid would raise their expectations. This result is consistent with that in Hypothesis two as shown in section (6-2-7).

It can be seen (Table 6-19) that passengers travelling to “visit family & friends” were more satisfied with the overall services, followed by those who travelled for governmental work, tourism, company business, and finally those who travelled for studying. This result may look contradictory with the results of Hypothesis Four, which showed that passengers in economy class were more satisfied than those in other classes. The contradiction derives from the fact that students were more likely to fly in economy class; therefore they should be more satisfied as the results of Hypothesis Four showed. The explanation of this result may be as follows:

As seen in Hypothesis Four the comparison was between passengers who travelled in different classes. Therefore those who flew economy class may include students and other categories of passengers according to their purposes of flights. Thus, it is important for an airline to examine why passengers in economy class were more satisfied than those in other classes (this is not covered in this study). Students may be influenced by a single factor like price and build their satisfaction on it. Results showed that the significant differences which existed (according to Duncan test results) were between those who travelled for company business or studying and those who travelled to “visit family & friends”.

6-4 Passenger Loyalty

This section aims to discuss different issues related to passenger loyalty. These issues include the following: identifying the main dimensions of passenger loyalty using both attitudinal and behavioural aspects of loyalty, the appropriateness of loyalty as a basis for market segmentation using cluster analysis, the socio-demographic characteristics of the loyalty clusters and finally the relationship between loyalty measures and perceived service quality.

6-4-1 Identifying the Major Dimensions of Passenger Loyalty

To identify the major dimensions of passenger loyalty, the same procedures used in section (6-2) i.e a factor analysis to identify the dimensions of service quality will be followed.

In this study, passenger loyalty was measured using 13-items representing attitudinal and behavioural aspects of loyalty. These 13-items may be summarised into two groups comprising four and three categories respectively:

- (i) Behavioural measures of loyalty. This include four categories: purchase intentions, word-of-mouth communication, price sensitivity, and complaint behaviour.
- (ii) Attitudinal measures of loyalty. This include three categories: volition, resistance, and complexity.

Four different solutions were suggested to determine the number of factors (dimensions) of passenger loyalty. These solutions are:

6-4-1-1 The Seven-factors solution (A priori Criterion)

The 13-items used to measure passenger loyalty were subjected to iterative scale purification procedures for the total sample of 500 passengers. Principal axis factoring with an oblique rotation was used to analyse the scale items. The 13-items were entered into principal axis factoring procedure, and the analysis was constrained a priori to seven factors (exactly the same number as the

seven categories of behavioural and attitudinal measures of loyalty). The seven factors were subjected to oblique rotation (using OBLIMIN procedure) in SPSS-X to allow for intercorrelations among the dimensions and to facilitate easy interpretation. After rotation the resulting seven factors explained 78% of the total variance, and as shown in Table (6-20) there are four factors containing only one item. Only the first four factors had an eigen values greater than one, while the others had eigen values less than one.

Table (6-20)
Seven-Factor Solution for Loyalty Factors (A Priori Criterion)

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Communality
LOY3	.87	-.001	-.005	-.18	.16	.14	-.02	.74
LOY1	.85	.07	-.002	.05	.14	-.009	.11	.69
LOY10	.66	-.10	.19	.05	-.20	-.08	-.09	.80
LOY13	.60	-.08	.14	-.03	.36	-.17	-.20	.93
LOY5	.54	.17	-.03	.36	-.14	-.09	.28	.69
LOY7	.03	.93	.10	-.11	.05	.09	.03	.89
LOY8	-.09	.52	-.10	.14	-.12	-.23	-.41	.74
LOY11	-.11	.02	.92	.03	.11	-.03	.10	.87
LOY9	.13	.06	.79	-.01	-.09	.05	-.09	.65
LOY2	-.07	-.08	.03	.95	.10	.07	-.085	.82
LOY4	.10	.02	.05	.09	.90	-.15	-.15	.87
LOY12	-.03	-.04	-.009	-.07	.13	-.99	.04	.69
LOY6	.003	.04	-.04	.07	.14	.04	-.87	.75
Eigen-value	3.36	1.93	1.21	1.06	.94	.87	.75	
% of variance	25.9%	14.9%	9.3%	8.2%	7.3%	6.7%	5.8%	78.1%

6-4-1-2 The Two Factor Solution (A Priori-Criterion)

The 13-items were entered into principal axis factoring procedure. In this solution the analysis was constrained a priori to two factors to represent exactly the two behavioural and attitudinal aspects of loyalty. These items were subjected to oblique rotation (using OBLIMIN).

The resulting two factors explained 40.8 % of the total variance, and as shown in Table (6-21), the first factor explained 25.9 % of the total variance and contained seven-items measuring the degree of loyalty to an airline; therefore this factor will be named "preference and first choice". The second factor explained 14.9 %

of the variance, and included 6-items measuring propensity to change and complaint behaviour; Therefore it will be named “propensity to change”. As shown from Table (6-21, 6-22) the attitudinal and behavioural variables were mixed together in each factor.

**Table (6-21)
Two Factor Solution (Loyalty)**

Item	Factor 1	Factor 2	Communality
LOY10	.78	-.02	.61
LOY1	.78	.02	.61
LOY13	.72	.04	.53
LOY3	.72	-.13	.53
LOY9	.64	-.005	.41
LOY5	.63	.08	.41
LOY11	.47	-.02	.23
LOY8	-.06	.72	.52
LOY6	-.16	.67	.47
LOY4	-.09	.53	.30
LOY12	.06	.50	.26
LOY2	.02	.49	.24
LOY7	.16	.40	.19
Eigen Value	3.37	1.93	---
Variance Explained	25.9 %	14.9 %	40.8 %

**Table (6-22)
The Content of the Two Factor Solution**

Factor	Variable
F1: Preference and first choice	1- Preference will not change 2- RJ will be the first choice 3- Preference will not change even a close friend recommended so 4- Will recommend RJ to any one seeks my advice 5- My preference to RJ is own decision, freely chosen from several alternatives. 6- Will continue to fly with RJ even its prices increases 7- Fully responsible for the decision to fly with RJ
F2: Propensity to change and complaint behaviour	1- Will complain to external agencies when facing problems. 2- Will switch to another airline when facing a problem with RJ. 3- Will buy a ticket from any airline offers attractive prices. 4- Don't really know that much about RJ. 5- Will feel differently about flying with RJ in the future 6- Will complain to RJ employees when facing problems

6-4-1-3 The Four Factor Solution (latent -Root Criterion)

This solution was conducted after using the criterion of eigen values greater than one (Latent root criterion) as an extraction method. Oblique rotation (OBLIMIN) produce four factors each with an eigen value > 1.00 and explains 58.3 % of the total variance. The resultant four factors are shown in Table (6-23).

Table (6-23)
Four- Factor Solution For Loyalty Factors (Latent-root Criterion)

Items	Factor 1	Factor 2	Factor 3	Factor 4	Communality
LOY1	.78	.03	.08	-.03	.64
LOY10	.76	.06	.11	.06	.64
LOY13	.76	.07	.02	-.02	.76
LOY5	.72	.10	-.10	-.03	.45
LOY3	.68	-.16	.12	-.03	.58
LOY12	.14	.67	-.07	.02	.44
LOY2	.08	.66	-.04	.04	.55
LOY4	-.24	.53	.33	-.14	.47
LOY11	.04	.04	.86	.09	.51
LOY9	.30	-.06	.70	-.05	.48
LOY7	.08	-.33	.11	-.85	.75
LOY8	.05	.23	-.19	-.70	.64
LOY6	-.13	.37	-.01	-.50	.68
Eigen Value	3.37	1.93	1.21	1.06	---
% of variance	25.9 %	14.9 %	9.3 %	8.2 %	58.3 %

6-4-1-4 The Three Factor Solution (Scree Plot Criterion)

As seen in fig (6-3) , the Scree plot criterion showed that a three factor solution may be the most appropriate solution. Therefore, factor analysis was applied using three- factors as an extraction method. The resulting three factors are shown in Table (6-24) and explained 50.1 % of the total variance of loyalty.

Fig. (6-3)

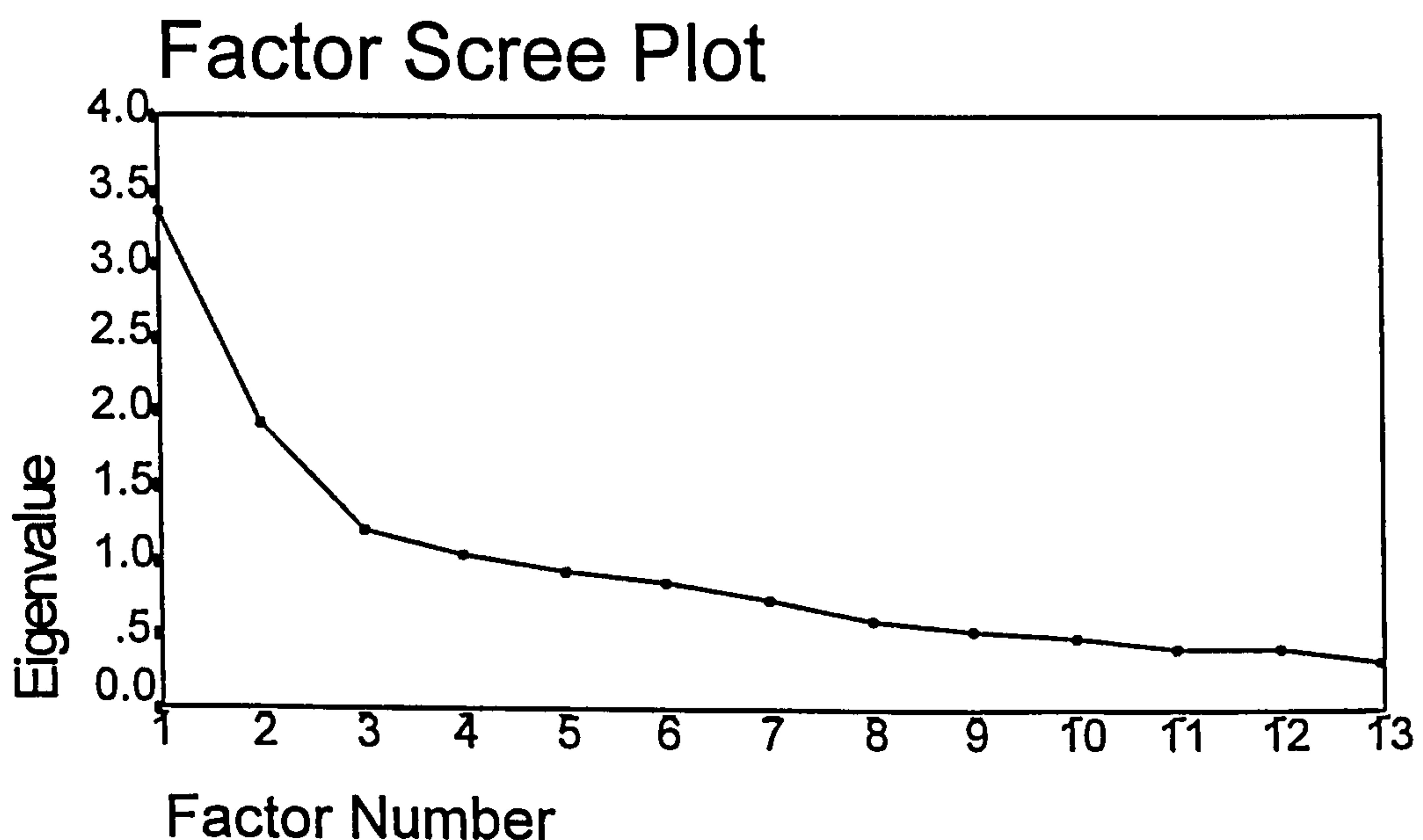


Table (6-24)

The Three- Factor Solution for Loyalty Factors (Scree-Plot Criterion)

Items	Factor 1	Factor 2	Factor 3	Communality
LOY10	.79	-.03	.06	.63
LOY1	.78	.004	.08	.64
LOY13	.75	.04	.02	.53
LOY5	.70	.09	-.09	.38
LOY3	.66	-.15	.17	.57
LOY8	-.04	.72	.11	.34
LOY6	-.15	.67	-.12	.53
LOY12	.21	.53	-.25	.32
LOY4	-.12	.52	.19	.49
LOY2	.16	.52	-.23	.48
LOY11	.22	-.09	.66	.46
LOY9	.41	-.08	.63	.52
LOY7	-.04	.36	.60	.63
Eigen Value	3.37	1.93	1.21	-
% of variance	25.9 %	40.8 %	%	50.1 %

When comparing the four solutions, the following observations can be made:

- Although the first solution (7- factor solution) explained most of the variance in overall loyalty, there were four factors which included only one variable or item. This makes it difficult to explain these factors in any meaningful way.
- The second solution which produces only two factors, had mixed attitudinal and behavioural measures of loyalty in such a way that makes it difficult to distinguish between the two factors. Also this solution explained only 40.8% of the total variance of overall loyalty.
- The other two solutions were similar to a great extent; they had the same variables, but with a different number of factors. In the fourth solution, two factors were mixed together, and one of the items shifted to factor three.

The four-factors solution explained more of the variance than the two and three factors' solutions, and allowed a clearer interpretation of the resulting factors than the seven factor solution. Therefore, this solution (4-factors solution) was chosen as the most appropriate one in identifying the factors of passenger loyalty. Thus the following discussion will concentrate on this solution.

6-4-1.5 *Loyalty Factors*

The general patterns of loadings suggested that the four factors solution (Latent root criterion) produced an unambiguous factor pattern as shown in Table (6-25). This consistent pattern suggested a reconfiguration of the 13- items into four dimensions: intention and preference to buy, propensity to change, volition and complaint behaviour. The reconfiguration of the loyalty battery that shows the main variables of each factor was shown in Table (6-25).

Factor one, “preference and intention to buy” includes five items, and has a very good internal consistency, which is evidenced by an alpha value of 0.83. Factor two “propensity to change” is a three-items scale, with 0.40 alpha coefficient. While factor three “volition” is a two-item scale with alpha coefficient of 0.70; and finally factor four “complaint behaviour” is a three items scale and had an alpha coefficient of 0.54.

In general, the alpha score for loyalty to an airline is high (0.83), while the scores for other factors (factor 2, 3) are ranging from “adequate” to “weak”, indicating the need to add more items to the scale, in further or future research.

Although the factor structure of the loyalty items battery differs from the a priori specification, the loadings support the dichotomy in attitudinal and behavioural aspects of loyalty of favourable and unfavourable categories. The first factor, “preference and intention to buy” contains five favourable items: First, RJ is the first choice to buy a ticket from. Second, preference to RJ will not change. Third, preference will not change even if a close friend recommends to do so. Four, recommending the airline to any one who seeks advice. Finally, continue to fly with an airline even though its prices increased. Propensity to change contains three unfavourable items, firstly, do not know that much about RJ, secondly, will feel differently about RJ when flying next time (e.g. will have negative feelings toward the airline next time), and thirdly, will buy a ticket from any airline which offers attractive prices. Factor three, volition contains two favourable items: firstly, the decision to fly with an airline is own decision taken freely and

secondly, responsibility for the decision to fly with an airline. Factor four, complaining behaviour, contains three unfavourable items: switch to another airline when facing a problem with RJ, complaining to RJ employees, and complaining to external agencies when experiencing service problems.

Table (6-25)
Loyalty Factors

Factor	Items	Reliability (Alpha)	% of variance
Preference & Intention to buy	1-First choice 2-Preference will not change 3-Will not change even a close friends recommends 4-Continue to fly even prices increases 5-Recommend RJ to any one seeks advice	0.83	25.9%
Propensity to Change	1-Don't know that much about an airline 2-Feel differently next time about flying with an RJ 3-Buy a ticket from any airline that give attractive prices	0.40	14.9%
Volition	1-Fully responsible for the decision to fly with RJ 2-Preference to RJ is my own decision freely chosen from several alternatives.	0.70	9.3%
Complaining behaviour	1-Will complain to RJ employees when facing a problem 2-Will complain to external agency when facing a problem 3-Will switch to another airline when experiencing a problem with RJ	0.54	8.2%

6-4-2 Appropriateness of loyalty as a basis for market segmentation

In order to examine the appropriateness of the loyalty measure as a basis for market segmentation, a loyalty scale (as shown in Table 5-11) that had been developed in this study (section 5-5-3) and that was used to classify passengers according to their loyalty levels. Classification is the most common use of cluster analysis, and this procedure was performed to enable segmentation of the sample into different loyalty groupings. It is expected that the use of cluster analysis will provide an objective solution with the aim of maximising similarities within and differences between the groups (Borgen and Barnett 1987).

The method of cluster analysis used in this research was the complete linkage method (Sokal and Michenner 1958), also called the Furthest-neighbour method (Lance and Williams 1967). This method is perceived to be one of the better procedures as it provides "relatively compact, hyperspherical clusters composed

of highly similar cases” (Aldenderfer and Blashfield 1984, p. 40). The procedure clustered respondents on the basis of seven criteria: volition, resistance, complexity, purchase intention, word of mouth, price sensitivity and complaining behaviour. The first three variables are measuring attitudinal loyalty, while the next four are measuring behavioural loyalty. The reasons underlying the decision to use these attitudinal and behavioural variables have been discussed in section (5- 5-3).

The seven variables were submitted to a complete linkage cluster analysis, using the Squared Euclidean Distance measure. An examination of the dendrogram, a tree-diagram of the rescaled distances where clusters combine, provided a graphic breakdown of the cluster solution. A significant jump in the rescaled distance value showed the number of clusters which best fit the data.

The findings of the cluster analysis, as shown in Table (6-26) indicate that there are three distinct clusters or groups of passengers. The numbers of passengers in each cluster are: 137, 190, 138 respectively. Analysis of variance (ANOVA) and the Duncan Multiple Range Test were used to test whether these clusters differed significantly (Andeberg 1973).

Table (6-26)

Characteristics of Clusters resulting from clustering analysis of airline passengers

	Cluster one	Cluster two	Cluster three
Behavioural and Attitudinal loyalty (Means)	5.808	4.205	3.285
No. of passengers	137	190	138

F = 70.41 : P = 0.00

Duncan Multiple Range Test shows significant differences between all the clusters (1-2, 1-3, and 2-3 at 0.05 level).

Findings of the ANOVA test (with F= 70.41 and P = 0.000), are shown in Table (6-26). These indicate that there are an overall significant differences between the three clusters at the 5% level of significance. As a further analysis, the Duncan Multiple Range test was performed to compare these three mean scores. The results of the Duncan’s test as shown in Table (6-26) indicate, that significant differences were existed between all the groups (clusters). Therefore, it can be

concluded that there are three major groups of passengers which are significantly different from each other in terms of their loyalty at the 0.05 level of significance. Thus, looking at the mean scores of these clusters, the first cluster with 137 passengers, can be identified as high-loyalty passengers, the second, with 190 passengers can be identified as medium-loyalty passengers, and the third cluster, with 138 passengers, can be identified as low-loyalty passengers.

6-4 -3 Validating and describing the loyalty clusters:

Several researchers argue the need to evaluate the reliability of the clusters for a given data set and to use a program of construct validation that demonstrates the scientific and practical importance of the classifications (Aldenderfer and Blashfield 1984, Borgen and Barnett 1987, Gangestad and Snyder 1985). In addition, the validity of the solution as a market segmentation tool may be assessed by whether the existing clusters or segments could be profiled on the basis of various socio-demographic variables (as will be discussed in section 6-4-4). Descriptive tables were generated for each of the subsamples, comparing cluster analysis according to sex, age, education and occupation (Table 6-31).

As stated previously (section 6-4-2) the sample formed three clusters on the basis of loyalty. The significant one-way analysis of variance and multiple comparisons results validate this cluster solution as unique, indicating that the groups are significantly different when compared on the attitudinal and behavioural constructs of loyalty, satisfaction, and perceived differences in service quality.

Cluster one demonstrated the highest levels of satisfaction toward RJ airlines when compared against the other two clusters. This was indicated by the highest mean values on satisfaction. Also cluster one demonstrated the highest levels of loyalty toward RJ when compared with the other two clusters. This was indicated by the highest mean values on four of the loyalty dimensions as well as on the global loyalty item (as will shown in Table 6-29). These four dimensions are resistance, volition, purchase intentions, and word of mouth. The supporting

attitudinal and behavioural profile for this cluster indicates that their level of satisfaction and service quality are also the highest overall (as concluded from the mean score values for the constructs) (see Table 6-27).

Table (6-27)

ANOVA test of (Satisfaction, Overall loyalty, Overall quality) in the Three Clusters

Dependent Variable	Cluster 1 (n = 137)	Cluster 2 (n = 190)	Cluster 3 (n=138)	ANOVA Results
Satisfaction (Means)	5.99	5.26	4.10	F = 111.40 P = 0.00
Overall Loyalty (Means)	5.81	4.21	3.29	F = 70.41 P = 0.00
Overall Quality (Means)	5.58	5.26	4.39	F = 50.23 P = 0.00

The passengers in cluster one appear to be more resistant to changing their attitudes toward RJ: their preference for RJ is unchangeable even if a close friend recommends it. They are responsible for their decision to fly with an airline, and believe that this decision is a wise one. Moreover passengers in this cluster consider this airline as their first choice to buy a ticket from, will have the same feeling toward this airline when flying next time, and will recommend this airline to anyone who seeks their advice.

Cluster two comes in the middle level regarding satisfaction, overall loyalty and service quality. This cluster has the highest mean values on complexity, complaining behaviour and price sensitivity. This means that passengers in this cluster do not know that much about the airline, will complain more to airline employees and external agencies when facing a service problem, and are more likely to continue to fly with this airline even if its ticket prices increase. Actually this third variable (price sensitivity) receives nearly the same importance from passengers in cluster one and two, since the means for the two clusters are 4.307, 4.313 respectively. This means that passengers in cluster one and two have nearly the same sensitivity to ticket prices.

Cluster three expressed the lowest assessment of overall quality, and all loyalty variables have the lowest mean values compared to those in clusters one and two.

Moreover, as was the case with the high loyalty cluster (cluster one), cluster three loyalty scores were reflected in lower levels of satisfaction and service quality.

Moreover, multivariate analysis of variance was used to validate the results of the cluster solution, and to establish whether each cluster is significantly different than the others. MANOVA is an extension of univariate analysis of variance (ANOVA), which means that ANOVA is just a special case of MANOVA, i.e. the case with a single dependent variable. Therefore, MANOVA is used to explore the relationship between one independent variable, with more than one category, and more than one dependent variable.

The major purpose of using MANOVA is to test the overall significance of the group differences of several variables. In MANOVA, the Wilks's Lambda criterion is the appropriate statistical approach; however, it could be transferred to F-ratio and used to test the overall significance. Therefore, if the F-ratio in MANOVA is significant, then the null hypothesis of no overall variation in the mean vectors between the groups is rejected. After determining that there is an overall significance, the ANOVA Tables are next examined to determine the contribution of each variable to the overall significance.

MANOVA results are shown in Table (6-28), and indicate an overall significance with Wilks's Lambda of 0.202 and F-ratio 79.87, and a p-value of less than 0.0001. Therefore, the null hypothesis of equal mean scores is rejected. Thus, it can be concluded that the three-clusters (groups) of passengers are significantly different from each other on at least one of the seven loyalty dimensions.

Table (6-28)
MANOVA Test of Overall Significance

Wilks' Lambda	F-ratio	Degree of freedom	Level of significance
0.202	79.87	14/914	0.000

The ANOVA results indicate which variable(s) contribute(s) to the overall significance. In addition, multiple comparison tests were performed, using the Duncan Multiple Range Test, to compare the three groups in terms of the variables under study. Table (6-29) shows ANOVA (F-ratio) and its level of

significance, mean scores for each of the variables for the 7- loyalty dimensions, and Duncan's test of multiple comparisons at the 0.05 level of significance.

The findings in Table (6-29) will be discussed in two ways: firstly, by analysing the contribution of the different variables (dimensions) of attitudinal and behavioural loyalty to the overall differences in the clusters of passenger loyalty. Secondly, by comparing the three clusters of passengers across all the attitudinal and behavioural dimensions of loyalty. In the first way of discussing the findings presented in Table (6-29), the individual variable will be analysed across the three clusters. The results of the ANOVA test indicate that all variables contribute significantly at the 0.05 level of significance to the overall significance among the three clusters. Since there were three attitudinal and four behavioural measures of loyalty, one variable from each group will be discussed as an example.

Resistance is one of the attitudinal measures of loyalty. This variable contributes significantly to the overall significance among the three clusters of passengers. Its associated F-ratio is 139.45, with $P < 0.000$. Cluster one has the highest mean score among the three groups (clusters) in the resistance variable (5.53), whereas cluster three has the lowest mean (2.89). When the multiple comparison procedure was performed to compare these three mean scores, using Duncan's test for multiple comparisons, the result indicated that the three clusters are all significantly different from each other. These findings indicate that passengers within cluster one emphasise resistance more than those in other clusters, while those in cluster three gave resistance the lowest rating indicating that they are more reluctant to change their preferences to this airline when facing any problem or when recommended by friends.

Complaining behaviour is one of the behavioural measures of loyalty that contributes significantly ($F= 58.32$; with $P = 0.0000$) to the overall variation among the three loyalty clusters of passengers. The mean score of cluster two (medium loyalty passengers) is greater than those in clusters one and three. This means that passengers in cluster two had a greater tendency to complain when facing difficulties than those in the other two clusters.

The second way of discussing the findings in Table (6-29) is by comparing the three clusters across the variables.

Medium and low loyalty passengers (clusters 2 and 3) are significantly different over all variables. Low and Medium loyalty passengers (cluster 1 and 2) are significantly different in over all variables except price sensitivity, while High and Low loyalty passengers are significantly different in all variables except on complexity and complaint behaviour.

High loyalty passengers (cluster one) had the highest mean score for resistance, volition, purchase intentions, and word of mouth, whereas Medium loyalty passengers (cluster two) has the highest mean score in complexity, price sensitivity, and complaining behaviour.

Table (6-29)

ANOVA Results of the Relationship between Loyalty Variables and the Three Loyalty Clusters

Variable	ANOVA	Cluster 1 (Means)	Cluster 2 (Means)	Cluster 3 (Means)	Group Differences (Duncan & Scheffe Tests)
Resistance	F = 139.45 P < 0.00	5.53	4.57	2.89	1-2; 1-3, 2-3
Volition	F = 68.07 P < 0.00	6.19	4.87	4.04	1-2; 1-3, 2-3
Complexity	F = 285.42 P < 0.00	2.72	5.82	2.62	1-2; 2-3
Purchase Intention	F = 58.32 P < 0.00	4.85	4.54	3.37	1-2; 1-3, 2-3
Word of mouth	F = 114.41 P < 0.00	6.29	4.73	3.75	1-2; 1-3, 2-3
Price Sensitivity	F = 39.54 P < 0.00	4.30	4.31	3.13	1-3; 2-3
Complaint Behaviour	F = 10.25 P < 0.00	4.35	4.93	4.28	1-2; 2-3

A profile of the passengers characteristics of the three clusters is shown in Table (6-30).

**Table (6-30)
Comparisons of Passenger Loyalty Characteristics across the Three Clusters**

Cluster One High Loyalty Passengers	Cluster Two Medium Loyalty Passengers	Cluster Three Low Loyalty Passengers
Difficult to change to another airline	May change to another airline	Easy to change to another airline
Wouldn't change preference to an airline even close friend recommends .	May change preferences for this airline if a close friend recommend .	Easy to change to another airline if a close friend recommends .
Flying with this airline is own decision, freely chosen from different alternatives.	Flying with this airline is a joint decision (taken with others).	The decision to fly with this airline is not own decision.
Passenger is highly responsible to fly with the airline.	Passenger is responsible for the decision to fly with an airline.	Passenger is not responsible for the decision to select this airline.
Passenger knows little about the airline	Passenger knows much about the airline.	Passenger don't know that much about this airline.
This airline is the first choice	This airline is the second choice	Flying with this airline was the last choice available.
Will fly with this airline in the future.	Very much likely to fly with the airline in the future.	Less likely to fly with the airline in the future.
will strongly recommend this airline to any one asks advice.	Will recommend the airline to any one asks advice.	Will not recommend this airline to any one asks for advice.
Continue to fly with this airline even found another airlines with attractive prices.	May buy a ticket from another airline that offers attractive prices.	Have high tendency to buy a ticket from any airline gives attractive prices.
Continue to fly with the airline even its prices increases	May continue to fly with an airline if its prices increases.	Will not fly with this airline if its prices increases.
Will not switch to another airlines when facing problems with this airline.	Have high tendency to switch to another airline when facing problems.	May switch to another airline when facing any problems.
Will complain to the airline employee when experiencing any problems.	May complain to the airline employee when facing any problems.	Will not complain to the airline employee when facing any problems.
Will not complain to external agencies when experiencing problems.	Will complain to external agencies when experiencing any problems.	May complain to external agencies when experiencing any problem with this airline

6-4-4 Socio-demographic characteristics of the loyalty clusters

Hypothesis

H6: Passengers in the three loyalty clusters have no significant differences in their socio-demographic characteristics.

Comparisons of the socio-demographic characteristics of the three clusters, using one way analysis of variance (ANOVA), and Chi-square (χ^2) show no significant differences in sex and age for the three clusters. However, significant differences do exist between clusters according to education, occupation level and nationality of passengers. Therefore, we can conclude that education, occupations and nationalities of passengers do influence their levels of loyalty in the three different clusters; while gender, and age of passengers do not (Table 6-31). Thus, hypothesis six is not supported for all the characteristics.

**Table (6-31)
Socio-Demographic Characteristics for Passengers in the Three-Clusters**

Variable	Cluster 1 n = 137	Cluster 2 n = 190	Cluster 3 n = 138	Test (χ^2) (value)	Significant ($P \leq 0.05$)
Sex (freq)				$\chi^2 = 0.17$	N.S.
Male	77	109	81		
Female	60	81	57		
Education (freq)				$\chi^2 = 17.74$	0.05
Primary school	2	11	5		
High school	15	37	19		
College	27	46	30		
Undergraduate	58	52	43		
Postgraduate	35	44	40		
Occupation (freq)				$\chi^2 = 30.88$	0.014
Managerial	58	49	43		
Professional	42	90	57		
Retiree	9	14	11		
Student	16	29	16		
Others	12	8	10		
Purpose of trip (freq)				$\chi^2 = 34.04$	0.00018
Company business	31	51	51		
Government	28	16	21		
Studying	12	12	17		
Visit family	36	41	18		
Tourism	29	63	30		
Medical reasons	1	7	1		
Age	2.81	2.78	2.75	F = 0.09	N.S.

Continued.....

Table (6-31)

Variable	Cluster 1 n = 137	Cluster 2 n = 190	Cluster 3 n = 138	Test (χ^2) (value)	Significant ($P \leq 0.05$)
Flight class (freq)				$\chi^2 = 6.78$	N.S.
First	18	13	19		
Business	20	37	28		
Economic	99	140	91		
Nationality (freq)				$\chi^2 = 23.99$	0.007
Jordanian	61	47	46		
Arabs	12	19	18		
Asians	11	20	11		
W. Europeans	33	70	44		
Australians	10	17	3		
Americans	10	17	16		

6-4-5 Loyalty Measures and Dimensional Importance

The dimensional elements of perceived service quality may well have differential effects on loyalty measures. Multiple regression analysis was used to investigate this possibility in airline services. Each loyalty item was treated as a separate dependent variable and the eight dimensions of airline service quality were used as independent variable in a multiple regression. Stepwise entry of independent variables was used in constructing the various multiple regression models. The “importance” here will be assessed by the number of times each quality factor appears in the final regression model. Therefore, the most important factor in explaining loyalty measure will be deemed to be the factor which had the greatest number of appearances in these regression models as shown in Table (6-32). Table (6-32) reflects the relationships found and order of entry for each dimension.

It appears that some future intentions to act (loyalty measures) in regard to airline services can be explained by different service quality dimensions. Significant relationships were found between quality factors and all loyalty measures except two: “feeling differently about flying with an airline when flying again”, and “switch to another airline when experiencing problems with an airline”.

Of particular managerial interest are the dimensions found to be statistically significant among the loyalty measures. As shown in Table (6-32) it is noticeable

that “post flight services”, and “Reservation” appeared in 6 models, “tangibles” appears in five models, “special fares” and “scheduling & image” in four models, and “cabin-staff services” in one model. These results show a significant relationship between perceived service quality and most loyalty items.

Tablet (6-32)

Multiple Regression Analysis of Loyalty Variables with Underlying Dimensions of Service Quality

Item	Dimension	B	SE B	Beta	t-Value	F-value	R ²
Loy1 first choice	F8	.58	.06	.43	9.84	96.77	.18
	F4	.29	.06	.24	4.87	(.000)	
	F6	.19	.05	.17	3.50		
	F3	.22	.07	.15	3.03		
Loy2 feeling differently next time	No variables entered using the step wise procedure						
Loy3 recommend to others	F4	.46	.05	.39	8.78	77.12	.15
	F6	.26	.05	.24	5.28	(.000)	
	F3	.28	.07	.20	4.15		
	F8	.15	.07	.11	2.1		
Loy4 buy from less prices	F3	.23	.08	.13	2.76	7.60	.017
	F4	-	.08	-.11	-2.01	(.006)	
	F7	.16	.10	.13	2.11		
Loy5 continue to fly	F8	.49	.07	.31	6.90	47.57	.097
	F4	.23	.07	.16	3.07	(.000)	
	F5	.16	.06	.13	2.78		
Loy6 switch to another airline	No variables entered using the stepwise procedure						
Loy7 complain to employees	F7	.16	.07	.10	2.19	4.81	.011
Loy8 complain to external agency	F7	.18	.08	.11	2.28	5.211	.012
Loy9 preference is own decision	F6	.30	.06	.25	5.33	28.43	.06
	F5	.19	.05	.17	3.69	(.000)	
	F2	.19	.08	.11	2.22		
Loy10 preference will not change	F4	.50	.06	.38	8.51	72.37	.14
	F6	.25	.06	.21	4.57	(.000)	
	F3	.27	.07	.18	3.60		
	F8	.18	.08	.12	2.30		
Loy11 responsible for flying with	F6	.24	.06	.19	4.10	16.82	.04
	F5	.15	.05	.13	2.76	(.000)	
Loy12 don't know much about the airline	F3	.23	.09	.13	2.76	7.60	.017
						(.006)	
Loy13 resist friend recommendation	F4	.44	.06	.31	6.90	47.58	.098
	F6	.25	.06	.21	4.09	(.000)	
	F5	.19	.05	.16	3.56		

F1 = “airport operations”; F2 = “cabin-staff services”; F3 = “tangibles”
 F4 = “post-flight services”; F5 = “special fares”; F6 = “reservation”,
 F7 = “communications”; F8 = “scheduling & image”

6- 5 Travel Behaviour

The purpose of this section is to examine a number of relationships that influence passengers' decisions to fly with a specific airline. These relationships highlight some aspects of passengers' travel behaviour, therefore investigating such behaviour will enable the airline to have a clear idea about its passengers, how they take their decisions and what are the most important factors that affect these decisions.

This section will discuss the following :

- Travel habits of passengers who participated in this study.
- Relationships between service quality and passenger characteristics.
- The influence of the psychographic characteristics, purposes of flights and nationality of passengers on airline choice selection.
- Relationships between passenger characteristics and loyalty.

6-5-1 Travel Habits

6-5-1-1 The role of the travel agent in airline travel industry

As discussed in section (3-6), travel agents play an important role in airline transportation. Most of the passengers used travel agents to obtain the best information on airline services. Additionally, 71% of the passengers bought their tickets from travel agents while 20% bought them from airline ticket offices. 63.8% of the total passengers became aware of the airline through travel agents, 10.6% from newspapers advertisements, 9.6% from an airline office and the remaining (16%) from other sources such as TV or radio advertisements, previous experience and friends. These results reflect the importance of travel agents in airline service transportation.

6- 5-1-2 Frequent and non-frequent passengers' ratings of " service quality, passengers satisfaction, and passengers loyalty " of the RJ airline

The total sample of passengers (500 passengers) was divided into three subsamples (groups) according to the number of flights they had taken with RJ during the last twelve months. The first group comprised those who had not

flown with RJ before (91 passengers), the second group those who flew 1-3 flights (122 passengers), and the third those who flew more than three flights (287 passengers). For the purpose of analysis, the last two groups will be referred to as “non-frequent travellers” and “frequent travellers” respectively. A profile of passengers characteristics in the three groups of passengers (according to number of flights they made last year) is shown in Table (6-33). From this table, it is noticed that frequent travellers with RJ were mainly: Jordanians, males, 36-45 years old and had professional occupations. Non-frequent travellers were mainly: West Europeans, females, 26-35 years old and had professional occupations.

Table (6-33)
Profile of Frequent and Non-Frequent Travellers across Demographic Variables

Demographic Variables	No Flights (%)	Non-Frequent Travellers (1-3 Flights) %	Frequent Travellers (> 3 Flights) %	Test
Age:				$\chi^2 = 14.69$ P = 0.065*
- 25 or Less	17.6	13.1	10.5	
-26-35	34.0	32.8	26.5	
-36-45	19.8	27.0	37.3	
-46-55	18.7	19.7	20.2	
-55+	9.90	7.40	5.60	
Nationality:				$\chi^2 = 55.30$ P = 0.000
- Jordanians	13.2	23.8	43.6	
-Arabs	13.2	15.6	8.00	
-Asians	8.80	12.3	7.30	
-West Europeans	53.8	29.5	24.7	
-Australians	5.50	9.80	5.20	
-Americans	5.50	9.00	11.2	
Occupations:				$\chi^2 = 33.54$ P = 0.0063
-Managerial	19.8	25.4	38.3	
-Professional	47.3	40.2	39.4	
-Retiree	12.1	13.1	4.20	
-Students	16.5	15.6	10.5	
-Others	4.30	5.70	7.60	
Sex:				$\chi^2 = 5.25$ P = 0.07*
-Male	53.8	49.2	61.0	
-Female	46.2	50.8	39.0	
Education	--	--	--	$\chi^2 = 13.4$ P = 0.2 (N.S)
Σ Passengers	91	122	287	

Table 6-34 presents an analysis of satisfaction by flight frequency. It may be seen that passengers who flew more than three times last year (frequent travellers) had the lowest satisfaction level with the services provided by RJ (i.e. lowest mean score), while those who did not fly at all were the most satisfied. This result should encourage RJ to examine the reasons for this, particularly because frequent travellers are the category of passengers that every airline should try to retain.

Table (6-34)
The Relationship between Number of flights and Passengers Evaluation to Service Quality, Satisfaction and Loyalty

Test	Mean	F-Value	P-Value	Group Differences Duncan & Scheffe Test
Satisfaction vs No. of Flights	5.2			
- No Flights	5.57	3.83	0.023	1-3
- 1-3 Flights	5.35			
- More than 3	5.07			
Loyalty vs no.of Flights	4.43	1.09	.34 > 0.05	N.S
Service Quality vs No. of Flights	5.11			
- No Flights	5.44	9.27	0.0001	1-3; 2-3
- 1-3 Flights	5.21			
- More than 3	4.89			

N = 500

ANOVA results (Table 6-34) showed also that all categories of passengers gave high evaluations to the quality of services provided by RJ. The mean scores for the three categories of passengers: frequent, non-frequent and those with no flights last year were 4.89; 5.21; 5.44 respectively. These values according to the seven-point scale used in the research, range from "Acceptable" to "Good". Results showed also that passengers who made no trips in the last year gave the highest evaluation to the services provided by RJ, while those considered to be frequent travellers gave the lowest evaluation or rating to the quality of services.

Hypotheses:

H7: Frequency of travel is not related to the prices of flight tickets.

H8: Compared with infrequent travellers, frequent travellers are more likely to perceive the benefits of flight convenience.

H9: Compared with infrequent travellers, frequent travellers are more likely to search for flight information.

Table (6-35)
ANOVA Results of Hypotheses 7, 8, 9

Hypotheses	Test	Mean	F-value	P-value	Differences
H-7	No. of flights vs comparing ticket prices before buying a ticket	3.98	3.04	0.048	1-2; 2-3; 1-3
	-No flights last year	4.18			
	-1-3 flights	4.16			
	-More than 3 flights	3.84			
H-8	No. of flights vs. convenience of flights schedules	5.60	3.22	0.04	1-2; 2-3; 1-3
	-No flights last year	5.30			
	-1-3 flights	5.48			
	-More than 3 flights	5.76			
H-9	No. of flights vs. seeking for more information about the flight	5.78	.78	0.46	Not significant

- Hypothesis (7): P-value was equal to 0.048 (<0.05); so the null hypothesis was rejected, which means that significant differences did exist between different groups of passengers (according to the number of flights they made last year) and the importance of comparing prices before buying a ticket as a factor to choose an airline to fly with. Passengers were asked to give their opinions on this matter through the following question: "I carefully compare prices before buying a ticket". Answers were given according to the seven-point scale ranging from strongly disagree(1) to strongly agree (7). It was seen that passengers who did not fly at all over the last twelve months gave more importance to this factor than those who flew (1-3) flights, while passengers who flew more than three times gave it the lowest importance (Table 6-35).
- Hypothesis (8): P-value was equal to 0.004 (< 0.05); so null hypothesis was rejected, which means that significant differences did exist between different groups of passengers who were travelling at different times last year and the importance of convenient flight schedule as a factor to choose an airline to fly with. Passengers were asked to give their opinions on this matter through the following question: "convenience of flight schedule is of major importance in selecting an airline to buy a ticket from". Both Duncan and Scheffe tests showed differences between group three (those who had flown more than

three times in the last twelve months) and the other two groups (those who had flown 1-3 times, or didn't fly at all in the last 12 months). It was seen also that those who had flown more than 3- times gave more importance to selecting an airline that provided a more convenient flight schedules (Table 6-35), than those who flew less than three-times or those who did not fly at all in the previous year.

- Hypothesis (9): It was found that no significant relationship existed ($P > 0.05$); therefore the null hypothesis was not rejected indicating no evidence that different categories of passengers (according to the number of flights they made last year) gave this factor (seeking for more information about the flight) different levels of importance.

6- 5-2 The influence of psychographic characteristics of passengers and purpose of flights on choice selection of an airline

The purpose of this section is to discuss the nature of the relationship between passengers who travelled for different purposes and the importance of different psychographic characteristics (as shown in table 5-12) on choice selection of an airline. ANOVA test was performed to examine the relationship between six psychographic characteristics and the purpose of flights to explore their influence on passenger choice selection of a specific airline (Table 6-36).

From Table (6-36) we noticed that there were significant relationships ($P < 0.05$) between purpose of the flights and three psychographic characteristics: influence of advertisements and promotional tools on choice selection of an airline, and desires to travel to foreign countries during vacation. These are significant at 5% level of significance. While the relationship between purpose of the flight and price sensitivity was significant at 10% level of significance ($P = 0.059 > 0.05$).

Table (6-36)
Relationship between Psychographic characteristics and Purpose of Flights

Test	Mean	P-value	Group Differences	
			Duncan	Scheffe
Purpose vs Price sensitivity -Company business -Government work -Studying -Visit family or friends -Tourism	4.93 4.94 5.58 5.35 5.32	0.059*	1-4; 2-4	---
Purpose vs Convenience of flights schedule -Company business -Government work -Studying -Visit family or friends -Tourism	5.62 5.86 5.33 5.88 5.4	0.11 > 0.05	No significant differences	
Purpose vs Time sensitivity	--	0.11 > 0.05	No significant differences	
Purpose vs Self confidence	--	0.16 > 0.05	No significant differences	
Purpose vs Information seeking	--	0.13 > 0.05	No significant differences	
Purpose vs Promotional Influences -Company business -Government work -Studying -Visit family or friends -Tourism	3.30 3.60 4.14 4.06 4.12	0.01*	1-4; 1-3; 1-2	---
Purpose vs Travelling -Company business -Government work -Studying -Visit family or friends -Tourism	5.47 5.14 5.51 5.81 6.22	0.0001**	2-4; 2-5; 1-4; 1-5; 3-5	1-5; 2-5

N = 500; * Significant at 0.1 level; ** Significant at 0.05 level

(i) Promotional Influences

It was seen that passengers who travelled for studying were more influenced by advertisements and other promotional tools than other groups of passengers. Then followed by those who travelled for tourism, visiting family and friends, company business and finally those who travelled for governmental work. The main significant differences existed between those who travelled for company business and those who travelled for studying, tourism and for visiting family or friends. It is clear that those who were more influenced by promotional tools, were those who mostly pay for their tickets, and they themselves search for an

airline to fly with. While those who travelled on governmental work and company business were indeed depending on their companies/ organisations to buy their tickets and were less influenced.

(ii) Travelling to foreign countries during vacation:

Results showed that passengers who were travelling for tourism purposes were more likely to travel to foreign countries during vacation, followed by those travelling to visit families and friends, for studying, company business, and finally those who travelled for governmental work. These results are reasonable and can easily be explained since the first group is more flexible in having vacation holidays and has more freedom to visit foreign countries, while those who are governmental workers may face many difficulties in having permission to travel to foreign countries (e.g. Jordanian people who work in government sector need permission to travel outside Jordan, and sometimes they face many difficulties in having long vacations).

(iii) Price-Sensitivity

It was seen that passengers who travelled for studying were more sensitive about ticket prices (i.e. carefully compare prices before buying a ticket) than other groups of passengers, followed by passengers who travelled to visit family and friends, for tourism, for governmental work, and finally those who travelled for company business who had the lowest sensitivity to ticket prices from all the groups of passengers. As seen in Table (6-36) the main differences existed between passengers who travelled to visit family or friends and those who travelled for company business and for governmental work. These results can be explained by the fact that passengers who were less price sensitive are those whose tickets were paid either by the government or by their companies, while those who travelled to visit family and friends and for studying were most likely had to pay for their own tickets and therefore, were more sensitive to the ticket fare.

6-5-3 The influence of psychographic characteristics of passengers and their nationalities on choice selection of an airline.

The purpose of this section is to explore the differences between passengers' nationalities in their perception of several psychographic variables and the effects they have on airline choice selection. ANOVA results (Table 6-37) showed that there were significant relationships ($P < 0.05$) between the nationality of passengers and each of the following characteristics: self confidence, convenience of flights, time sensitivity, promotional influences, and travelling to foreign countries in vacations. On the other hand, insignificant relationships (i.e $P > 0.05$) were found between nationality and price sensitivity. These relationships are discussed below.

(i) Link between Self Confidence and Nationality:

It was shown that Australian passengers showed the highest levels of self confidence in taking a decision to fly with a specific airline (they had the highest mean score); followed by the Jordanians, passengers from other Asian countries, Americans, passengers from other Arab countries and finally passengers from West European countries. Any attempt to explain these results should start from the meaning of self confidence as taken in this research. As seen in Table (5-12) this concept represents two characteristics: firstly: the decision to fly with an airline is the individual's own decision, freely chosen from other alternatives; and secondly: the passenger is fully responsible for his decision to fly with an airline. Therefore, these results may mean that European passengers depend more on others (e.g friends or travel agents) in taking their decisions since most of the passengers who fly with RJ are tourists; so they fly as couples or in groups; while Jordanians for example fly for other reasons like studying, for governmental and private work, so they mostly fly alone (for comparisons, only Jordanian who were 33 % of the sample and West European passengers (31 %) were considered because they represented most of sample in this study).

Table (6-37)

Relationship between Psychographic characteristics and Passengers Nationality

Test	Mean	P-Value	Group Differences	
			Duncan	Scheffe
Self confidence vs Country - Jordanian - Other Arab Countries - Asian Countries - West European - Australian - American	5.37 4.96 5.07 4.61 5.40 5.00	0.0054	1-4; 4-6	1-4
Convenience of Flights vs Country - Jordanian - Other Arab Countries - Asian Countries - West European - Australian - American	5.87 5.11 5.61 5.36 6.07 5.79	0.0082	1-2; 1-4; 2-5	---
Time Sensitivity vs Country - Jordanian - Other Arab Countries - Asian Countries - West European - Australian - American	5.71 5.26 4.80 4.52 4.93 5.17	0.000	2-4; 1-3; 1-4	1-4
Price Sensitivity vs Country		0.66 >0.05	No significant differences	
Promotional Effect - Jordanian - Other Arab Countries - Asian Countries - West European - Australian - American	4.23 4.05 4.02 3.12 3.39 3.43	0.0001	1-4; 1-6; 2-4; 3-4	1-4
Travelling to foreign countries - Jordanian - Other Arab Countries - Asian Countries - West European - Australian - American	5.27 5.36 5.39 6.23 6.16 5.96	0.0000	1-4; 1-5; 1-6; 2-4; 2-5; 3-4	1-4

N = 500

(ii) Convenience of flight Schedule

Results showed that Australian passengers gave this factor the most importance (had the highest mean value), followed by Jordanians, Americans, Asians, Europeans, while passengers from other Arab countries gave it the least importance. This result reflects the importance of this factor to Jordanians compared with European passengers. Such a result can be explained by the fact

that European passengers may choose from a wide range of airlines that can offer different flight schedules; while Jordanian passengers mostly take RJ flights. Therefore, they are more concerned with the convenience of the flight schedule and are more worried about the possibility of being unable to fly on the date they prefer.

(iii) Time Sensitivity

Results indicated that Jordanian passengers were more concerned than other nationalities with time sensitivity factor which was measured by one question as shown in Table (5-12). Then followed by passengers from other Arab countries, Americans, Australians, Asians and finally European passengers. This factor reflects a passenger's sensitivity to stay in a long queue and go through a long check-in procedures. This result may reflect a real problem that Jordanian passengers face during a long check-in procedure; while other passengers (e.g., European) have more efficient check-in procedures and therefore don't give it such a high concern.

(iv) Promotional Influences

It was found that Jordanian passengers were more influenced by promotional tools than passengers from other Arab countries, Asian countries, Americans, Australians and finally Europeans. This result means that European passengers are less influenced by promotional factors when choosing a specific airline to fly with.

(v) Travelling to Foreign Countries

Results showed that European passengers were more willing to travel to foreign countries for holiday, then Australians, Americans, Asians, passengers from other Arab countries, and finally Jordanians. According to this result the airline should provide special offer packages to individuals or groups of passengers from these countries (e.g., European) to encourage tourism flights, and that special programmes should be designed to encourage Jordanian people to fly with RJ in their vacations. For the other characteristics: price sensitivity and information seeking, no significant relationships were found.

6-5-4 The Relationship between sex of passengers and their evaluation of service quality, their satisfaction level and their degree of loyalty

To examine whether males and females passengers differ in their evaluation of the levels of service quality, satisfaction and degree of loyalty, a t-tests were performed. The results were used to test the following hypothesis:.

Hypothesis:

H10: There will be no differences between the means of male and female passengers measured on their:

- (i) Perceived service quality;
- (ii) Satisfaction;
- (iii) Loyalty

Leven's test gave no evidence of non-homogeneity of variance. Therefore, the equal variances t-test was used. Table (6-38) showed the t-test for equality of means.

Table (6-38)
T-tests for equality of means

Hypotheses	Variances	t-value	df	2-tail sig
H-10 (i)	Equal	-0.05	498	0.957
H-10 (ii)	Equal	0.77	498	0.444
H-10 (iii)	Equal	-0.15	498	0.885

From Table (6-38) it can be observed that P-values were greater than 0.05 for all the hypotheses. Therefore, any differences between means were not significant. Thus, there is no evidence against hypothesis 10, and female and male passengers gave similar evaluations of the level of service quality, and are similar in their satisfaction and loyalties towards an airline. Therefore, the null hypotheses were not rejected.

6-6 Convergent Validity of the Measurement Scales

Convergent validity of the service quality scale was tested by analysing the relationship between the level of perceived service quality as measured in the questionnaire (performance measurement), and the consumer's global judgement regarding overall quality of service (Headly and Miller, 1993). Also see

Parasuraman et al. (1988) while discussing SERVQUAL convergent validity. The same procedure was conducted to test the convergent validity for the satisfaction and loyalty scales.

6-6-1 Convergent Validity of the Quality Scale used to measure airline service quality.

Table (6-39) shows the summary statistics for the summed service scale ratings broken down by overall service quality rating.

**Table (6-39)
Service Quality (SQAVG) Scores by Overall Quality Categories**

Overall Quality		SQAVG			
Label	Group Size	Mean	Standard deviation	Minimum	Maximum
Extremely Poor	4	3.7	1.00	2.09	5.71
Very Poor	3	2.9	0.70	2.25	3.64
Poor	28	4.15	0.77	2.21	5.86
acceptable	102	4.62	0.87	2.36	6.64
Good	179	5.28	0.62	3.49	6.73
Very Good	131	5.89	0.60	4.03	6.93
Excellent	53	6.03	0.86	4.26	6.87
SQ total	500	5.32			

Table (6-40) shows a one-way analysis of variance using only five categories of overall quality (Poor, Acceptable, Good, Very Good, Excellent).

Five categories were used because only a small number of respondents indicated overall quality as being extremely poor and very poor (4 and 3) respectively. As anticipated, higher levels of perceived service quality are associated with more favourable global assessments of quality. The difference among groups is significant at the 0.01 level. ANOVA results were subjected to Duncan's multiple range test to identify significant differences between the overall quality categories for each dimension as well as for the combined scale. Significant relationships were found between all the five categories of overall quality as shown in (Table 6-41).

Therefore, service quality as measured in this study (section 5-5-1) is positively related to a global measure of quality (overall quality) in airline services as expected.

Table (6-40)
Analysis of Variance Between Service Quality (SQAVG) and Overall Quality Categories

Source	df	Sum of Squares	Mean of Squares	F-ratio
Between group	4	158.40	39.60	78.40 (<i>P</i> < .000)
Within groups	488	246.51	0.505	
Total	492	404.91		

overall quality categories are: poor = 3; acceptable = 4; good = 5; v. good = 6; excellent = 7.

Table (6-41)
Differences among categories of overall service quality

Label	Mean	standard deviation	Duncan test with significant level 0.05 (differences among overall quality labels)
Poor (3)	4.15	0.77	3-4; 3-5; 3-6; 3-7
acceptable (4)	4.62	0.87	4-5; 4-6; 4-7
good (5)	5.28	0.62	5-6; 5-7
V.Good (6)	5.89	0.60	---
Excellent (7)	6.03	0.86	---

6-6-2 *Convergent Validity of the Satisfaction Scale used to measure passenger satisfaction*

The convergent validity of the satisfaction scale was assessed by analysing the relationship between the level of passenger satisfaction as measured in this study (section 5-5-2) i.e. the average responses of all satisfaction items and passengers' overall satisfaction as measured separately by one question. The procedure followed here is the same as that used in the previous section (6-6-1).

Table (6-42) displays summary statistics for the summated satisfaction-scale values broken down by the seven categories of overall satisfaction.

Table (6-42)
Average Satisfaction Scores by Overall Satisfaction Categories

Label	Overall Satisfaction Group Size	Average Satisfaction			
		Mean	Standard deviation	Minimum	Maximum
Very Dissatisfied	15	2.68	1.0	1.00	5.50
Dissatisfied	12	2.98	.78	2.00	4.50
A Little Dissatisfied	24	3.51	.86	1.63	6.13
Neutral	108	4.17	.60	2.75	4.14
A Little Satisfied	90	4.90	.56	3.0	6.13
Satisfied	111	5.70	.51	4.0	6.88
Very Satisfied	134	6.37	.64	4.0	7.00
Overall Satisfaction	494	5.13			

Table (6-43) shows a one-way analysis of variance using only five categories of overall satisfaction. Only five from the seven categories of overall satisfaction were used because small numbers of responses were given to the first two categories very dissatisfied and dissatisfied (15 and 12 respectively) on the overall satisfaction scale.

ANOVA results were subjected to Duncan's multiple range test to identify significant differences between the overall satisfaction categories. As expected significant relationships were found between all the five categories (groups). (Table 6-44).

Table (6-43)
Analysis of Variance Between Average Satisfaction and Overall Satisfaction Categories

Source	df	Sum of Squares	Mean of Squares	F- ratio
Between Groups	6	530.56	88.47	218.82
Within Groups	487	196.80	.40	
Total	493	427.36		

Overall satisfaction categories are: Nearly dissatisfied = 3; Neutral = 4; Nearly satisfied = 5; Satisfied = 6; Very satisfied = 7

Table (6-44)
Differences among categories of overall satisfaction

Label	Mean	Standard deviation	Duncan test with significant level 0.05 (differences among overall satisfaction labels)
Nearly dissatisfied (3)	3.51	.86	3-4; 3-5; 3-6; 3-7
Neutral (4)	4.17	.60	4-5; 4-6; 4-7
Nearly satisfied (5)	4.89	.56	5-6; 5-7
Satisfied (6)	5.70	.51	6-7
Very satisfied (7)	6.37	.64	--

6-6-3 *Convergent Validity of the Loyalty Scale*

Convergent validity was tested by analysing the relationship between the level of passenger loyalty as measured in this study (section 5-5-3), and the passengers' global judgement regarding overall loyalty (LOY14- Appendix IV). The procedure here is the same as that used in the previous two sections. Table (6-45) displays the summated scale values (loyalty scale) for the 7-categories of overall loyalty rating used in the analysis.

Table (6-45)
Passenger Loyalty (LOYAVG) Scores by Overall Loyalty Categories

Overall Loyalty Label	Loyalty group size	LOYAVG			
		Mean	Standard Deviation	Minimum	Maximum
Not at all Likely	59	3.47	0.84	1.83	5.47
Not Very Likely	50	3.95	0.90	1.96	5.41
Not Likely	41	4.15	0.65	2.80	6.13
Neutral	106	4.47	0.64	2.74	5.91
Likely	53	4.75	0.69	3.46	6.49
Very Likely	63	5.01	0.80	2.73	6.88
Extremely Likely	114	4.94	0.85	2.49	6.75
Overall Loyalty	486	4.49			

Table(6-46) provides a one-way analysis of variance using these seven categories of overall loyalty.

ANOVA results were subjected to Duncan's multiple range test to identify significant differences between the overall loyalty categories. Significant relationships were found between all the groups (loyalty categories) as shown in Table (6-47). Therefore, passenger loyalty as measured in this study is positively related to a global measure of loyalty (overall loyalty) in airline services.

Table (6-46)
Analysis of Variance between Passenger Loyalty (LOYAVG) and Overall Loyalty (LOY14) Categories

Source	df	Sum of Squares	Mean of Squares	F-ratio
Between Groups	6	124.03	20.67	34.64 (P<.00)
Within Groups	479	285.88	0.597	
Total	485	409.91		

Table (6-47)
Differences among categories of overall loyalty

Label	Mean	Standard Deviation	Duncan test with significant level 0.05 (differences among overall loyalty labels)
1- Not at all likely	3.47	0.84	1-2; 1-3; 1-4; 1-5;1-6; 1-7
2- Not very likely	3.95	0.90	2-4; 2-5; 2-6; 2-7
3- Not likely	4.15	0.65	3-4; 3-5; 3-6; 3-7
4- Neutral	4.47	0.64	4-5; 4-6; 4-7
5- Likely	4.75	0.69	--
6- Very likely	5.01	0.80	--
7- Extremely likely	4.94	0.85	--

6-7 The Relationship between Airline Service Quality, Passenger Satisfaction and Passenger Loyalty

As discussed in section (4-2), it is assumed that there is a positive relationship between service quality and both passenger satisfaction and loyalty. Also, it is assumed that there is a positive relationship between satisfaction and loyalty.

A path analysis using LISREL VIII (Joreskog and Sorbom 1989) was used to assess two potential models:

1. The “proposed” model (i.e the conceptual model presented in fig. 4-2).
2. The “final” model (fig. 6-4), comprising the same three elements but using variables derived from an initial factor analysis to measure service quality and passenger loyalty as discussed in sections: 6-2-5 and 6-4-1.5.

6-7-1 Linear structural relations analysis of service quality - satisfaction - loyalty model

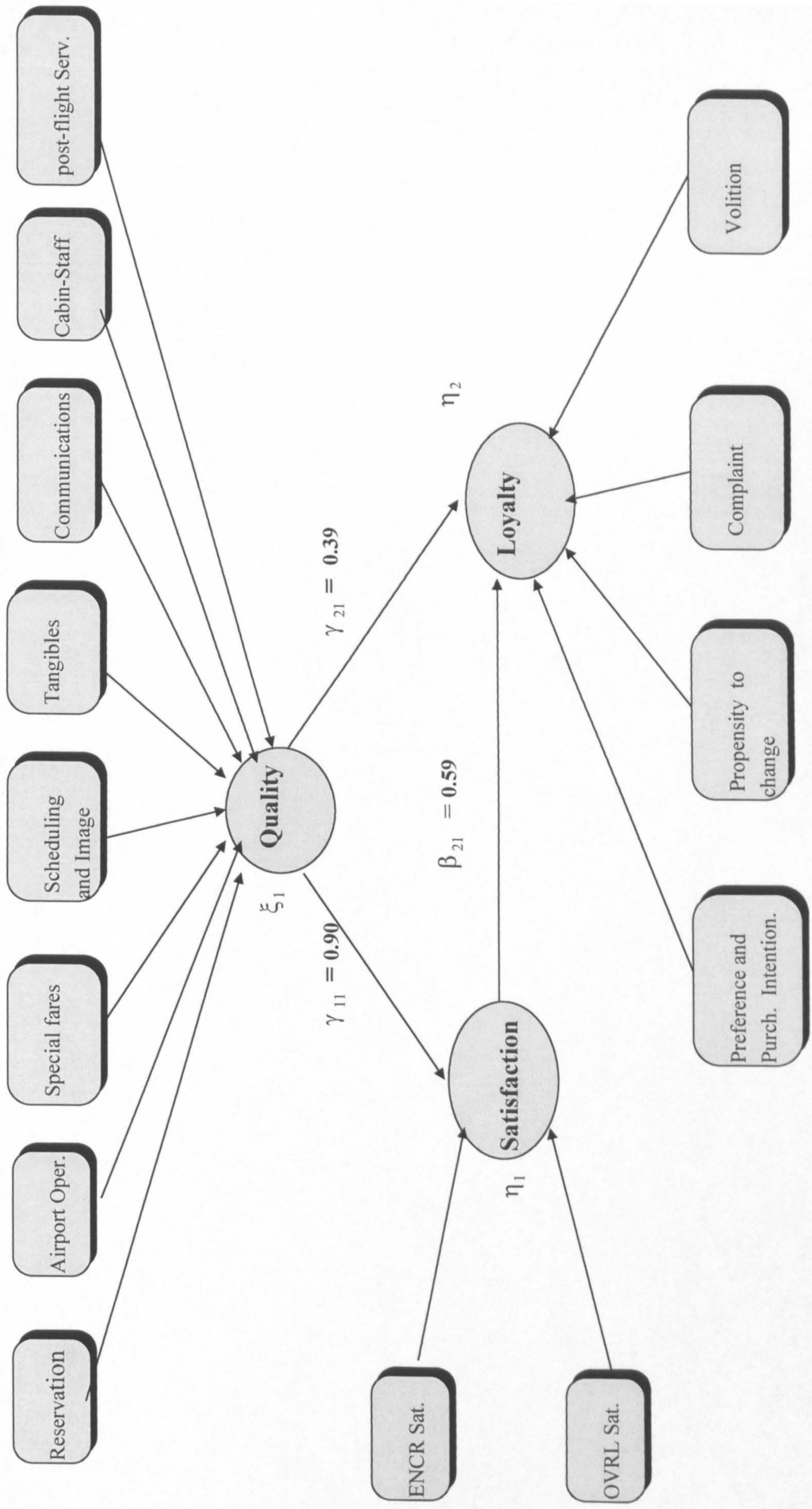
Here the associations existing between the constructs are not considered in isolation but simultaneously. Kennedy (1995) pointed out that the best option to solve the spurious and hidden relationships in a statistical analysis is to formalise relationships among the variables and then to proceed to a simultaneous equation estimation. In this study the linear structural relations (LISREL) programme was used to run path analyses to test the research model.

The LISREL statistical technique provides an integral approach to data analysis and theory construction. This is achieved by allowing simultaneous evaluation of both the measurement and causal structural components of a system. Its ability to incorporate measurement error into the model and to provide an overall goodness of fit measure for a proposed model is highly beneficial for this study. All parameters are estimated simultaneously.

The theoretical and statistical properties underlying LISREL were outlined in chapter four (section 4-7-6) and this section documents the results of analysis.

Figure (6-4)

Final Model



6-7-2 Simultaneous Fit of the Proposed and Final Models

The Overall model fit was found adequate (Table 6-48; Appendix VIII). The Chi-square values were statistically nonsignificant for both proposed and final models (for proposed model; $\chi^2 (108) = 124.53$, $P = 0.13 > 0.05$, while for the final model $\chi^2 (59) = 48.24$, $P = 0.84 > 0.05$ which indicated that the differences between covariance matrix (Σ) implied by the model and data -observed (S) were nonsignificant. For the proposed model the goodness of fit index (GFI) was 0.91, and the adjusted goodness of fit index (AGFI) was only 0.87, while for the final model (GFI) was 0.97, and (AGFI) was 0.94. These values indicate a good construct validity of the model, in which 87%, and 94% of the variances and covariances in the observed data (S) were predicted by the estimated models for proposed and final models respectively. Values indicative of a good representation of the data are an AGFI in excess of 0.90 and an RMR typically less than 0.05 (Bagozzi and Yi, 1988). Therefore; the final model gave a better representation of the data because of the higher values of AGF, AGFI, and P-value and its lower values of Chi-square and RMR.

Table (6-48)

Summary of the Results for Structural Model with Unobservable Construct

<i>Overall Model Fit</i>		
Statistic	Proposed model	Final model
Chi-Square	124.53	48.24
<i>df</i>	108	59
P-value	0.13	0.84
GFI	0.91	0.97
AGFI	0.87	0.94
RMR	0.053	0.033

Structural Model Results

Parameters	Proposed model		Final model	
	Standardised Estimate	T-value	Standardised Estimate	T-value
Exogenous paths				
γ_{11}	0.90	5.18	0.90	6.84
γ_{21}	0.39	2.74	0.45	2.37
Endogenous paths				
β_{21}	0.59	2.28	-0.18	-0.57

An effective summary of the fit, as judged by all the standardised residuals jointly, is given by the Q-plot. The Q-plot is a plot of the standardised residuals against normal quantiles, but for computational reasons, the plot is turned so that the standardised residuals are along the horizontal axis (Joreskog and Sorbom 1989). In the Q-Q plot, the smaller the standardised residuals, the steeper the plot. Non-linearity's in the plotted points are indicative of specification errors in the model. The Q-Q plot of the proposed and final models was illustrated as a line of points rising at 45 degrees (fig. 6-5 a,b). The approximate linearity in the plotted points provide favourable evidence that the proposed model departs less from multivariate normality (Joreskog and Sorbom 1989). Hence, according to Hayduk (1987), assuming multivariate normality can be an acceptable approximation in this analysis, the final model and set of coefficient estimates are consistent with the observed covariances and the model has survived a potential discreditation.

Figure (6-5a)
Q-Plot for the Proposed model

Q-Plot OF STANDARDISED RESIDUALS

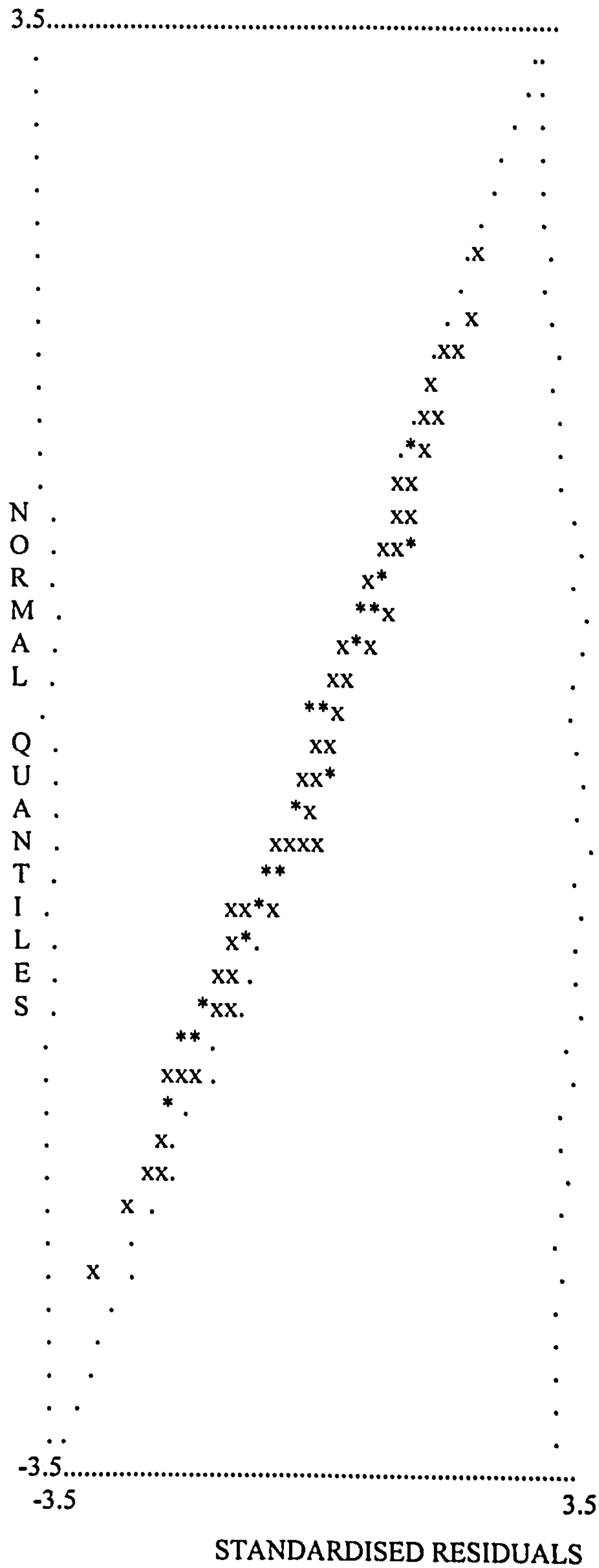
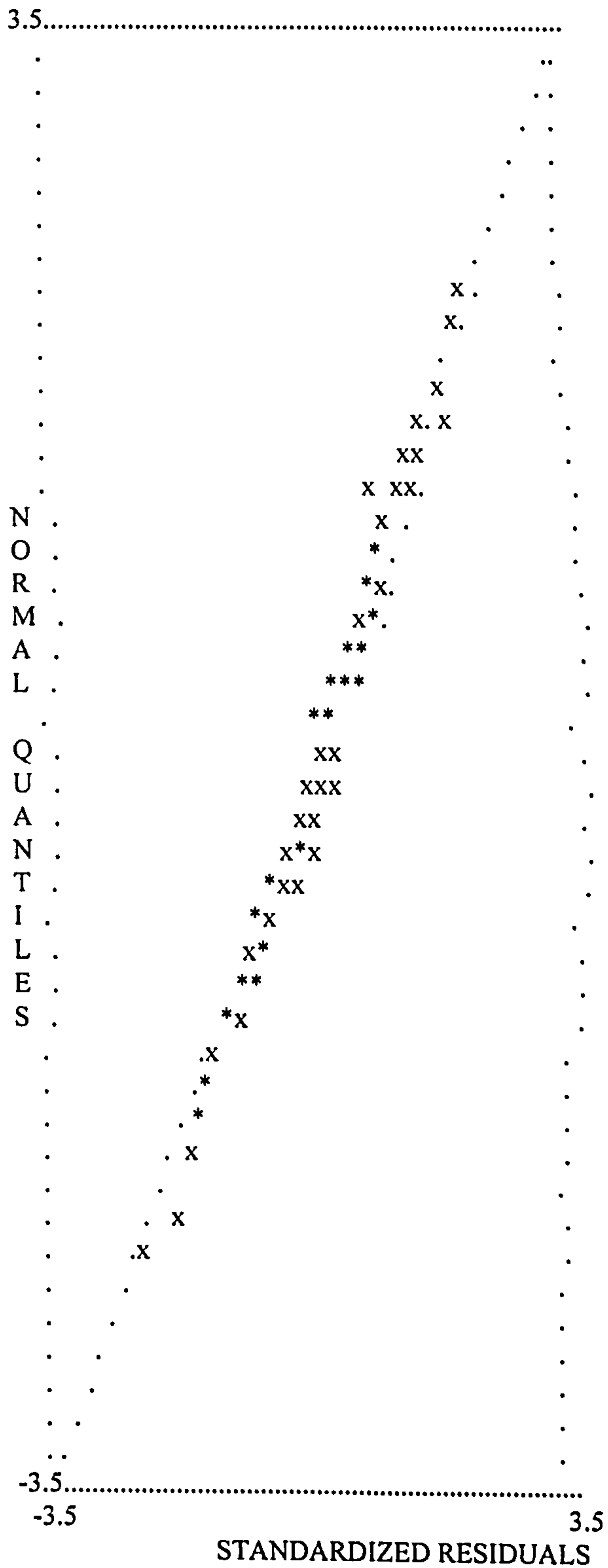


Figure (6-5b)
Q - Plot for the Final model

QPLOT OF STANDARDIZED RESIDUALS



Hypothesis

H11: There is a positive relationship between overall quality and passenger satisfaction. Therefore, higher levels of perceived service quality lead to higher levels of passenger satisfaction.

The conceptual rationale underlying the research hypothesis that quality is positively associated with passenger satisfaction derived from the arguments advanced by Smith and Houston 1983, Bolton and Drew 1991 and Nguyen 1991. More discussion about this subject is given in section (4-4).

The results displayed in Table (6-48) shows that perceptions of service quality were significantly related to passenger satisfaction. Both proposed and final models show positive relationship between quality and satisfaction. ($\gamma_{11} = 0.90$ for both proposed and final models, while $t\text{-value} = 5.18$ for the proposed model and 6.81 for the final model).

The interpretation of this finding can be expressed as follows: one standard deviation increase in the overall service quality is expected to lead to an increase of 0.90 standard deviation in the level of passenger satisfaction, with all other variables left untouched at their original values. This finding suggests that airline service quality, which is mainly based on the quality of reservation, airport services, scheduling, prices, image, cabin-staff services, food and other services has a significant impact on the level of passenger satisfaction which entails both encounter and overall satisfaction.

This finding supports research conducted by Cronin & Taylor (1992) which indicated that service quality is an antecedent of customer (here passenger) satisfaction.

Hypothesis:

H12: Higher levels of perceived service quality lead to higher levels of passenger loyalty toward an airline.

The path between perceived service quality and passenger loyalty was statistically significant for both proposed and final models ($\gamma_{21} = 0.39$ and $t\text{-value} = 2.74$ for the proposed model, while $\gamma_{21} = 0.45$, $t\text{-value} = 2.37$ for the final model). This accepted association can be explained as follows: one standard deviation increase in the overall service quality is expected to lead to an increase of 0.39 or (0.45) standard deviation in passenger loyalty with all other variables left untouched at their original values. This finding supports hypothesis H12 and suggests that passengers show high degree of loyalty toward a specific airline if they experience high quality levels of the services provided by that airline.

Hypothesis:

H13: In airline services, there is a positive association between passenger satisfaction and his loyalty to an airline.

Table (6-48) illustrated that passenger satisfaction, reflecting the (encounter and overall satisfaction) was found to have a significant influence on passenger loyalty only for the proposed model ($\beta_{21} = 0.59$, $t\text{-value} = 2.28$). This result provides support for H13 and can be interpreted as follows: one standard deviation increase in passenger satisfaction is expected to lead to an increase of 0.59 standard deviation in his loyalty toward an airline, with all the other variables left untouched at their original values.

On the other hand, exploring the value of β_{21} for the final model leads to the conclusion that loyalty is not related to satisfaction. ($\beta_{21} = -0.18$, $t\text{-value} = -0.57$). This result revealed a negative and nonsignificant path from passenger satisfaction to passenger loyalty; which means that high satisfaction of the

services provided by an airline will not necessarily lead to high degree of loyalty toward that airline. Therefore, according to the final model, this hypothesis suggests that passenger satisfaction is not necessarily an antecedent to passenger loyalty.

The proposed model showed a significant positive relationship between passenger satisfaction and his loyalty to an airline, while the final model showed a negative but nonsignificant relationship between the two constructs. This apparent contradiction can be explained by the fact that although high levels of satisfaction should lead to high levels of loyalty (Cronin and Taylor 1992), some passengers may show positive feelings (or loyalty behaviour) toward a particular airline despite being dissatisfied with the services provided by that airline. This feeling may occur if that airline represents the passengers' national airline e.g. Jordanian passengers may continue to show loyalty toward RJ airline although they were not satisfied with RJ services. This result supports the researchers approach in differentiating between the two behavioural and attitudinal aspects of loyalty; one dimension may have more influence than the other in affecting passenger loyalty behaviour. Exploration of the relationship between passenger satisfaction and both attitudinal and loyalty behaviour is an area in need of more research in the future.

From the previous discussion concerning Hypotheses 11, 12 and 13 we can conclude that high perception of quality lead to high passenger satisfaction and high degree of loyalty. In addition, high satisfaction *may* lead to high loyalty behaviour.

6-8 Market Segmentation:

The purpose of this section is to explore the potential for applying the concept of market segmentation to airline services. In this study, the airline passengers market was classified according to the following four criteria:

- Purpose of the flight (Benefit segmentation).
- Nationality of passengers (Geographic segmentation).
- Psychographic segmentation.
- Loyalty segmentation.

6-8-1 “Purpose of the flight” segmentation:

The purpose of this section is to examine whether passengers travelling for different purposes have different characteristics (psychographic and demographic), and therefore different segments emerge.

Passengers were classified according to their purposes of flight into six segments. ANOVA and Chi-Square tests were used to examine the relationships between these segments and different psychographic and demographic characteristics (Table 6-49).

Results showed that the company business segment was more likely than any other purpose (benefit) segment to include passengers aged 36-45 years. Table (6-49) also indicate that this segment contains mainly passengers from Jordan who tend to hold professional positions. This segment contains higher proportions of male passengers and those who holding postgraduate degrees. Moreover, this segment of passengers gave low and very low evaluation to all the measured criteria. Since this passengers' segment is the largest (28.6%) as shown in Table (6-1) according to purpose of flight, there appears to be a real problem for the airline specially if we assume that this segment include mainly business travellers.

The segment of passengers who travelled for tourism purposes had higher proportions of passengers aged 26-35 years, from West European countries. Higher proportions of the passengers in this segment were female, holding an

undergraduate degrees, and as expected, passengers in this segment were most likely to travel to foreign countries in vacations. Passengers in this segment gave the highest ratings to the quality of services related to “tangibles” e.g. food and aircraft, “special fares” and to “scheduling and image”.

The segment of passengers who travelled to visiting families or friends was most likely than other segments to contain Australian passengers. They gave the highest evaluation or rating to overall quality of services provided by an airline and they gave higher ratings to the quality of “airport operation”, “cabin-staff services” and to “communications” than other passenger segments. Finally, passengers in this segment are the most satisfied segment of the nationalities represented in this study.

The student segment was more likely than other segments in considering the ticket prices, convenient of flight schedules and promotional influences as the most influential factor that affect the selection of an airline (Table 6-51).

Finally, the segment of passengers who travelled for governmental work was the most likely one than other segments of having the highest overall loyalty to an airline, and are the most likely who gave high ratings to “post-flight services” and to “reservation procedures” (Table 6-50).

**Table (6-49)
Purpose of the flights (Benefit) Segmentation**

	Company Business %	Government Work %	Studying %	Visiting Family or Friends %	Tourism %	Chi-Squared Test
Age:						$\chi^2 = 70.46$ P = 0.000
-25 or less	5.6	3.0	34.9	10.9	19.4	
-26-35	25.9	31.3	30.2	35.6	29.1	
-36-45	38.5	37.3	23.3	30.7	24.6	
-46-55	26.6	22.4	9.3	16.8	16.4	
> 55	3.5	6.0	2.3	5.9	10.4	
Nationality:						$\chi^2 = 93.8$ P = 0.000
-Jordanians	33.6	47.8	39.5	43.6	19.4	
-Arabs	12.6	19.4	18.6	4.0	8.2	
-Asians	7.7	7.5	9.3	8.9	9.7	
-West Europeans	32.2	10.4	16.3	17.8	52.2	
-Australians	2.8	7.5	2.3	14.9	3.7	
-Americans	11.2	7.5	14.0	10.9	6.7	
Occupation:						$\chi^2 = 169.04$ P = 0.000
-Managerial	33.6	55.2	11.6	40.6	19.4	
-Professional	55.9	28.4	23.3	29.7	44.0	
-Retiree	3.5	3.0	9.3	10.9	10.4	
-Students	2.8	3.0	48.8	11.9	18.7	
-Others	0.7	7.5	6.8	7.0	6.7	
Sex:						$\chi^2 = 29.32$ P = 0.00002
-Male	70.6	68.7	41.9	54.5	43.3	
-Female	29.4	31.3	58.1	45.5	56.7	

Followed.....

Table (6-49) Continued

Purpose of the flights (Benefit) Segmentation

	Company Business	Government Work	Studying	Visiting Family or Friends	Tourism	ANOVA Test
Education:						$\chi^2 = 44.05$ P = 0.01
-Primary School	7.0	4.5	4.7	0.0	3.7	
-High School	14.7	7.5	18.6	19.8	16.4	
-College	26.6	20.9	18.6	24.8	17.9	
-Undergraduate	24.5	41.8	34.9	33.7	35.1	
-Postgraduate	27.3	25.4	23.2	21.8	26.9	
Overall Loyalty	4.32	5.25	4.35	4.77	3.95	F= 5.35 P= 0.0003
Overall Quality	4.91	5.27	4.77	5.36	5.11	F= 3.71 P= 0.0055
Overall Satisfaction	4.96	5.34	4.90	5.45	5.43	F= 2.75 P= 0.0275
Price Sensitivity	4.93	4.94	5.58	5.35	5.32	F= 1.94 P= 0.059*
Convenience of flight Schedule	5.62	5.86	5.88	5.33	5.40	F= 3.23 P= 0.09*
Promotional Effects	3.30	4.14	4.17	4.06	3.62	P= 0.01
Travelling to foreign countries	5.47	5.14	5.51	5.81	6.22	F= 16.60 P= 0.0001
Total Passengers	143	67	43	101	134	488

* Significant at 0.1 level

Table (6-50)

Purpose of the flights (Benefit) Segmentation

	Company Business	Government Work	Studying	Visiting Family or Friends	Tourism	ANOVA Test
Overall Loyalty	Low	Very High	Average	High	Very Low	F= 5.35 P= 0.0003
Overall Quality	Low	High	Very Low	Very High	Average	F= 3.71 P= 0.0055
Overall Satisfaction	Low	Average	Very Low	Very High	High	F= 2.75 P= 0.0275
Price Sensitivity	Very Low	Low	Very High	High	Average	F= 1.94 P= 0.059*
Importance of convenience of flight Schedule	Average	High	Very High	Very Low	Low	F= 3.23 P= 0.09*
Promotional Effects	Very Low	High	Very High	Average	Low	P= 0.01
Travelling to foreign countries	Low	Very Low	Average	High	Very High	F= 16.60 P= 0.0001

Adapted from table (2)

Followed...

Table (6-50) Continued

	Company Business	Government Work	Studying	Visiting Family/Friends	Tourism	ANOVA Test
Quality Factors:						
Airport operations	Low evaluation	Average	Very low evaluation	Very high evaluation	High evaluation	F = 2.7 P = 0.029
Cabin-staff services	Very low evaluation	Average	Low evaluation	Very high evaluation	High evaluation	F = 2.86 P = 0.023
Tangibility (food & plane)	Low evaluation	Average	Very low evaluation	High evaluation	Very high evaluation	F = 2.87 P = 0.022
Post-flight services	Low evaluation	Very high evaluation	Average	High evaluation	Very low evaluation	F = 2.04 P = 0.087*
Special fares	Very low evaluation	High evaluation	Average	High evaluation	Very high evaluation	F = 4.88 P = 0.0007
Reservation	Very low evaluation	Very high evaluation	Average	High evaluation	Low evaluation	F = 2.66 P = 0.032
Communications	Very low evaluation	High evaluation	Average	Very high evaluation	Low evaluation	F = 2.18 P = 0.07*
Scheduling & Image	Very low evaluation	High evaluation	Low evaluation	Average	Very high evaluation	F = 2.18 P = 0.07*

* Significant at 0.1 level

6-8-2 Nationality Segmentation:

This section aims at discussing whether different segments of passengers can be identified according to their nationalities. Therefore, different psychographic and demographic characteristics of passengers will be discussed to profile the main characteristics of passengers within these segments.

Results (Table 6-51& 6-52) showed that the Jordanian passengers segment was more likely than any other nationality segments to include passengers who travelled to visit family or friends, for governmental work and for studying.

Jordanian passengers are more loyal to Royal Jordanian (RJ) airline than passengers from other nationalities; they are more time sensitive ; they are more influenced by promotional campaigns; they mostly fly in economy class and considered as more frequent travellers with RJ than any other nationality segments. Jordanian passengers mostly occupy managerial positions. On the other hand, the West European passengers segment (the second large segment in sample size) was more likely than any other nationality segments to include passengers travelling for tourism purposes. Passengers in this segment are most likely to travel to foreign countries in vacations; they depend more on the travel agent to obtain information about their flights and to buy their tickets. Passengers in this segment were occupying professional positions.

For other segments, it was found that Australian passengers gave the highest evaluation (ratings) to overall service quality and showed the highest levels of satisfaction. They gave highest importance to the convenience of flight schedule and also more self confident in their decision to chose an airline.

Table (6-51)

Nationality Segmentation

	Jordanians (%)	Arabs (%)	Asians (%)	West Europeans (%)	Australians (%)	Americans (%)	Test
Aware of the airline:							
-Newspapers Adv.	18.1	9.3	9.1	5.1	15.6	2.1	$\chi^2 = 59.18$ P= 0.0065
-TV or Radio Adv.	9.6	7.4	9.1	2.6	3.1	0.0	
-Travel Agent	54.2	70.4	56.8	71.8	62.5	70.8	
-RJ Offices	7.8	9.3	9.1	12.2	6.3	10.4	
-Previous Experience	4.8	1.9	6.8	4.5	0.0	8.3	
-Friends	5.4	1.9	9.1	3.8	12.5	8.4	
Flight Class:							
-First	9.6	18.5	4.5	7.1	12.5	25.0	$\chi^2 = 20.5$ P= 0.024
-Business	18.7	16.7	25.0	17.9	9.4	18.8	
-Economy	71.7	64.8	70.5	75.0	78.1	56.3	
No. of Flights (last year):							
-None	7.2	22.2	18.2	31.4	15.6	10.4	$\chi^2 = 55.30$ P= 0.0000
-1-3	17.5	35.2	34.1	23.1	37.5	22.9	
-More than Three	75.3	42.6	47.7	45.5	46.9	66.7	
Occupation:							
-Managerial	38.0	33.3	31.8	25.6	28.1	31.3	$\chi^2 = 55.02$ P= 0.057*
-Professional	30.7	33.3	34.1	50.0	50.0	56.3	
-Retiree	3.6	13	6.8	10.3	12.5	6.3	
-Students	17.5	13	22.7	9.0	3.1	6.3	
-Others	7.2	7.4	4.6	5.1	6.3	0.0	
Buy a Ticket from:							
-Travel Agent	66.9	61.1	65.9	76.9	71.9	81.3	$\chi^2 = 37.02$ P= 0.0013
-Airport Ticket Counter	3.6	13.0	9.1	3.2	0.0	8.3	
-Airline Ticket Office	27.1	25.9	18.2	13.5	28.1	6.3	
-Others	2.4	0.0	6.8	6.4	0.0	4.2	

Followed...

Table (6-51) Continued

	Jordanians (%)	Arabs (%)	Asians (%)	West Europeans (%)	Australians (%)	Americans (%)	Test
Purpose of Flights:							$\chi^2 = 93.80$ P= 0.0000
-Company Business	27.7	33.3	25.0	30.8	12.5	33.3	
-Government Work	19.3	24.1	11.4	4.5	15.6	10.4	
-Studying	10.2	14.8	9.1	4.5	3.1	12.5	
-Visiting Family or Friends	26.5	7.4	20.5	11.5	46.9	22.9	
-Tourism	15.7	20.4	29.5	44.9	15.6	18.8	
-Medical Reasons	0.60	0.0	4.5	3.8	6.3	2.1	
Overall Loyalty	5.22	4.42	4.36	3.64	4.48	4.33	F= 13.09 P= 0.000
Overall Quality	5.24	4.83	4.95	5.01	5.31	5.27	F= 2.06 P= 0.085*
Overall Satisfaction	5.38	4.63	5.12	5.32	5.47	5.35	F= 2.82 P= .024
Importance of convenience of flight schedule	5.86	5.11	5.61	5.36	6.06	5.79	F= 3.68 P= 0.0058
Time Sensitivity	5.71	5.26	4.79	4.52	4.93	5.17	F= 8.76 P= 0.000
Promotional Effects	4.23	4.06	4.02	3.12	3.39	3.34	F= 6.29 P= 0.0001
Travelling to foreign countries	5.27	5.36	5.38	6.23	6.16	5.96	F= 8.20 P= 0.000
Self Confidence	5.36	4.96	5.07	4.61	5.40	5.00	F= 8.20 P= 0.000
Total Passengers	166	54	44	156	32	48	500

* Significant at 0.1 level

Table (6-52)

The Influence of Nationality of Passengers and Psychographic characteristics on Choice selection of an Airline

	Jordanians	Arabs	Asians	West Europeans	Australians	Americans
Self Confidence	High	Low	Moderately high	Very low important	Very high	Moderately low
Convenience of flight schedule	High	Very low important	Moderately low	Low	Very high	Moderately high
Time sensitivity	Very high	High	Low	Very low important	Moderately low	Moderately high
Promotional influences	Very high	High	Moderately high	Very low important	Low	Moderately low
Travelling to foreign countries	Very low important	Low	Moderately low	Very high	High	Moderately high

6-8-3 Psychographic Segmentation

In this study seven psychographic characteristics describing passengers' opinions, attitudes and activities (see section 5-5-4) were used. These characteristics are: sensitivity to ticket prices, importance of convenient flight schedule as a factor in selection of an airline, time sensitivity (e.g. how far passengers are influenced by standing in long queues either while buying a ticket or in check-in lines), seeking for more information before buying a ticket, the influence of promotional campaigns on choice selection of an airline, self confidence in taking a decision to select an airline, and finally passengers activities (i.e travelling to foreign countries on vacations).

These seven variables were submitted to a complete linkage cluster analysis using the squared euclidean distance measure. Then an examination of the dendrogram provided a graphic breakdown of the cluster solution. This is exactly the same procedure suggested in section (6-4-2).

Findings of the cluster analysis indicate that there are three clusters or groups of passengers. The numbers of passengers in each cluster are: 150, 208 and 115 respectively. ANOVA results shows that the three clusters are unique and different (Duncan results) as shown in Table (6-53)

Table (6-53)
Psychographic Clusters

	Cluster One	Cluster Two	Cluster Three	ANOVA Test	Duncan Test
Psychographic Characteristics	5.11	5.92	4.0	F = 375.53 P = 0.000	1-2; 1-3; 2-3
No. of Passengers	150	208	115		

Results in Table (6-53) show that there is an overall significant differences between the three clusters at the 0.05 level of significance. Also, Duncan results indicate that there are significant differences amongst the three groups (clusters). Table (6-54) shows ANOVA results for the relationship between the seven psychographic characteristics and the three clusters. Findings show that significant differences between clusters were observed for each characteristic.

The results in Table (6-54) can be explained by taking one psychographic characteristic as an example.

Table (6-54)

ANOVA results for the relationships between Psychographic characteristics and the Three Clusters

Characteristics	Cluster 1 (Mean)	Cluster 2 (Mean)	Cluster 3 (Mean)	ANOVA	Duncan Results
Price Sensitivity	5.87	5.86	3.22	F = 138.22 P = 0.000	1-3; 2-3; 1-2
Importance of convenience of flight schedule	6.02	6.04	4.23	F = 69.07 P = 0.000	1-3; 2-3; 1-2
Time Sensitivity	4.39	6.06	4.28	F = 60.95 P = 0.000	1-2; 2-3; 1-3
Information Seeking	6.22	6.19	4.42	F = 74.72 P = 0.000	1-3; 2-3; 1-2
Promotional Influences	3.7	5.53	3.06	F = 385.88 P = 0.000	1-2; 2-3; 1-3
Self Confidence	4.94	5.36	4.6	F = 7.55 P = 0.0006	1-2; 2-3; 1-3
Travelling to foreign countries	6.46	5.81	4.81	F = 38.97 P = 0.000	1-2; 2-3; 1-3
Overall Loyalty (Mean)	3.8	5.0	4.19	F = 17.17 P = 0.000	1-2; 2-3; 1-3
Overall Quality (Mean)	5.0	5.33	4.93	F = 5.96 P = 0.0028	1-2; 2-3; 1-3
Satisfaction (Mean)	5.14	5.48	4.96	F = 4.72 P = 0.009	1-2; 2-3; 1-3

For example, price sensitivity is one of these psychographic characteristics. This characteristic contributes significantly to the overall significance among the three clusters of passengers. Its associated F-ratio is 138.22, with $P < 0.0005$. Cluster one has the highest mean score (5.87) among the three groups (clusters) in the sensitivity to ticket prices (i.e. they carefully compare prices before buying a ticket), whereas cluster three has the lowest mean (3.22). When the multiple comparison procedure was performed to compare these three mean scores using Duncan test for multiple comparisons, the results indicated that the main differences are between cluster one and three, and between cluster two and three, with no significant differences are shown between clusters one and two with respect to this particular characteristic. Therefore, this suggests that passengers in

clusters one and two were more sensitive to prices than those in cluster three when choosing an airline to fly with.

The results of Table (6-54) can be interpreted as follows (Table 6-55).

Table (6-55)

The Influence of the Psychographic characteristics on the three Clusters

Characteristics	Cluster One "Economiser"	Cluster Two "Punctual"	Cluster Three "Indifferent"
Price Sensitivity	High Sensitive	Average Sensitive	Low Sensitive
Convenient of Flight Schedule	Average Importance	High Importance	Low Importance
Time Sensitivity	Average Sensitive	High Sensitive	low Sensitive
Information Seeking	High Importance	Average Importance	Low Importance
Promotional Influences	Average Influence	High Influence	Low Influence
Self Confidence	Average	High	Low
Travelling to Foreign Countries on Vacations	More Likely	Average Likely	Less Likely

As shown in Table (6-55), passengers in cluster one can be described as follows: they were high sensitive to ticket prices; they compared prices carefully before buying a ticket, they were more likely to travel to foreign countries on vacations and they were less influenced by promotional advertisements when choosing an airline. Therefore, this cluster can be labelled as: "Economiser" Passengers.

Passengers in cluster two rated convenience of flight schedule as more important than other clusters, are more sensitive to time factor, more self confident when making decisions to fly with a certain airline and they are more influenced by advertisements when selecting an airline. Thus, passengers in this cluster can be described as: "Punctual" Passengers.

Finally, passengers in cluster three were less sensitive to ticket prices, they attach less importance to the convenience of flight schedule; they do not care about longer check-in lines, are less likely to seek for more information about flights,

and are less likely to travel to foreign countries on vacations. Therefore, they can be described as *“Indifferent”* Passengers.

To examine the validity assessment of the effectiveness of psychographic characteristics, as a market segmentation tool, different demographic variables were used to test whether these variables can profile the existing three clusters or segments (Table 6-56). From Table (6-56) we concluded that passengers in the three clusters can be classified according to their: Nationality, Education, Occupation, while Sex and Age categories were not different between the three clusters. Therefore, passengers in cluster one (Economiser) are: more likely to be European passengers, with a post-graduate education, they are travelling mainly for company business and depend mainly on travel agents to arrange for their flights. Passengers in cluster two (Punctual), were mostly Jordanians, they had undergraduate degrees, they hold professional positions, and are travelling mainly to visit family or friends. Also, passengers in this cluster can be classified as frequent travellers. Passengers in cluster three were mainly West Europeans, had undergraduate degrees, occupy professional positions, travel for company business and depend mainly on travel agent to arrange for their flights.

Table (6-56)
Socio-Demographic Variables in the Three Psychographic Clusters

Characteristics	"Economiser" %	"Punctual" %	"Indifferent" %	Test
Nationality				$\chi^2 = 54.40$ P = 0.000
-Jordanians	17.3	45.7	27.0	
-Arabs	6.6	12.5	14.8	
-Asians	8.7	10.1	8.7	
-West Europeans	44.7	19.7	38.3	
-Australians	8.7	4.3	4.2	
-Americans	14.0	7.7	7.0	
Education				$\chi^2 = 13.76$ P = 0.088
-Primary School	4.7	4.3	3.5	
-High School	12.0	13.9	18.3	
-College	25.3	21.2	25.2	
-Undergraduate	24.7	38.9	30.4	
-Post-graduate	33.3	21.7	22.6	
Occupation				$\chi^2 = 24.63$ P = 0.076
-Managerial	32.7	30.3	36.5	
-Professional	48.7	36.5	39.1	
-Retiree	7.3	5.8	10.4	
-Students	8.0	17.4	10.4	
-Others	3.3	10.0	3.6	
Age	--	--	--	$\chi^2 = 7.96$ P = 0.44 > 0.05
Sex	--	--	--	$\chi^2 = 1.99$ P = 0.37 > 0.05
Purpose of Flights				$\chi^2 = 30.51$ P = 0.0007
-Company Business	36.6	23.6	33.8	
-Government Work	6.7	16.3	18.3	
-Studying	3.3	11.1	8.7	
-Visiting family/Friends	22.0	25.4	12.2	
-Tourism	31.4	23.6	27.0	
No. of Flights last year				$\chi^2 = 15.05$ P = 0.005
-None	27.3	12.5	18.3	
-1-3 Flights	22.0	23.1	28.7	
-More than 3 flights	50.7	64.4	53.0	
Aware of the Airline				$\chi^2 = 34.03$ P = 0.002
-Newspapers Adv.	7.3	11.1	15.0	
-T.V or Radio Adv.	1.3	8.7	5.2	
-Travel Agent	60.7	66.3	65.1	
-RJ Offices	16.7	5.3	9.6	
-Previous Experience	4.7	4.8	3.5	
-Friends	9.3	3.8	1.6	
Buy a Ticket from				$\chi^2 = 26.17$ P = 0.0002
-Travel Agent	80.7	64.9	70.4	
-Airport Ticket Counter	2.0	8.7	4.3	
-Airline Ticket Office	10.7	25.0	20.9	
-Others	6.6	1.4	4.4	

6-8-4 Appropriateness of Loyalty as basis for Market Segmentation

The question of whether “levels of service loyalty” (attitudinal and behavioural aspects) could effectively segment airline travel market was discussed in this research (section 6-4-2). Respondent passengers were clustered on the basis of seven factors measuring behavioural and attitudinal aspects of loyalty. These seven factors were: purchase intentions, word-of-mouth communication, price sensitivity, complaint behaviour, volition, resistance and complexity. Results of the cluster analysis indicated that three clusters or groups of passengers were significantly different from each other in terms of their loyalty. These clusters are: high loyalty passengers, medium loyalty passengers, and low loyalty passengers.

Passengers in each cluster had different characteristics in terms of loyalty measures, satisfaction and perception of service quality as discussed in section (6-4-3). Therefore, an airline should attempt to design different marketing strategies to satisfy passengers’ needs in each of these clusters. The airline should try also to investigate why passengers in each cluster have specific characteristics and how these characteristics may affect passengers’ perceptions of service quality, their satisfaction and loyalty towards the airline. Having clear understanding of the different clusters of airline passengers according to their loyalty, will enable the airline to develop appropriate plans and strategies to satisfy passengers’ different needs and requirements.

The effectiveness of this form of segmentation was determined by a thorough construct validation process, where multiple comparisons with other variables substantiated the uniqueness of each cluster in the airline passenger sample were undertaken (as shown in section 6-4-3). In this sample, a three cluster solution was found to best fit the data. The groups that have been created by cluster analysis were compared across ten sets of variables (table 6-27 and 6-29). In order to test whether the travel service groupings were different, multiple (MANOVA) and one-way (ANOVA) analysis of variance comparisons were undertaken analysing the following measures: satisfaction, a global loyalty

measure, the seven components of loyalty measurement and overall service quality (Tables 6-27, 6-28, 6-29). All of these behavioural and attitudinal variables provided evidence that this form of segmentation did in fact create distinct groupings. Each group when compared with other groups (clusters) showed significantly different levels of satisfaction, loyalty and service quality.

In addition to the theoretical comparisons, several socio-demographic variables (age, sex, educational levels, occupation and nationality) were examined as potential methods for describing or profiling the respective loyalty segments. Occupation, education and nationality were the only variables which were found to significantly contribute to a loyalty segment's description. Thus analysing loyalty segmentation produces attitudinal and behaviourally distinct groups, these segments cannot be profiled or for the large part differentiated by socio-demographic variables. This result on loyalty segmentation's relationship with demographic variables is consistent with Assael (1987) and Exter (1986) assertions, and Snepenger and Compton's (1984) suggestion that demographic variables are not effective descriptors at this sub-population level.

Results of the chi-square analysis (Table 6-57) showed a slightly significant relationships at 0.1 level between the number of flights passengers made last year and the levels of loyalty among the three different clusters. This indicates that there may be different levels of loyalties among frequent and non-frequent travellers.

Table (6-57)
Loyalty Levels in the three Clusters of Passengers

No. of Flights	Cluster 1 <i>High-Loyalty</i>	Cluster 2 <i>Medium-Loyalty</i>	Cluster 3 <i>Low-Loyalty</i>	Total	Chi-Square
No Flights -Last year-	27.1% 19 Passengers	50.6% 43 Passengers	22.4% 23 Passengers	18.3% 85 Passengers	$\chi^2 = 9.7$ P = 0.09*
1-3 Flights "Non-frequent"	24.3% 39 Passengers	41.7% 48 Passengers	33.9% 28 Passengers	24.7% 115 Passengers	
> 3 Flights "Frequent"	32.8% 87 Passengers	37.4% 99 Passengers	29.8% 79 Passengers	57% 265 Passengers	

* Significant at 0.1 level

From Table (6-57) it is noticed that most of passengers were frequent travellers (57%); of those 37.4% are medium loyalty passengers, 32.8% of them are high loyalty passengers, and 29.8% are low loyalty passengers. Non-frequent travellers had the second largest sample size (24.7%), most of whom are medium-loyalty passengers (41.7%). These result will be used to describe loyalty segments and possible recommended strategies as will be shown in the next chapter (section 7-2-4).

6-9 Concluding Remarks

This chapter has documented the results of statistical analysis through examination of different relationships between the three concepts discussed in this research: airline service quality, passenger satisfaction and passenger loyalty. Thirteen hypotheses discussing different relationships between service quality, satisfaction and loyalty in airline services were analysed using SPSS and LISREL VIII. A variety of statistical techniques such as the t-test, ANOVA, regression, correlation, factor analysis, cluster analysis, and finally structural equation relations and path analysis were used to test these thirteen hypotheses. The results indicates that:

1. The dimensions of airline service quality can be identified according to the stages of service provision to passengers.
2. There is no relationship between a passenger's flight class and his evaluation of the services provided by the airline.
3. There is a significant relationship between the purpose of the flights and the evaluation of airline service quality.
4. There is a significant relationship between passenger satisfaction and class fight.
5. There is a significant relationship between passenger's satisfaction and the purpose of the flight.
6. There is no relationship between passengers' loyalty and their demographic characteristics.

7. There is no relationship between ticket prices and the number of flights a passenger has taken with a specific airline.
8. There is a positive relationship between the convenience of flight schedule and the number of flights a passenger takes with a specific airline.
9. There is no relationship between flight information and the number of flights taken with a specific airline.
10. There is no differences between male and female passengers in their perceptions of airline service quality, their satisfaction with the services provided and their loyalty toward a specific airline.
11. There is a positive relationship between the perceived overall quality and passenger's satisfaction.
12. There is a positive relationship between the overall perceived quality and passenger's loyalty.
13. There is no relationship between passenger's satisfaction and his loyalty toward a specific airline.

The present analysis also covered other marketing concepts such as the potential of market segmentation of airline services. Four segmentation criteria were explored: Geographic (nationality) segmentation, benefit (purpose of flight) segmentation, psychographic segmentation and finally loyalty segmentation.

The next chapter presents the conclusions of this study, discusses a number of research limitations and suggests implications for airlines. Avenues for future research are also presented along with areas considered worth for future investigation.

Chapter Seven

Main Findings, Conclusions and Recommendations

7-1	Introduction
7-2	Summary of results
7-2-1	Dimensions of airline service quality
7-2-2	Results related to passenger satisfaction
7-2-3	Loyalty factors
7-2-4	Passenger satisfaction
7-2-5	Linkage between airline service quality, passenger satisfaction and passenger loyalty
7-2-6	Other Results
7-3	Contribution of the study
7-3-1	Theoretical contributions
7-3-2	Practical contributions
7-4	Recommendations
7-4-1	General Recommendations
7-4-2	Recommendations to RJ
7-5	Direction for future research
7-6	Limitations

7-1 Introduction

The importance of the service quality concept in transportation services has been recognised by many scholars in the field. However, theoretical and empirical attention relating service quality to passenger satisfaction and loyalty has been lacking in the literature.

Therefore, to develop a better understanding of the relationship between the quality of airline services, passenger satisfaction and passenger loyalty, an empirical investigation of air-passengers travelling through Queen Alia International Airport (QAIA) was conducted. This investigation was carried out through the use of a self-administered survey questionnaire, which was distributed to 1800 passengers. From the original sample, 500 questionnaires were used, representing a 28% response rate. The information they contained was used to explore six primary questions discussed in section (1-3):

- 1- What are the main factors (dimensions) that can be used to measure airline service quality?
- 2- What is the nature of the relationship between:
 - airline service quality and passenger satisfaction.
 - airline service quality and passenger loyalty.
 - passenger satisfaction and loyalty.
- 3- What influence does the quality of airline services have on passenger satisfaction and loyalty?.
- 4- Do passengers from different demographic categories:
 - view airline service quality differently?
 - differ in their degree of loyalty toward a specific airline?
5. Do passengers exhibiting different psychographic and lifestyle characteristics:
 - view the airline service quality differently ?
 - differ in their satisfaction and loyalty toward a specific airline ?
6. What are the factors (dimensions) that determine passenger loyalty toward a specific airline?

This chapter presents a summary of the findings with conclusions and makes certain recommendations for action based on the empirical results of Chapter Six. It covers the following issues: a summary of the research findings, the main contributions and implications of the research for airline management, the conclusions and recommendations, directions for future research and finally, the limitations of the study.

7-2 Summary of the Results

This section aims to summarise and discuss the main results given in the previous chapter. The discussion will focus on following issues:

7-2-1 Dimensions of Airline Service Quality

The first objective of this study was to identify the main dimensions of airline service quality. In this study the SERVPERF approach was followed to identify the main dimensions of airline service quality. This approach differs from the SERVQUAL in that it measures performance rather than the difference between perception and expectation (P-E) (c.f. Carman 1990 and Babakus and Mangold 1989, 1992, Cronin and Taylor 1992). This approach had been used in many previous studies related to the topic of airline services (c.f., Hopkins et al. 1993, Headly and Miller 1993, Freeman and Dart 1993). More discussion of this matter was presented in section (2-5).

In this study, the dimensions of airline service quality were classified according to the stages in which the services were provided to passengers. The results (Hypothesis One) showed that eight factors (dimensions) can be identified as shown in Table (6-4). Of these, price and image are two quality factors that are not included in the SERVQUAL. These eight factors can be summarised into three main categories:

- (i) Pre-flight services: these include: “airport operations”, “special fares”, “reservation” and “scheduling & image”.

- (ii) In-flight services: these include: “cabin-staff services”, “tangibles” and “communications”, the last of which includes items representing services provided in the three different stages (categories).
- (iii) After flight services: i.e. “post-flight services”, such as transit facilities and the complaints system.

For service quality dimensions, all the factors in the proposed model (fig. 4-2) appeared in the final model (fig. 6-4): scheduling and image, two separate factors in the proposed model, were conflated in the final model. Also the “others” factor in the proposed model appears now in the final model as two separate factors: communications (e.g. audio-visual system) and post-flight services (e.g. transit facilities, complaint system, baggage retrieval, ..etc.). Therefore, the final model shows a clear definition of the quality factors as classified by the stages of services provision to passengers. This is an important issue for an airline. It enables the airline to measure and control the quality of its services through all the stages. Therefore, the airline can identify at which stage passengers perceive high, or low levels of quality. This enables it to deal with problems (if any) efficiently whenever they occur.

Are there other factors which help determine perceived service quality ?

The total variance in overall service quality explained by the eight factors was 57%, which is comparable or almost equal to that amount of variance reported by Parasuraman, Zeithaml, and Berry (1988). This relatively low value suggests that other dimensions may be at work. Carman (1992) has demonstrated the need to be sensitive to factors which may be specific to the particular service offered. It is important here to clarify that the content of each factor (as shown in Table 6-4) includes only those items that appeared in the study questionnaire; meanwhile, it is important to ensure (in the future) that these factors can include other auxiliary services that are really provided by an airline such as hotel reservation, tourist information, car reservation, baggage retrieval, connection to transit flights, and promotions including frequent flyer programmes.

7-2-2 Results related to Passenger Satisfaction

As shown in Table (6-17), it was found that the highest levels of satisfaction were recorded for “on-board services” (with a mean score value of 5.35 on a 7-point scale) while “airport services” had the lowest mean scores (4.74). This means that the airline should improve the quality of services provided at the airport in order to increase the levels of passenger satisfaction. As seen in Appendix VI, passengers were facing problems with the following services: punctuality of departures, terminal announcements, assistance and concern in the event of delays, airport facilities (e.g., cafeteria, toilets, etc), and “check-in” procedures. Passengers showed low levels of quality perception towards these services, especially regarding punctuality of departures where there were many complaints about the delays in RJ flight departures. Therefore, the airline should develop procedures, first to prevent delays in flight departures and, second, to deal with the problem should delays occur. Failure to deal with this issue will reflect negatively on passengers’ overall evaluation of other services as well.

7-2-3 Loyalty Factors

The marketing literature suggests that customer loyalty can be defined in two distinct ways (Jacoby and Kyner 1973). The first defines loyalty as an attitude. Different feelings create an individual’s overall attachment to a product, service, or organisation (see Fornier 1994). These feelings define the individual’s (purely cognitive) degree of loyalty. The second definition of loyalty is behavioural. Examples of loyal behaviour include continuing to purchase services from the same supplier, increasing the scale and/or scope of relationship, or the act of recommendation (Yi, 1990). The results of this study support this two-dimensional aspect of loyalty as was seen in section (6-4-1).

In this study, passenger loyalty was measured using 13 items representing attitudinal and behavioural aspects of loyalty. These items were categorised into 7 groups: purchase intentions, word-of-mouth communications, complaining behaviour, price sensitivity, volition, resistance and complexity. The first four categories measure behavioural intentions while the last three measure the

attitudinal aspect of loyalty. The results of an oblique factor analysis suggested a reconfiguration of the 13 items into four factors (dimensions) as follows: preference and purchase intention, propensity to switch (change), volition, and complaining behaviour. These four factors contained all the 13 items shown in Table (6-25) and explained 43 % of the total variance in passenger loyalty. The 13 loyalty items have been supported by previous literature. For example, a list of specific indicators of favourable behavioural intentions can be compiled. These include saying positive things about the company to others (Boulding et al. 1993), recommending the company or service to others (Parasuraman, Zeithaml, and Berry 1988, Reichheld and Sasser 1990), paying a price premium to the company, and remaining loyal to the company (La Barbera and Mazursky 1983, Newman and Werbel 1973, Rust and Zahoric 1993). On the other hand, there are many indicators of unfavourable behavioural intentions suggested by the preceding studies that include different types of complaining (e.g., complaining to friends or external agencies) and contemplation of switching to competitors. Another indicator of eventual defection is a decrease in the amount of business a customer does with a company.

7-2-4 Market Segmentation

The following four types of passenger segmentation were explored in this study:

- Purpose of the flights segmentation (i.e. benefit segmentation).
- Nationality of passengers segmentation (i.e. geographic segmentation).
- Psychographic segmentation.
- Loyalty segmentation.

As seen in section (6-8) each segment had its own profile which can help an airline to develop different market strategies to satisfy different needs of the passengers in these segments.

Results related to passenger segmentation can be summarised as follows:

1. Passengers travelling for different purposes have different psychographic and demographic characteristics, and therefore belong to different segments. Passengers in these segments had different evaluations for the quality of services provided by an airline. The study results indicate that passengers

travelling for company business (e.g. private sector employees) gave lower evaluations of the quality of services provided; they also showed lower levels of satisfaction and loyalty toward an airline. Table (6-50) summarised the main characteristics of passengers within these segments.

2. Passengers of different nationalities have different profiles according to different psychographic and demographic characteristics. Tables (6-50; 6-51) summarised the main characteristics of passengers according to their nationalities.
3. A segmentation based on psychographic characteristics produced three main clusters or groups of passengers: “Economiser”, “Punctual” and “Indifferent” passengers. An airline may be able to design different programs to satisfy the different needs of these segments. Section (6-8-3) gave more details of this.
4. Results suggested that various clusters of passengers can be classified according to their loyalty toward an airline.

The literature survey indicated that geographic and benefit segmentations are commonly used to segment airline passengers, while psychographic and loyalty segmentation are rarely used in this market. This study contributes to the existing literature by applying cluster analysis to successfully segment airline passengers based on their psychographic characteristics and on their degree of loyalty. Psychographic segmentation was discussed in detail in the previous chapter (section 6-8-3), therefore the following discussion will concentrate on the loyalty segmentation.

As discussed in section (6-4-1), the attitudinal and behavioural aspects of loyalty were found useful for measuring loyalty and segmenting airline passengers. Assael (1987) demonstrated the powerful definition that loyalty segmentation can provide to marketers. A lot of information can be collected when operationalizing loyalty with the attitudinal and behavioural measures (i.e. with resistance, volition, complexity, repeat purchase behaviour, word-of-mouth communication, complaining behaviour and price sensitivity). Each segment's attitudinal and behavioural make up, provides an informative source on which to

base distinct communication strategies. Sheth and Fraizer (1982, P.17) provided a conceptual framework suggesting that different attitude-behaviour combinations deserve different social change processes, to either maintain or persuade people to change their attitudes and behaviour to a position of congruent acceptance (e.g. loyal behaviour and loyal attitude). Their model was adapted in this study to illustrate the application of loyalty in developing communication strategies (see fig. 7-2) that are appropriate for different attitude-behaviour combinations (segments). This process has a theoretical background in Backman and Crompton's (1991) conceptual model, and Jarvis and Mayor's (1986) chain loyalty matrix.

Building on Table (6-54) and the discussion in section (6-4-1) it is possible to develop a chain loyalty matrix that incorporates loyalty levels (clusters) and repeat flying with an airline (frequent-nonfrequent travellers) (fig. 7-1) as follows:

Fig. (7-1)
Descriptive of Loyalty Segments

		Loyalty Levels		
		<i>High</i>	<i>Medium</i>	<i>Low</i>
Repeat Behaviour	<i>Frequent Travellers</i>	True Loyalty	Artificial Loyalty	Spurious Loyalty
	<i>Non-Frequent Travellers</i>	Shared Loyalty (Latent Loyalty)	High Volatility (Potential triers)	Low Loyalty

Each cell in the matrix shown in figure (7-1) can represent a unique segment of passengers. Therefore, an airline can design different strategies (fig. 7-2) to satisfy the needs of passengers in each segment. Possible segments of passengers can be identified as follows:

Segment one: True Loyalty Passengers

Passengers in this segment have high loyalty levels and high repeat behaviour (Frequent travellers). Thus, passengers in this segment have the characteristics of those in cluster one (Table 6-30) in terms of having high attitudinal and

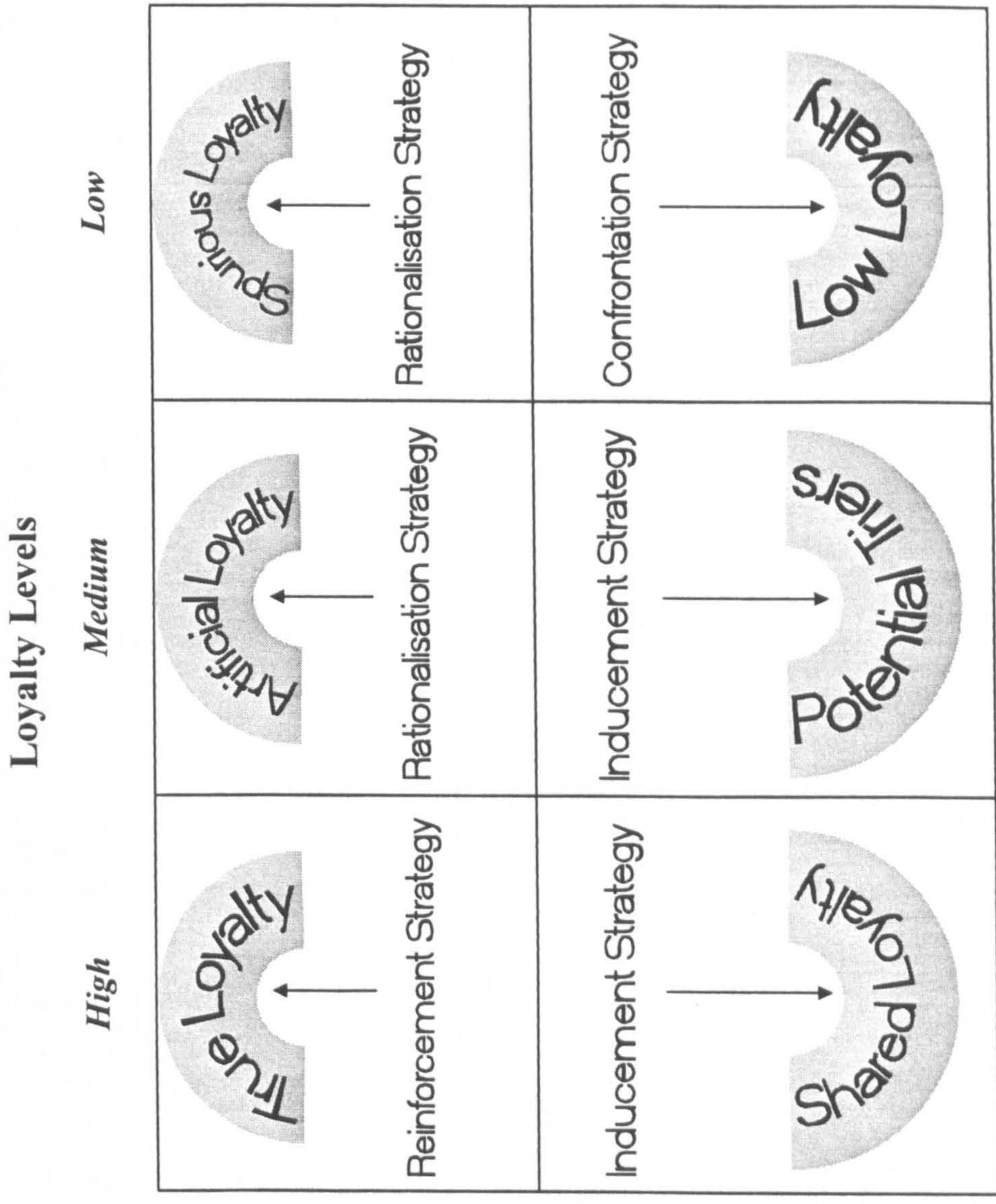
behavioural loyalty which reflects on their repeat flying with an airline (frequent travellers). This is the best situation for any airline. Therefore, an airline should direct a reinforcement (strengthen) strategy to maintain passengers in this segment. This can be achieved by giving more incentives such as more discounts, free travel award tickets, earn advantage miles on the entire airline network, etc.

Segment two: Artificial Loyalty

Passengers in this segment are recent flyers with an airline though are not too much committed to the future use of the airline (they have average loyalty levels). Because they are frequent travellers, their behavioural aspect of loyalty is high but the attitudinal loyalty is not. Therefore, they show average commitment toward an airline. This means that their continued flying with an airline not guaranteed. Thus, passengers loyalty in this segment can be described as artificial loyalty. For this segment, the airline should follow a rationalisation strategy that aims at achieving attitude change by making passengers rationally re-evaluate their decisions. This is not an easy task, it requires the airline to make all the efforts to meet some needs related to their decision criteria. For example as shown in Table (6-30), this segment of passengers mainly have characteristics of “medium loyalty” passengers. The passengers are highly price sensitive, they have high resistance to change, and do complain more when facing problems. The airline therefore, should provide more discounts and concentrate the advertising messages on the attractiveness of airline prices compared with other airlines. Also, the airline should improve the communication process with passengers and attempt to foster a more personal relationship with those passengers. Moreover, the airline should design an easy and helpful complaint system that makes passengers feel more comfortable when reporting any kind of complaint. Handling any complaints properly and fairly will have a great influence on passengers’ feelings toward the airline.

Fig. (7-2)

Various Strategies suitable for Loyalty Segments



Segment three: Spurious Loyalty

Passengers in this segment are also recent flyers with an airline (like those in segment two) but are not committed to the continued use of the airline (they have low level of loyalty). So they are similar to the passengers in segment two, but have lower commitment towards the airline. Therefore, the same rationalisation strategy can be applied for this segment.

Segment Four: Shared or Latent Loyalty

Passengers in this segment are non-frequent travellers although they have high loyalty levels. It seems that there may be some constraints (socio-economic, organisational, time, place) that influence/limit their flying with the airline. Therefore, the high loyalty levels for passengers in this segment comes from their high attitudinal (commitment) levels. Loyalty in this segment can be described as latent loyalty or shared loyalty or even frustrated loyalty, because this high loyalty was not translated to actual behaviour (tangible loyalty) for the airline. Therefore, the main goal for an airline here is to facilitate behavioural change, because the passengers are already psychologically committed to an airline. The airline communication strategy for this segment should be directed towards the latent traveller and should be strategically based on the inducement (motivation) process such as: ticket discounts and other promotional campaigns. Passengers from this segment may be of the same nationality as that of the airline, so they have positive feelings toward their airline but may find some difficulties in flying with it for reasons related to high ticket prices, inconvenient flight schedule, or any other reason.

Segment Five: High Volatility

Passengers in this segment are non-frequent travellers and have medium loyalty levels (i.e. they have neutral feelings toward an airline). They may be highly volatile (i.e. vulnerable to a competitor) or they could be “potential flyers”. Passengers have average commitment (attitudinal loyalty) toward the airline, but low behavioural intentions. So an Inducement (motivation) strategy (as in

segment four) that concentrate on increasing behavioural loyalty, is also recommended.

Segment Six: Low loyalty passengers

Passengers in this segment are non-frequent travellers and have low loyalty levels. They do not like the airline and do not fly with it; they have a low sense of commitment or negative attitude toward the airline. The appropriate strategy for this segment as Sheth and Fraizer (1982) suggest is the “Confrontation process/ strategy”. This process is considered as the most difficult and expensive communication strategy. It requires a direct communication attack on passengers’ existing attitudes and behavioural intentions. This however, may cause what Kiesler (1971) called the “boomerang” effect; i.e. where counter-persuasive communication may at times strengthen the recipient’s resistance to change.

From the previous discussion it can be concluded that a successful airline should make every effort to bring the passengers toward a true service loyalty (segment one). This process should be taken gradually, by concentrating first on either behavioural or attitudinal change (i.e. movement to segments 2, 3, 4). The confrontation process is the last strategy to be applied as it is considered the least cost efficient in terms of turning passengers’ attitudes and behaviour around. Therefore many researchers (e.g. Hawkins et al. 1983, Rothchild 1987) recommend concentration on the more attractive, less resistant segments (i.e. segments 2, 3, 4) maintaining position in segment one as a target goal within all the communication process. Table (7-1) summarises the main passenger segments, passengers’ characteristics and the appropriate strategies for each segment.

Table (7-1)

Airline Passengers' Segments, their Characteristics and Recommended Strategies toward the Segments

Segment Label	Characteristics of passengers' Segments	Recommended strategies for each segment
1. True Loyalty	<ul style="list-style-type: none"> - have high commitment to fly with an airline. - have high behavioural intentions to fly with the airline (Frequent travellers). - passengers in this segment have the characteristics of high loyalty passengers as classified in cluster one (table 6-36). 	<p style="text-align: center;"><i>Reinforcement Stately</i></p> <p>(e.g. more incentives such as discounts, free award tickets, etc...)</p>
2. Artificial Loyalty	<ul style="list-style-type: none"> - have average commitment to the airline - have high behavioural intentions toward the airline (Frequent travellers). - passengers in this segment have the characteristics medium loyalty passengers as those in cluster two (table 6-36). 	<p style="text-align: center;"><i>Rationalisation Strategy</i></p> <p>(e.g. efforts to satisfy passengers' needs through communication process, foster more personal relationships with passengers, appropriate complaint system).</p>
3. Spurious Loyalty	<ul style="list-style-type: none"> - passengers in this segment are similar to those in segment 2, but have low commitment to the airline 	<p style="text-align: center;"><i>Rationalisation Strategy</i></p>
4. Shared Loyalty (Latent Loyalty)	<ul style="list-style-type: none"> - have low behavioural intentions to fly with the airline (Non-Frequent travellers). - have high commitment (attitudinal levels) to the airline. 	<p style="text-align: center;"><i>Inducement Strategy</i></p> <p>(e.g. efforts to facilitate behavioural change because passengers are already psychologically committed to an airline; communication strategy should concentrate on more incentives (motivation) such as more discounts)</p>
5. High Volatility (Potential Triers)	<ul style="list-style-type: none"> - have low behavioural intentions to fly with the airline (Non-Frequent travellers). - have average attitudinal levels (feelings) toward the airline. - they are highly volatile (vulnerable to a competitor). 	<p style="text-align: center;"><i>Inducement Strategy</i></p>
6. Low Loyalty	<ul style="list-style-type: none"> - have low behavioural intentions to fly with the airline (Non-Frequent travellers). - have low sense of commitment or negative attitude toward the airline. 	<p style="text-align: center;"><i>Confrontation Strategy</i></p> <p>(direct attack on passengers existing attitude and behavioural intentions toward the airline)</p>

7-2-5 Link between airline service quality, passengers' satisfaction and passengers' loyalty)

The relationships between the three concepts were examined to identify the direction of the causal relationships between them. LISREL 8 was used to examine these relationships. Results are summarised as follows:

(i) Link between Service Quality and Passenger Satisfaction

A great deal of discussion has occurred within the service literature regarding the appropriate causal relationships between satisfaction and service quality. Hypothesis Eleven was concerned with the relationship between airline service quality and passenger satisfaction. This hypothesis was supported by the data in terms of the hypothesised direction of the causal relationship between the two constructs. Results showed that overall service quality is an antecedent of passenger satisfaction. **This result confirms the researcher's assumption that service quality and satisfaction are different constructs, and that service quality leads to passenger satisfaction.**

The results (section 6-3-2) indicate that satisfaction items can be explained by different quality dimensions. It was noticed that "tangibles" (e.g., food and plane characteristics), "post-flight services", "scheduling and image", "airport operations" and "cabin-staff services" have most importance in affecting passenger satisfaction. Le Blanc's (1992) observation supports this result: "quality and satisfaction are related in the sense that customers (e.g. passengers) who are satisfied over time are deemed to perceive quality in the service provided". Therefore, the principal benefits offered to customers by the airline should be emphasised in promotional activities and airline managers should ensure that what is promised to passengers is delivered. It is important here to clarify that quality improvement efforts should be directed to contact personnel in order to increase their willingness and ability to perform (Hesket et. al. 1990). This area was not investigated in this study but may be targeted in future studies. It is important also to mention here that a key objective for airlines should be to guarantee satisfaction over repeated service encounters, since satisfaction over

time, results in perceptions of service quality (Parasuraman et al. 1988). Levels of service quality should also be considered when segmenting markets to assure that what is delivered corresponds to the expectations of the customer segments. It can be argued that customers have some levels of expected performance with regard to these factors, either from previous experiences or from other passengers; therefore if the airline does not achieve these levels, both customer satisfaction (Oliver 1981) and perceptions of service quality, could be affected.

(ii) Link between Service Quality and Loyalty

Hypothesis twelve, was concerned with the relationship between the dimensions of airline service quality and passenger loyalty. Results indicated that there was a significant and positive relationship between service quality dimensions and overall passenger loyalty. This result confirmed that overall service quality is an antecedent to passenger loyalty.

As shown in Table (6-32), where another approach (stepwise multiple regression between all quality factors and each loyalty measure) was used to investigate the relationship between service quality and loyalty, results indicated that the most important quality factors in explaining the variance in passenger loyalty were “post-flight services” and “reservation”, followed by “tangibles”, “special fares”, “scheduling and image” and finally “cabin-staff services”. This result is of great importance to an airline management: it gives them an idea about those main quality factors that influence all factors of passenger loyalty, which is indeed one of the most important concerns of any airline.

As mentioned before, several studies have examined the association between service quality and more specific behavioural intentions. For example, Parasuraman, Zeithaml and Berry (1988), found a positive and significant relationship between customers’ perceptions of service quality and their willingness to recommend the company. Boulding et al (1993) found a positive correlation between service quality and two behavioural measures of loyalty: purchase intentions and willingness to recommend; while in another study that involved university students, they found strong links between service quality and

behavioural intentions that were of strategic importance to the school in question. These include, saying positive things about the school, planning to contribute money to the class pledge on graduation, and planning to recommend the school to employers as a source of recruitment.

(iii) Link between Satisfaction and Loyalty

Hypothesis thirteen explored the relationship between passenger satisfaction and loyalty toward a specific airline. Results suggest that a significant relationship between the two constructs is confirmed only in the proposed model, while the final model failed to confirm such a relationship.

The relationship between purchase intentions (a loyalty dimension) and customer satisfaction has been addressed in several studies (Oliver (1980), Bearden and Teal (1983), Labarbara and Mazursky (1983), Oliver and Swan (1989), Woodside et al. (1989), Bitner (1990), Cronin and Taylor (1992)). Moreover, Yi's "critical review of customer satisfaction" (Yi, 1990) concludes, "many studies found that customer satisfaction influences purchase intentions as well as post-purchase attitudes" (P.104). Anderson and Sullivan (1993) found through analysing data from a study of customer satisfaction among Swedish consumers, that stated repurchase intention is strongly related to stated satisfaction across product categories. A study conducted by Woodside, Frey, and Daly (1989) uncovers a significant association between overall patient satisfaction and intent to choose the hospital again. Complaining behaviour (which is a behavioural measure of loyalty) itself is conceptualised as multifaceted; according to Singh (1988), dissatisfaction leads to consumer-complaining behaviour that is manifested in voice responses (such as seeking redress from the seller), private responses (negative word-of-mouth communication), or third-party responses (taking legal action).

7-2-6 Other Findings of the Study

Other data analysis results are summarised as follows:

1. Hypothesis Two was concerned with the relationships between airline flight class and the dimensions of airline service quality. The results from

Hypothesis Two indicate that no significant relationships ($P < 0.05$) exist between airline flight class and all the dimensions (factors) of service quality except with the “airport operations” factor in which significant differences were found between passengers in the first class and passengers in other classes. This result does not support Makens’ and Marquardt’s (1977) empirical study of consumer perceptions regarding first class and economy airline seating, in which they indicate that the majority of the respondents perceived very large differences between first class and economy class. It was noticed that passengers in the economy class gave highest ratings (on the 7-point scale) to this factor, while those in the first class gave it the lowest ratings (evaluation). This result can be explained as follows: the passengers in the first class (of which 47.3% were travelling for company business), expected higher levels of services related to this factor (e.g., clean airport facilities, efficient check-in procedures, etc.) than they actually received, indicating that the airline should improve the quality of services offered to the first and business class passengers.

2. Hypothesis Three is concerned with the relationship between the purpose of the flight, and airline service quality. A significant relationship was found to exist between these variables. The main significant differences were shown in Table (6-15). Results confirmed that passengers who were travelling for different purposes differ significantly in the evaluation of the quality of services provided by an airline. This implies that an airline should profile what kinds of passengers are flying in each flight (e.g. for what reasons they are flying) and why they have different evaluations. This will enable the airline to satisfy the different needs of different groups of passengers categorised according to different flight purposes. The empirical findings from Hypothesis Three support previous studies (e.g., Etherington and Var 1984, Good et al. 1985, Green and Tull 1978, O’Brien et al. (1977)) which suggest that the importance air passengers place on service-related attributes, differs according to the purpose of the trip. From a practical point of view, it

is difficult for an airline to identify the different categories of passengers according to their purposes of flights in all the flights, but on certain occasions (for example when an airline organises special flights for tourist groups, or when most of the passengers are students, or when an airline knows that there are passengers who have medical problems) then the airline should be aware that these categories of passengers may have different requirements or needs, and therefore should take these different needs into consideration. This will give passengers a good impression and encourage them to fly next time and/or make them more likely to encourage others to fly with this airline.

3. Hypothesis Four is concerned with the relationship between passenger flight class and passenger satisfaction. Results showed that passengers travelling in different flight classes had different levels of satisfaction regarding the services provided by the RJ airline (section 6-3-3). It was seen that passengers in economy class (54% of whom were travelling for tourism and to visit family/friends) were more satisfied with the service, followed by passengers in first class (47% of whom were travelling for company business), while those in business class (45.1% of whom were travelling for company business) showed lowest satisfaction levels. This result reflects an important problem for an airline: the level of service in first and business class is not as expected by passengers. Passengers in these classes paid more money, so they expected higher quality of service. This problem appeared mainly in the business class where passengers showed the lowest level of satisfaction. Therefore, the airline should search for the reasons, because the business class nowadays receives increased competitive attention by most airlines. The importance of satisfying business passengers comes from the fact that those are usually frequent passengers. Therefore satisfying their needs is very important to make them fly next time with the airline (i.e. to obtain their loyalty).

4. Regarding the purposes of flights, results (section 6-3-3) suggest that students had lower levels of satisfaction than those who travel for company work (Hypothesis Five). This study did not provide reasons for this, but it does indicate to the airline that more research is needed in order to identify the reasons for such an outcome. This may also encourage future research on why passengers who travel for different purposes may have different levels of satisfaction with the services provided by an airline.
5. Frequent-travellers are less satisfied with RJ services than non-frequent travellers. RJ should examine the reasons for this, because frequent travellers are a group that the airline should try to retain.

7-2-7 Summary of the hypotheses testing results

Table (7-2) summarises the results of hypotheses testing.

**Table (7-2)
Research Results**

Hypotheses	Results
H1: Dimensions of airline service quality can not be identified through the stages of services provision to passengers.	Not Supported
H2: There is no significant relationship between a passenger's flight class and the evaluation of airline service quality.	Supported
H3: There is no significant relationship between the purpose of flights and the evaluation of airline service quality.	Not Supported
H4: There is no significant relationship between the flight class and passenger satisfaction.	Not Supported
H5: There is no significant relationship between the purpose of the flight and passenger satisfaction.	Not Supported
H6: There is no significant relationship between demographic characteristics of passengers and their loyalty to an airline.	Supported
H7: Frequency of travel is not related to the prices of flight tickets.	Not Supported
H8: Compared with infrequent travellers, frequent travellers are more likely to perceive the benefits of flight convenience.	Supported
H9: Compared with infrequent travellers, frequent travellers are more likely to search for flight information.	Not Supported
H10: There are no differences between male and female passengers in the mean of their: (i) perceived service quality (ii) satisfaction (iii) loyalty	Supported Supported Supported
H11: There is a positive relationship between overall quality and passenger satisfaction.	Supported
H12: Higher levels of perceived service quality leads to higher levels of passenger loyalty toward an airline.	Supported
H13: There is a positive association between passenger satisfaction and his loyalty toward a specific airline.	Not Supported

7-3 Contributions of the study

The examination of the literature related to airline service quality, passenger satisfaction and loyalty, revealed that relatively little research has been conducted on the topic. Moreover, the research that has been done fails to provide adequate coverage of the interaction between airline service quality, passenger satisfaction and their loyalty toward a specific airline.

This study is an attempt to contribute theoretically and practically to the airline service industry.

7-3-1 Theoretical Contributions

1. Analytical integration of the three constructs: airline service quality, passenger satisfaction and passenger loyalty.

In a broad sense, the theoretical contribution of this study stems from the attempt to **re-integrate service quality, consumer satisfaction, and loyalty into air-transportation industry**, whereas the literature shows **contradictory** views regarding the relationships between these variables.

This study explores relationships between different constructs, incorporating an extensive set of factors that affect air passengers. Although not all the proposed relationships are supported, they offer a systematic investigative approach with specific factors and variables that provide a realistic means of understanding complicated issues.

2. Measurement approaches:

(i) In this study airline service quality was measured following (SERVPERF) approach and depended on categorising services according to the stages of services provision to passengers. This is the first time ever, that an attempt has been made to identify airline service quality based on services provision to passengers. Beyond the dimensions suggested to identify airline service quality, the use of pre-flight, in-flight and post-flight service classification, offers the opportunity to examine the importance that can be made according to passengers' evaluations of the airline services in these different stages.

This approach can be applied to other services where the service provider can classify services into: before providing the service, during the service and after providing the service. This will enable the service provider to control all the stages and therefore it will be easier to identify where problems occur and how to cover the situation should problems occur.

(ii) To effectively find out what customers need, airlines need to go to the source: “the passengers”. This study was effective in doing this by going directly to the source. The survey instrument was developed from in-depth exploratory search in the related literature, and by interviewing airline officials. The credibility of the instrument came out of this research approach and is exhibited by the high reliability and validity that was accomplished. This study provides much insight as to how various suggested measures represent a construct, how reliable these are, and which ones may serve best as foundations for further investigation.

3. **Loyalty measurement:** this study discusses the loyalty concept in a comprehensive way. Both behavioural and attitudinal dimensions of loyalty were considered, while previous studies take only the first dimension to represent the loyalty concept.
4. **Model Development:** this is achieved through presentation of the main elements in the airline travel behaviour via the development of a conceptual model (the proposed model) that shows the main elements of airline service quality and passenger loyalty, and how they all were connected by passenger satisfaction.
5. **Analytical advantage:** this is achieved by applying linear structural analysis by using LISREL 8 to identify the causal relationships between airline service quality, passenger satisfaction and passenger loyalty. This, (as far as I know) has not been used in any previous studies in airline services.

6. **Segmentation approach:** this study used market segmentation strategy to classify airline passengers and to recommend appropriate strategies to each segment. Four types of segmentation approaches have been used. Of these, only geographic (i.e. nationality) and benefit (i.e. purpose of flights) segmentations were widely used in previous studies. Psychographic segmentation was sometimes used with demographic segmentation. However, a clear new contribution of this study is the loyalty segmentation in airline services. This can be considered as an addition to the existing knowledge in the marketing of airline services. In addition, distinctive marketing strategies have been suggested for each market segment identified. Customer loyalty is an important ingredient in a service agency's market share, and deserves continued attention in the company's marketing and communication efforts. With many airlines now beginning to adopt service quality or customer satisfaction themes in order to differentiate themselves in a competitive market, it will become critical to understand the nature of loyalty and the returning customer. Though other segmentation procedures such as benefit analysis can furnish the travel marketer with the "what" in customer appeals or benefits, they do not describe "how" these appeals should be communicated in order to differentiate the travel service from that of competitors. More details were presented in section (7-2-4).

Table (7-3) summarises all the statistical tests used in this research and their contributions to the existing knowledge or literature. These contributions are classified into three levels: original contribution (i.e. used to the first time); partially original (i.e. used sometimes in previous literature in the context of other industries); and not original (i.e. widely used in previous literature including airlines).

Table (7-3)

Applications of the statistical analyses used in this research and their contributions to existent knowledge or literature

Method/Test	Application in the present study	Contribution
LISREL 8	<ul style="list-style-type: none"> To examine the relationship between service quality, passenger satisfaction and passenger loyalty. 	<p>Original This is the first time LISREL has been used to investigate the relationship between the three concepts.</p>
Path analysis	<ul style="list-style-type: none"> To explore the direction of the causal relationship between airline service quality, passenger satisfaction and passenger loyalty. (To test the proposed and final model) 	<p>Original This is the first time that path analysis (using LISREL8) has been used to explore the direction of the causal relationships between airline service quality, passenger satisfaction and passenger loyalty.</p>
Cluster Analysis and Chi-square	<ul style="list-style-type: none"> To develop a chain loyalty matrix that incorporate loyalty levels and repeat flying with an airline. 	<p>Original Cluster analysis and chi square were used to classify airline passengers into six segments. Appropriate marketing strategies were suggested for each segment.</p>
Cluster Analysis	<ul style="list-style-type: none"> To test the appropriateness of loyalty as a basis for passengers' segmentation. 	<p>Original Airline passengers were classified into three clusters based on their loyalty levels. Both attitudinal and behavioural aspects of loyalty were considered to measure loyalty.</p>
	<ul style="list-style-type: none"> To test the appropriateness of psychographic characteristics as a basis for passengers' segmentation. 	<p>Partially original Airline passengers were classified into three clusters based on their psychographic characteristics. This has not been used widely before because of the difficulty in measuring psychographic characteristics. Most previous studies used instead demographic segmentation.</p>
Factor Analysis	<ul style="list-style-type: none"> To identify the main factors of airline service quality and the main factors of passenger loyalty. 	<p>Partially original Different solutions were suggested according to various criteria, then the most appropriate one was selected. Additionally, airline service quality is classified based on stages of services provision to passengers. Loyalty is also examined by measuring both attitudinal and behavioural aspects.</p>
Multiple Stepwise Regression	<ul style="list-style-type: none"> To explore the importance of quality factors in achieving passenger satisfaction. To explore the relationship between loyalty measures and the importance of quality dimensions. 	<p>Partially original This has not been used widely before. Stepwise multiple regression was used to explore the importance of each quality factor in identifying passengers' satisfaction and loyalty. The more times the quality factor appears in the stepwise regression models, the more importance it was deemed to have in explaining passenger satisfaction and loyalty.</p>

Continued.....

Table (7-3)

Method/Test	Application in the present study	Contribution
Duncan and Scheffe tests	<ul style="list-style-type: none"> • Used in all the occasions where ANOVA used. This is not widely used in previous airlines studies. • Used to check if passengers' clusters based on loyalty levels and on psychographic characteristics are really different. • Used to test the convergent validity of service quality, passenger satisfaction and passenger loyalty scale of measurements. • To test the relationship between the no. of flights and passengers' evaluation of service quality, satisfaction and loyalty. • To explore the relationships between psychographic characteristics with, purpose of flights and with loyalty clusters. 	<p align="center">Partially original</p> <p>It has not been widely used in previous studies. In this study, it was used on many occasions especially to test for convergent validity, and to examine if loyalty and psychographic clusters are really different from each others.</p>
MANOVA	<ul style="list-style-type: none"> • To test if the three passengers' clusters are different 	<p align="center">Partially original</p> <p>It is used in addition to ANOVA and Duncan tests to check for the difference between loyalty and psychographic clusters.</p>
Simple descriptive statistics (Mean, Frequencies)	<ul style="list-style-type: none"> • Respondents' profile • Satisfaction levels 	<p align="center">Not original (widely used before)</p>
Cronbach Alpha	<ul style="list-style-type: none"> • To test scale and factor reliability 	<p align="center">Not original</p>
ANOVA	<ul style="list-style-type: none"> • To explore the relationship between flight class and service quality. • To explore the relationship between flight class and satisfaction. • To explore the relationship between flight purposes and service quality. • To explore the relationship between flight purposes and satisfaction. • To validate loyalty clusters • To test the difference between the three passengers' clusters based on their socio-demographic variables. • Purpose of flight (benefit) segmentation • Nationality (geographical) segmentation 	<p align="center">Not original</p>
Chi-square	<ul style="list-style-type: none"> • To profile passengers' clusters based on socio-demographic characteristics. • To profile frequent and non-frequent travellers based on socio-demographic characteristics. 	<p align="center">Not original</p>
T-test	<ul style="list-style-type: none"> • To explore whether male and female passengers have different evaluations to service quality, satisfaction and loyalty. 	<p align="center">Not original</p>

7-3-2 Practical Contributions

- 1. The relationship between airline service quality, passengers' satisfaction and passengers' loyalty:** This study empirically demonstrates the main quality attributes of airline services (section 6-2-5), and its relationship with passengers' satisfaction and loyalty (section 6-7). *Marketing managers* should find these results useful when attempting to attract customers. Many firms are realising that their offerings are partly a tangible product and partly intangible services (Shostack, 1977). It appears that customers utilise multiple process and outcome quality attributes in choice decisions. No one set of attributes can capture the complexities of choice. As such, managers should emphasise multiple attributes when promoting and providing services. Moreover, this study contributes to practice by providing meaningful information to airline executives in order to help them adjust their airlines' services to the needs and wants of the passengers. So, the relationships explored in this study should help airline management to understand how the services provided by their airlines match passengers' expectations, and how different passengers' segments perceive and evaluate the airlines' services.
- 2. The design of communication strategies:** Loyalty segmentation provides a unique market/customer analysis on which to base communication strategies. These strategies are process oriented and examine both the consumer's behaviour and attitude in targeting different loyalty segments. More details are presented in section 7-2-4.
- 3. Contributions to operation managers:** From a practical point of view, service operation managers need to realise the significant potential of the "recovery process" in not only removing dissatisfaction but as a significant source of improving satisfaction. There need to be good systems in place for identifying failures in the system, whether the blame lies with the airline, its services, equipment or indeed with passengers, in order to try to recover the situation and enhance satisfaction. The airline can identify points of failure

through comparing results of service assessment i.e. by analysing data collected monthly or quarterly and examine differences in service evaluation and main passengers complaints during these periods. Such a comparison will enable an airline to be aware of the situation related to this operation and will help the airline to design an efficient program to deal with complaints.

4. **Identifying clear profiles of airline passengers:** This study contributes in suggesting various approaches to profile airline passengers. This was achieved through applying different segmentation criteria such as: loyalty segmentation, psychographic segmentation, in addition to the benefit and geographic segmentation.
5. **Other issues:** The results of the present research raise serious questions about the merit of the study of the relationship between service quality, satisfaction and loyalty as a subject in its own right and about the value of the extensive literature which has been developed around the three concepts. Moreover, the results help clarify the significance of service quality, passenger satisfaction and loyalty for marketing practitioners and enable the identification of some limitations upon its use.

The importance of passenger satisfaction to marketers lies in its implication that the performance of the service is acceptable to the passenger. Furthermore, it implies that the passenger will have a tendency to act in a positive way towards the airline by, for example, recommending the airline to a friend, continuing to fly with an airline in the future and showing resistance to change preference despite the attitude of close friends (loyalty). The premise that high perceptions of service quality can result in high passengers' satisfaction levels is supported in the present research. Moreover, the argument that high perception of service quality will affect passenger loyalty, and that high degree of loyalty may be influenced by passenger satisfaction is also supported. However, it is important to remember here that although the level of a passenger's satisfaction with RJ services conveys important information about its performance (i.e. its high service quality), it is not the

only criterion which marketers should use to assess a service. Consequently, high levels of passenger satisfaction do not necessarily mean that the airline will be successful, and passenger will continue to fly with it. Passenger satisfaction or loyalty alone cannot therefore be used as the basis for all marketing decisions. Different airline services will have varying impact upon the overall level of passenger satisfaction. This means that it is important that the airline examines the way in which passenger satisfaction occurs and identifies the relative contribution of satisfaction with various services to sub-dimensions of and/or overall service satisfaction. The importance may vary between different types of passengers. This clearly also has implications for the measurement of passenger satisfaction. Passenger satisfaction contains relatively little diagnostic information for the marketer. Although it can be used to identify areas of the service performance which are inadequate, it does not provide any guidance on how the performance should be changed to improve the satisfaction ratings. Therefore, the loyalty concept was considered in depth in this study, because it offers more comprehensive information about the performance of an airline.

Finally, according to the theoretical and practical contributions, the airline can benefit by using the methodology involved in producing such significant results. For example, the airline can use the instrument in several ways:

- The airline could do a market study of a route that is losing revenue. By applying the current survey assessment they can identify what customers on this route need from an airline and how they evaluate the service provided by an airline. This will allow the airline to identify where problems occurred.
- The survey assessment (questionnaire) can be used as an in-flight survey instrument. The airline can use the information gathered to continuously assess passengers' needs. The information gathered can be statistically compared on a monthly or quarterly basis. Furthermore, the instrument

can be modified so that an airline can examine a particular dimension of customer service.

- The airline can use the questionnaire during problematic flight operations, such as delays relating to weather or mechanical reasons. Passengers tend to be honest in their opinions when they feel that they have been inconvenienced. Therefore, airlines can use the survey in several ways. First, they can give it to passengers so that they can express their frustration. When passengers are allowed to express their opinions and they know that the information will be sent directly to the upper management, they are more likely to remain rational about the situation. Second, the airlines can use the information gathered to assess how passengers view their performance during a crisis situation. Also the airline can use the information gathered to see how the airline actually performed and compare this with a performance criteria of how the airline would like to perform during a crisis situation.

7-4 Recommendations

Schindler (1993) pointed out that if organisations want to know what their “user-customer” wants, then they should adopt the old fashioned approach of asking them. This study utilised this technique and has produced an instrument with reasonable high reliability and validity that has produced interesting results.

7-4-1 General recommendations

1. **TQM perspective:** An airline should aim at offering a complex travel concept, sensitive to individual needs at a relatively high price. The customer is buying a concept and will himself be measuring the relational quality between the different services. It would be meaningless to divide the core, supporting and facilitating services into small parts and measure the “quality” of the individual pieces. For example, it does not help much that the “check-in” and “reservation” services were perfect and the dinner was delicious if a delay caused the customer a two or three-hours wait at the airport. The quality is not measured vertically, but horizontally for the entire service package.

The important thing is not the average quality from a check list, but the total quality of the service package; and that can only be known by the customer in his own subjective way. TQM relates to the following issues:

- ***Passenger loyalty:*** The most secure or relevant way to measure this total quality is observation of customers loyalty toward the airline. Repeat business and good word-of-mouth marketing will be a key success indicator. Market share will also be important by looking at different market segments and how often they repeat their business with the airline.
- ***Employee investment:*** It is important to develop or hire staff that are more qualified to make individual decisions depending on the existing situations and conditions prevailing at airports. This demands a highly motivated professional staff with a passion for their work where the individual concept matches both the team concept and the service concept of the whole organisation.

2. **Developing a competitive service system:** A competitive service system requires the combination of a complex offer of what in the 1980s were seen as core services (e.g., flights), supporting services (e.g., hotels) and facilitating services (e.g., financial services). Furthermore, these need to be offered through an advanced integrated world-wide information system and a number of strategic alliances. However, a key to the success of this is a programme of service excellence offered through a high qualified staff. For airlines, obtaining a patent on its system (i.e flights) or the services offered to the passengers is very difficult, but the airline that executes an excellent service is hard to copy.

3. **Quality development:** Service quality is a matter of controlling details in the service delivery. Quality development means improving all the parts of service chain and seeing the whole. Therefore, the following points are very important for quality development:

- Highlighting the personal quality of airline staff.
- Being sensitive to signals of dissatisfaction by “reading” customers and

thus discovering quality defects before the customer complains and making it easier for the customer to complain.

- Looking after the customer and correcting faults which have arisen.
- Providing generous compensation
- Providing clear, rapid and “truthful” information.

4. **Building an airline own culture (or image):** This is a combination of an advanced information culture (i.e., proactive information handling) and an advanced service culture (i.e. a culture focused on organisational service learning) that creates loyal customers and high profit. This service culture must be part of a continuously learning organisation where the individual, the team and the organisational concept match each other. In time, research and training will become a fundamental factor for organisational learning, where the mental reconstruction of critical elements in the service systems will be of a major importance.

5. **Research and development:** As suggested by Zahoric and Rust (1992), there is clearly a need for more quantitatively driven empirical research in the area of specific and implementable recommendations for managers such as those in airlines. As firms begin to measure both customer satisfaction and customer loyalty more completely, specific actions can be recommended that will optimise managers’ investments in improved service. The relationships among customer satisfaction, customer loyalty and service quality warrant further research.

7-4-2 Recommendations to the Royal Jordanian airlines

In order to be successful, the Royal Jordanian will have to achieve high scores on the following issues:

- 1- Building on the results of the psychographic segmentation (as seen in section 6-8-3) the following recommendations can be made:
 - For cluster one, the “Economizer Passengers”, the airline should give more discounts [*price strategy*] and provide more information about the flights.

Therefore, the advertising message should concentrate on how much the airline's prices are competitive compared with other airlines.

- For cluster two, the “Punctual Passengers”, the airline should concentrate on the importance of convenient flight schedules and supporting aspects. Therefore, RJ should focus on *promotional strategy*, that shows the appropriateness of its flights schedule and its ability to reach many destinations all over the world.
 - For cluster three, the “Indifferent Passengers”, it is preferable not to waste a long time on this cluster because passengers have negative attitudes and do not care about prices, flight schedules and information, or even promotional influences. Therefore, the airline should try to investigate what are the other factors that can affect this segment's choice decisions.
- 2- Improve the quality of services provided in first and business classes. It was found that the quality of services in business class is not perceived to be of a high standard.
 - 3- Examine those areas of weak evaluations of the quality of services as perceived by different categories of passengers. This will help the airline to solve the problems and to provide certain kinds of services that were not covered before. Moreover, it will affect passengers satisfaction and their willingness to fly with the airline in the future.
 - 4- Achieve a high degree of sensitivity to individual passengers' needs. To succeed in achieving that, the airline should take into consideration the following principles:
 - The passenger is buying a travel concept according to individual needs and utility and not a number of services that are measurable. This is individual service matched with mass services.
 - Advanced information systems are imperative in order to offer a complex travel programme and allow for the possibility of sensitivity to individual needs and utility. The historical information pertaining to the travel habits of customer is of crucial analytical value for evaluating both service quality and

the profit of each service in the system, as well as for offering new service opportunities.

- 5- Achieve a high degree of customer satisfaction with the total service package, including the comparative measurements of the definitive concepts of service from month to month, creating the capability for quick trouble-shooting (i.e. eliminating the undesirable elements of the service package).
- 6- Airline administrators should focus their effort on specific areas of quality that had greater influence in explaining the consumer's intent to behave and their satisfaction. If only limited resources are available to implement service quality improvements, ensuring that the promised service is performed accurately, dependably, and with great care of individuals needs, will offer the best return in passenger satisfaction and passenger intentions for repeat business (loyalty) in the future.
- 7- Airline managers should be careful not to increase passenger expectations for any of the service quality dimensions when promoting their services while strengthening their employees' education and training programs to enhance passenger perceptions.
- 8- Results indicated that European passengers were more willing to travel to foreign countries for holiday. Followed by Australians and Americans, while Jordanians came at the end. According to this result, the airline should provide special offers to packages or groups of passengers from such areas (e.g. Europeans) to encourage tourist flights, and in parallel special programs should be designed to encourage Jordanians to fly with RJ in their vacations.
- 9- Jordanian passengers show high loyalty to their national carrier, the Royal Jordanian (RJ). Therefore, RJ should work hard to maintain this situation, in order to guarantee more frequent flyers in the future. Results also indicate that Jordanian passengers are highly affected by promotions; thus RJ should concentrate to portraying a good image among the Jordanians either in its advertising messages or through distributing leaflets, calendars, or small gifts with RJ logo.

- 10- The airline must offer students more discounts and more incentives, as they are particularly sensitive to ticket prices when selecting an airline to fly with.
- 11- It was seen that Europeans (the second largest sector of RJ passengers), showed lower degrees of loyalty and satisfaction with RJ services. Therefore, RJ management should deal carefully with this situation especially through its stations in European countries who should work harder to improve RJ image in this important market. Additionally and more importantly, RJ should investigate why European passengers have such attitudes toward the airline.

7-5 Directions for future research

The results of this study may possibly have a far reaching effect on how airlines view customer service in the future. The theoretical impact is quite evident when the results are examined. The results suggest that airlines may need to take a closer look at what customers want in terms of service.

This research represents an important step in understanding the issues involved in the operationalization of airline service quality, passenger satisfaction and passenger loyalty. However, several additional research areas of interest have surfaced.

- (i) Future research on the topics studied and reported herein should entail a replication of the present study. Replication could enhance the value and general applicability of the findings in the present study, particularly in reference to airline service quality.
- (ii) Further investigation of satisfaction measurement. As seen in this study only encounter and overall satisfaction were measured; while item satisfaction has not been measured to reduce the length of the questionnaire. Therefore, future research may cover this area because it will give a clear idea about the relationship between quality of each service item and passenger satisfaction with that service.

- (iii) Further research to investigate why passengers who are travelling for different reasons (purposes) may have different levels of satisfaction with the services provided by an airline.
- (iv) Further investigation of the loyalty measurement issue. This study has put forward the basis for comprehensive loyalty measurement through a battery of measurements that include both attitudinal and behavioural aspects of loyalty. But as seen in this study, only 13-items were used to measure seven factors (variables) to reduce the length of the questionnaire. This was most probably the reason for the low reliability values of the resulting loyalty factors. Therefore, it is recommended that the number of questions (items) that describe each loyalty variable should be increased in order to make the loyalty scale measures more comprehensive and applicable.
- (v) An investigation of the airline employees' perceptions of service quality, comparing them with passengers' perceptions. This will help to identify the gaps or differences between the recipients and suppliers (i.e. passengers and airline employees) in evaluating the airline services.
- (vi) The application of the study to more than one airline will probably offer more comprehensive results and consequently lead to a more in-depth analysis.

7-6 Limitations

There are several factors that may be seen as limitations of the present study:

- (i) The confidence with which the conclusions drawn from this research can be generalised may be questioned due to the fact that these results were being concluded based on the examination of services provided by a single airline: the Royal Jordanian Airline (RJ). Although there are no reasons why passengers should respond in a fundamentally different way to airline services, it is conceivable that the examination of a different airline would have yielded different empirical results. The study of more than one airline would have helped identify any contextual limitations of the results.

- (ii) The use of a field setting (i.e. field study) in the present research allows greater scope for the distortion of the results due to the presence of extraneous variables which confound the data.
- (iii) The passengers who co-operated in the study may not have had a clear understanding of what they want, in terms of customer service from the RJ airline i.e. they may not have had a good understanding of some of the questions or even how to answer them, or they may have been unable to evaluate the quality of these services especially if flying for the first time.
- (iv) Passengers may not have given the questions sufficient thought. Consequently, they may have responded inappropriately and this could affect the outcome of the study. The wording of the questionnaires may have elicited inappropriate responses, although the researcher try to make it as simple and understandable as possible.
- (v) Passengers' feelings and attitudes towards a specific airline may be reflected in the importance they place on specific items. For example, if a passenger felt mistreated at the airport (e.g., strong handed security procedures, bad baggage handling) they may be more apt to stress the importance of that particular variable while evaluating other services (e.g., cabin-staff services, food quality, etc.)
- (vi) The length of the questionnaire may have influenced passengers' responses especially on the last sections of the questionnaire; i.e. they may have answered these questions quickly and without sufficient thought.
- (vii) The sample investigated may not have represented equally all the nationalities of passengers travelling with RJ; it was difficult to control this issue while distributing the questionnaires.
- (viii) Due to reasons related to reducing the length of the questionnaire, several questions were deleted, especially those used to measure item satisfaction and loyalty variables. This may affect the reliability and validity of the measurement of the three main constructs discussed in this research.

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Appendix I

Royal Jordanian Airline

Historical background ⁽¹⁾

The development of civil aviation and formation of commercial airlines in Jordan was started after the country gained its independence in 1946 when Arab Airways Jerusalem, Ltd. was formed by British and Jordanian interests. It operated from Jerusalem to Beirut and Cairo using De Havilland Rapids. In 1950, Air Jordan was organised and it operated the same routes using Air Speed Consuls. New capital was infused in both airlines in 1953. Transocean Airline invested in Air Jordan replacing the Air Speed Consuls with DC-3s. On the other hand, BOAC acquired a majority interest in Arab airways and the De Havilland Rapids were replaced by DC-3s, its routes were extended to Jeddah and Aden, the Baghdad route was reopened. On facing hard competition from other airlines, Arab Airways and Air Jordan joined to form Air Jordan of the Holy Land with former receiving 25% of the stocks and the latter 75%. While BOAC sold its interests, Transocean retained its proportionate interest and agreed to continue providing technical assistance.

Later in 1961 a new Jordan Airways was formed as a result of the cancellation of Air Jordan's license along with those of other three inactive airlines. The capital of Jordan Airways was subscribed with 25% of the shares by the Jordanian Government, 35% by the MEA and 40% by some Jordanian investors and some former Air Jordan stockholders. In 1963, King Hussain of Jordan issued a Royal Decree calling for the establishment of a national airline.

"I want our national carrier to be our ambassador of good will around the world and the bridge across which we

⁽¹⁾ Royal Jordanian Publications; Planning Department; 1996

exchange culture, civilisation, trade, technology, friendship
and better understanding with the rest of the world."

Just one week following the Decree, the first flight (from Amman to Beirut) departed on schedule on December 15

Today Royal Jordanian, is one of the largest passenger carriers in the Middle East, with daily services to the U.S, Europe, The Middle East and the Far East. The airline grew rapidly from a pair of Handled Page Dart Heralds of RAF vintage and two Super DC-7 in its first year of operation to an impressive 17 - aircraft fleet. Today there are five Lockheed TriStar L1011s; six Airbus A310s; three Airbus A320s, and three Boeing 70Fs.

The golden crown of the Hashemite Court, the emblem of Royal Jordanian, flies from Bangkok, Singapore, Jakarta and Kuala Lumpur in the east, to New York, Chicago, Montreal and Toronto in the west. The airline charts more than 140,000 unduplicated route kilometres covering 46 cities spread over four continents.

Royal Jordanian paired up with TWA to give passengers extra travel convenience by adding four more destinations in USA, to the exiting two, Detroit and Los Angeles. This comes in addition to the regular service to Chicago.

Appendix II

Survey of Airlines Service Quality Royal Jordanian (RJ) Airlines

Dear Passenger:

We would be very grateful if you could spare the time to complete the attached questionnaire. It focuses on the airline passengers' opinions with regard to the quality of service offered by Royal Jordanian (RJ) airlines.

The information which you provide will help us to improve the services which we offer. All information collected is anonymous and confidential, so please feel that you can state your opinions freely. If you have any additional comments please add these at the end of the questionnaire.

Your co-operation is sincerely appreciated. When you have finished, please check through the questionnaire to see that you have answered all questions. If you have any queries, please feel free to ask us.

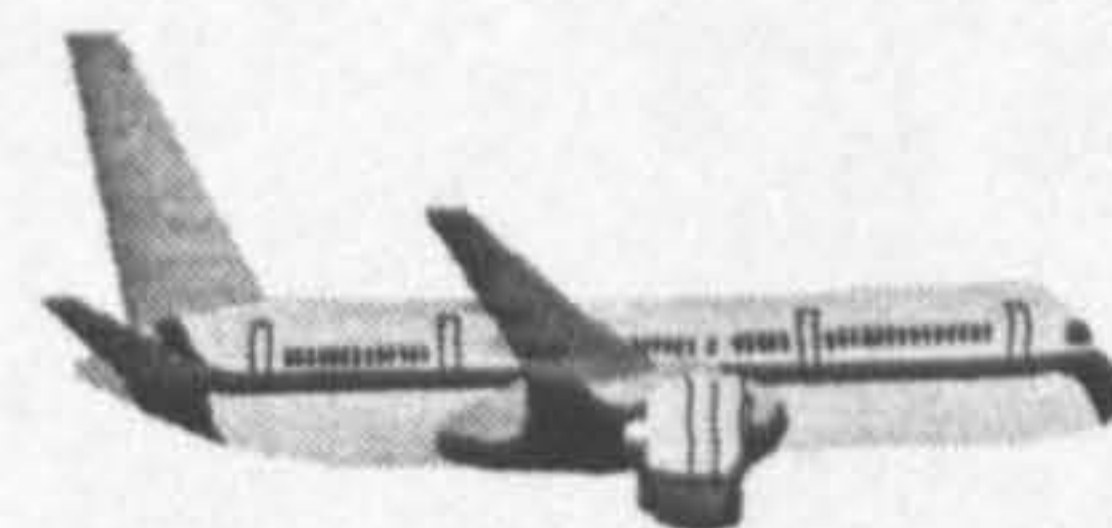
Please note that **RJ** means **Royal Jordanian Airlines**

QAIP means **Queen Alia International Airport**

Sincerely



Thank you for your co-operation



Part One

This part is regarding your perception of the service quality provided by the RJ airline.

The following set of statements relate to your feelings about the airline services in your recent flight. These statements are about services offered before and during the flight. For each statement, please show the extent to which you believe that this flight has the feature described by the statement using the following scale where; 1 means that you strongly disagree that this flight has that feature, and 7 means that you strongly agree. you may circle any of the numbers in middle that show how strong your feelings are. There are no right or wrong answers; all we are interested in is a number that shows your perception about your flight.

Strongly Disagree	Neutral					Strongly Agree
1	2	3	4	5	6	7

(a) Pre-flight Services

(i) Reservation

1- RJ employees show a friendly and helpful response to reservation calls	1	2	3	4	5	6	7
2- RJ shows good flexibility in changing reservations	1	2	3	4	5	6	7

(ii) Airport services

3- Ground staff are very helpful	1	2	3	4	5	6	7
4- RJ employees are consistently courteous	1	2	3	4	5	6	7
5- RJ employees show sincere concern when there are delays	1	2	3	4	5	6	7
6- Terminal announcements at QAIP are very clear	1	2	3	4	5	6	7
7- Signs at QAIP are clearly written	1	2	3	4	5	6	7
8- Airport facilities are very clean	1	2	3	4	5	6	7
9- Check-in procedures are efficient	1	2	3	4	5	6	7
10- Baggage handling is quick	1	2	3	4	5	6	7
11- Flight departures are punctual	1	2	3	4	5	6	7
12- Security procedures (for persons & Luggage) are efficient	1	2	3	4	5	6	7

(iii) Scheduling

13- RJ provides reliable schedules (e.g., un changing flights schedule)	1	2	3	4	5	6	7
14- RJ has convenient flight schedule	1	2	3	4	5	6	7
15- RJ offers many non-stop flights	1	2	3	4	5	6	7

Strongly Disagree	Neutral					Strongly Agree
1	2	3	4	5	6	7

(iv) Price

16- RJ offers competitive ticket prices	1	2	3	4	5	6	7
17- RJ offers discount prices for children	1	2	3	4	5	6	7

(v) Image

18- RJ has a good reputation among passengers	1	2	3	4	5	6	7
19- I think I will have a safe journey while travelling with RJ	1	2	3	4	5	6	7
20- RJ has modern looking planes	1	2	3	4	5	6	7
21- RJ offers different flight classes (e.g., first, business, economic classes)	1	2	3	4	5	6	7

(b) On-board services

(i) Cabin-staff services

22- The cabin crew are very courteous toward passengers	1	2	3	4	5	6	7
23- RJ cabin crew give passengers individual attention	1	2	3	4	5	6	7
24- Cabin crew give prompt service to passengers	1	2	3	4	5	6	7
25- Cabin crew are willing to help	1	2	3	4	5	6	7
26- Cabin crew can speak foreign languages	1	2	3	4	5	6	7
27- Cabin crew show an awareness of different cultures	1	2	3	4	5	6	7
28- Cabin-crew have a smart appearance	1	2	3	4	5	6	7
29- Cabin announcements are clear	1	2	3	4	5	6	7
30- RJ offers appropriate services for children	1	2	3	4	5	6	7
31- RJ follows acceptable smoking regulations	1	2	3	4	5	6	7

(ii) Food

32- RJ offers good quality meals	1	2	3	4	5	6	7
33- RJ offers a sufficient quantity of food	1	2	3	4	5	6	7
34- A menu selection is available	1	2	3	4	5	6	7

(iii) Others

35- The aircraft interior is very clean	1	2	3	4	5	6	7
36- In-flight entertainment (e.g., Videos and Reading materials) are very interesting	1	2	3	4	5	6	7
37- RJ planes have comfortable seats	1	2	3	4	5	6	7
38- Transit facilities at QAIP are good	1	2	3	4	5	6	7
39- RJ follows an appropriate complaint system	1	2	3	4	5	6	7
40- RJ is dependable when passengers have service problems	1	2	3	4	5	6	7

Overall service quality

overall, how would you rate the quality of service provided by RJ? Please indicate your assessment by circling one of the points on the scale below:

Extremely Poor	Very Poor	Poor	Acceptable	Good	Very Good	Excellent				
1	2	3	4	5	6	7				
41- Overall impression of airport services				1	2	3	4	5	6	7
42- Overall impression of on-board service quality				1	2	3	4	5	6	7
43- Overall impression of all services offered by RJ				1	2	3	4	5	6	7

The following statements relate to your satisfaction with the service on your flight. For each statement, please indicate the extent to which you agree or disagree with the statement.

Strongly Disagree	Neutral					Strongly Agree							
1	2	3	4	5	6	7							
44- The next time I need to fly, I would certainly fly with RJ							1	2	3	4	5	6	7
45- My decision to fly with RJ was a wise one							1	2	3	4	5	6	7
46- In general, I am satisfied with RJ services							1	2	3	4	5	6	7

The following statements relate to your overall satisfaction with the services offered by RJ airlines. For each statement please indicate the extent to which you are satisfied.

Very dissatisfied						Very satisfied							
1	2	3	4	5	6	7							
47- Based on all your experiences, how satisfied are you with overall airport services							1	2	3	4	5	6	7
48- Based on all your experiences, how satisfied are you with overall on-board services							1	2	3	4	5	6	7
49- Compared to other, similar airlines you have flown with before, how would you rate your satisfaction with RJ							1	2	3	4	5	6	7
50- Based on all my experiences with RJ airline, I am							1	2	3	4	5	6	7
51- How did you feel about your service experience after flying with RJ.							1	2	3	4	5	6	7

The following statements refer to how you feel about RJ airlines. Please indicate your response to each statement according to the following scale:

Not at all Likely						Extremely Likely							
1	2	3	4	5	6	7							
52- RJ will be my first choice to buy a ticket from							1	2	3	4	5	6	7
53- If I had to do it again, I would feel differently about flying with RJ.							1	2	3	4	5	6	7

	Not at all Likely				Extremely Likely		
	1	2	3	4	5	6	7
54- I will recommend RJ to any one who seeks my advice	1	2	3	4	5	6	7
55- I will buy a ticket from any airline which offers me attractive prices.	1	2	3	4	5	6	7
56- I will continue to fly with RJ even if its prices increase	1	2	3	4	5	6	7
57- I will switch to another airline if I experience a problem with RJ services.	1	2	3	4	5	6	7
58- I will complain to RJ employees if I find any problem with RJ services.	1	2	3	4	5	6	7
59- I will complain to external agencies if I find a problem with RJ services.	1	2	3	4	5	6	7
60- My preference to fly with RJ is my own decision, freely chosen from several alternatives.	1	2	3	4	5	6	7
61- My preference to fly with RJ will not change	1	2	3	4	5	6	7
62- I am fully responsible for the decision to fly with RJ	1	2	3	4	5	6	7
63- I don't really know that much about RJ	1	2	3	4	5	6	7
64- Even if close friends recommended another airline, I would not change my preference from RJ.	1	2	3	4	5	6	7
65- I consider myself to be a loyal patron of RJ airlines	1	2	3	4	5	6	7

Part two

This survey is for the purpose of learning about some aspects of the travel behaviour of passengers travelling with RJ. Therefore, we request and appreciate your valuable cooperation

	Strongly Disagree		Neutral			Strongly Agree	
	1	2	3	4	5	6	7
66- I carefully compare prices before buying a ticket	1	2	3	4	5	6	7
67- Convenience of flight schedules is of major importance in selecting an airline to buy a ticket from	1	2	3	4	5	6	7
68- I am more impatient than most people waiting in checkout lines	1	2	3	4	5	6	7
69- It is important to have enough information about any trip before deciding to travel.	1	2	3	4	5	6	7
70- Advertisements and other promotional tools have been the main influences on my choice to buy a RJ ticket	1	2	3	4	5	6	7
71- I like travelling to foreign countries on vacation	1	2	3	4	5	6	7

72- Where was your ticket obtained?

- Travel agent Airport ticket counter Airline ticket office Others (please indicate)

73- How many flights have you made prior to this trip with RJ?

- None 1-3 More than 3

74- Number of air trips you made during the last 12 months ?

- None 1-3 More than 3

75- What was the main purpose of your trip?

- Company business or professional practice Government related business
 Visit family or friends Tourism Studying
 Others (please indicate)

76- You became aware of the airline through?

- Newspaper advertisements TV or radio commercial Travel agent
 Others (please indicate)

76- What best describes your educational level

- Primary school High school College Undergraduate Post graduate

78- What best describes your occupation?

- Managerial professional Retiree Student Others (please indicate)

79- Which most closely describes your age?

- 25 or less 26-35 36-45 46-55 55 or more

80- Please indicate your sex

- Male Female

81- What is your approximate monthly family income (in Jordanian Dinar JD); (1 \$ = JD 0.70)

- less than 500 501- 1000 1001- 1500
 1501- 2000 2001- 2500 more than 2500

82- What class do you fly?

- First class Business class Economic class

83- State (or country of residence)

- Jordan Arab Countries (please indicate) Asian countries (Please indicate)
 Europe Countries (Please indicate) USA
 Others (please indicate)

**** Please make any further comments in the following space:**

دراسة عن جودة خدمات الطيران
"الملكية الاردنية"

أخي المسافر

يهدف هذا الاستبيان الى استطلاع آراء واتجاهات المسافرين عن جودة الخدمات التي تقدمها الملكية الاردنية.

نرجو التكرم بالاجابة على اسئلة هذا الاستبيان بأقصى دقة ممكنة، مؤكداً لكم بأن جميع المعلومات التي تدلون بها ستعامل بسرية تامة.

أخي المسافر

نشكرك على حسن تعاونك، ونود ان نلفت انتباهك ان الاجابة على جميع الاسئلة الواردة في الاستبيان امر في غاية الأهمية، حيث ستساهم هذه المعلومات في تحسين جودة الخدمات التي تقدمها الملكية الاردنية للمسافرين معها.

اذا كان لديك استفسار، الرجاء عدم التردد في التوجه الينا، واذا كان لديك أية ملاحظات الرجاء كتابتها في نهاية الاستبيان.

ولكم جزيل الشكر والتقدير على تعاونكم معنا

الباحث

الاتطباع العام عن جودة الخدمات

بشكل عام، كيف تقيم جودة الخدمات المقدمة من قبل الملكية الاردنية، الرجاء تحديد

ذلك باستخدام المقياس التالي:

س٠	ضعف جدا	ضعف	مقبول	جيد	جيد جداً	ممتاز
١	٢	٣	٤	٥	٦	٧

٤١. الاتطباع العام عن مستوى خدمات المطار هو

٤٢. الاتطباع العام عن الخدمات المقدمة اثناء الرحلة هو.

٤٣. الاتطباع العام عن جميع الخدمات التي تقدمها الملكية الاردنية قبل واثاء الرحلة هو

الرضا عن الخدمات المقدمة

تعكس العبارات التالية مدى الرضا عن الخدمات التي تقدمها الملكية الاردنية في هذه

الرحلة، الرجاء تحديد مدى موافقتك او عدم موافقتك على كل من هذه العبارات باستخدام

المقياس التالي

غير موافق تماما	١	٢	٣	متعادل	٤	٥	٦	موافق تماما

٤٤. سأسافر مع الملكية الاردنية في المرة القادمة اذا احتجت للسفر

٤٥. اعتقد ان قراري بالسفر مع الملكية الاردنية كان قرارا حكيمًا.

٤٦ بشكل عام، أنا راضي عن الخدمات التي تقدمها الملكية الاردنية.

باستخدام المقياس التالي، الرجاء تحديد مدى الرضا عن جودة الخدمات المقدمة من الملكية الاردنية.

رضي تماماً						غير راضي تماماً	
٧	٦	٥	٤	٣	٢	١	
							٤٧. اعتماداً على خبراتك الخاصة ما مدى رضاك عن الخدمات التي تقدم في مطار الملكة علياء الدولي.
							٤٨. اعتماداً على خبراتك الخاصة، ما مدى رضاك مدى عن الخدمات المقدمة أثناء الرحلة.
							٤٩. مقارنة مع شركات الطيران الأخرى التي سافرت معها من قبل، ما مدى رضاك عن الخدمات المقدمة من الملكية الاردنية.
							٥٠. بناء على خبراتي السابقة مع الملكية الاردنية فأنا
							٥١. كيف تقيم رأيك حول الملكية الاردنية بعد السفر معها.

تعكس العبارات التالية مدى ولاء المسافرين للملكية الاردنية بمعنى مدى قناعتهم بالسفر دائماً مع الملكية الاردنية الرجاء تحديد استجابتك لكل عبارة حسب المقياس التالي:

أريد بشدة						لا أريد بشدة	
٧	٦	٥	٤	٣	٢	١	
							٥٢. الملكية الاردنية هي الاختيار الأول لشراء تذكرة السفر.
							٥٣. اذا قررت السفر ثانية، سأعيد النظر في قرار اختياري للملكية الاردنية.
							٥٤. سأمنح أي شخص يريد السفر للطيران مع الملكية الاردنية.
							٥٥. سأشتري تذكرة السفر من أي شركة طيران تمنح سعر أقل.
							٥٦. سأستمر بالسفر مع الملكية الاردنية حتى لو ارتفعت اسعار تذاكرها.
							٥٧. سأتحول للسفر مع شركة طيران أخرى اذا واجهتني أي مشكلة مع الملكية الاردنية.

معلومات عامة

٧٢. من أين اشتريت تذكرة سفرك؟
أ- مكتب سفر
ب- من المطار
ج- مكاتب شركة الطيران نفسها
د- اخرى (حدد)

٧٣. كم عدد الرحلات التي قمت بها مع الملكية الاردنية من قبل؟
أ- ولا مرة
ب- ٣ مرات
ج- اكثر من ٣ مرات.

٧٤- كم عدد الرحلات التي قمت بها خلال الاثني عشر شهراً الماضية؟
أ- ولا مرة
ب- ٣ مرات
ج- اكثر من ٣ مرات.

٧٥ ما هو السبب الرئيسي للسفر؟
أ- لاتجاز اعمال خاصة
ب- وظيفة رسمية
ج- للدراسة
د- زيارة اقارب واصدقاء
هـ- للسياحة
و- اخرى (حدد)

٧٦ . مصدر الحصول على المعلومات عن الملكية الاردنية؟
أ- الاعلانات المنشورة في الصحف والمجلات.
ب- الاعلانات في التلفزيون والراديو
ج- من خلال وكيل السفر.
د- اخرى (الرجاء تحديدها).

٧٧ . مستواك التعليمي؟
أ- مدرسة اعدادية
ب- مدرسة ثانوية
ج- كلية جامعية متوسطة
د- جامعة (بكالوريوس)
و- دراسا عليا
هـ- اخرى (حدد).

٧٨. الوظيفة؟
أ- اداري
ب- رجل اعمال
ج- متقاعد
د- طالب

٧٩. العمر؟
أ- ٢٥ سنة او اقل
ب- ٢٦ - ٣٥ سنة
ج- ٣٦ - ٤٥ سنة
د- ٤٦ - ٥٩ سنة
هـ- اكثر من ٦٠ سنة

٨٠. الجنس؟
أ- ذكر
ب- انثى

٨١. درجة السفر
أ- درجة اولى
ب- رجال اعمال
ج- درجة سياحية

٨٢. الجنسية (مكان الإقامة)؟
أ- الاردن
ب- دولة عربية (حدد)
ج- دولة اسيوية(حدد)
د- دولة اوروبية (حدد)
هـ- اخرى (حدد)

الرجاء اعطاء اية ملاحظات ترونها مناسبة حول هذه الدراسة.

Appendix III

Pilot Study

Introduction:

Pretesting (or pilot testing) is the last stage in the design of a questionnaire where mistakes can be detected before the final survey is implemented. Therefore; it determines the potential effectiveness of the questionnaire. It is used to refine the instrument and identify errors which may only be apparent to the population of concern.

The pre-test is conducting prior to the final distribution of the questionnaire to the target population. It is the “activity related to the development of the questionnaire or measurement instrument to be used in a survey or experiment” (Green et al. 1988, p. 185), and is a dry run of the entire research process (Hunt et al. 1982).

The usefulness of pretesting:

Questionnaires may have to be designed with only a modicum of knowledge about the subject (Hague 1987a, p. 170). In these circumstances mistakes are bound to occur unless the questionnaire is tested. Therefore, the designer of the questionnaire can become too familiar with it to be able to identify serious problems in a survey and then corrected them (Lehmann 1989; Long 1991).

Pretesting in the normative literature address one or more of the following five areas (Diamantopoulos et al. 1994): (1) pre-test scope; (2) Pre-test method; (3) Pre-test interviewers; (4) Pre-test respondents; and (5) Pre-test sample size.

(1) Pre-test scope:

Pretesting a questionnaire can be split into three main areas:

a- Individual questions:

Most typical questions are those that seem perfectly reasonable, but which produce meaningless answers (Oppenheim 1966, p.28). Specific types of defective questions include ambiguous questions (e.g., Worcester and Down-ham

1986; Green et al. 1988), double questions (e.g., Livingstone 1977; Belson 1981), loaded / leading questions (e.g., Oppenheim 1966; Luck and Rubin 1987), and missing / lop-sided response alternatives (e.g., Hague 1987a; Lehmann 1989).

b- Overall design:

Regarding the overall questionnaire design, the aim of pretesting is to identify poor question sequences and to assess the perceived length and attractiveness of the instrument (Hague 1987b).

c- Data analysis:

The pre-test can encompass a search for patterns in “don’t know” (DK) or “not answered” (NA) responses (by question and by respondent) as well as correlation analysis to provide preliminary insight into the relationships between the variables of interest (Galtung 1967). The DN, NA analysis looks for patterns in these responses down the columns and across the rows; if their frequency and distribution are random, and at an acceptable level (e.g., below 5%), then the questionnaire would be considered acceptable.

In this survey it was found that there are many double questions (i.e., q5 & q31; q17 & q18; q44 & q45; q50 & q51; q69 & q 72); also there are ambiguous questions (i.e., q17, q48, q58). Moreover, it was found that many questions kept unanswered because respondents either had no answers or don’t know what to answer (e.g., q2, q5, q14, q17, q18, q29; q 30,..)

(2) Methods of pretesting:

The methods of pretesting can be split into two categories, concerning

a- the medium which is used to pre-test the questionnaire (e.g., should personal interviews always be used, or should the methods proposed for the final study be the testing medium). Most of the literature recommends that pretesting is done by means of a personal interview (Boyd et al. 1989, p.297), this technique enable the interviewer to observe the respondent as the questionnaire is being completed.

b- the procedure by which the testing takes place: The procedure used to determine the respondents’ reactions to the questionnaire can also take one of two

forms. The protocol method; where the respondent can think out loud as the questionnaire is being completed, and the debriefing method; where the respondent can talk about the questionnaire when it has been completed. The former provides a greater volume of information, but some researchers believe that by thinking about how decisions are made the decision may itself be altered and hence the response given. Debriefing is also effective, but with long questionnaire problems encountered at the beginning of the questionnaire may be overshadowed by those encountered towards the end.

The method chosen is dependent on the questionnaire type as well as the medium chosen to conduct the pre-test (e.g., it is impossible to use the protocol method with a mail survey).

Methods used in this survey were;

1- Interviews with passengers (5 passengers) from different classes; by this approach both protocol and debriefing methods were followed.

2- Distributing the questionnaire to 15 other passengers exactly in a similar way to the one that will be used in the main study (by distributing questionnaires to passengers at a suitable time before the end of their flight)

(3) Who does the pre-test (pretest interviewer):

There are two schools of thought in this occasion; the first one recommends that only experienced interviewers be used to administer a pre-test, as they will be better at noting the reactions of the respondent (e.g., Hague 1987 et al 1987; Boyd et al. 1989; Churchill 1991). The second one arguing that a range of interviewer experience is needed (Oppenheim 1966; Worcester & down-ham 1986; Tull & Hawkins 1990).

In this survey interviews were done by the researcher, while cabin staff helps to distribute the questionnaires to other group of surveyed passengers).

(4) Pre-test sample:

All the literature states that the pre-test sample should be as similar as possible to the final group. Hague (1987), and Green et al. (1988) suggest that colleagues not involved directly with the questionnaire design should review it before the

pre-test as they are more likely to spot technical faults such as double questions, leading questions or lop-sided response categories (in contrast to the pre-test sample which will be mainly concerned with the understanding of the individual questions).

Those who should be included in the pre-test sample should be as similar as possible to the final group, representative, but with extreme as well as typical respondent (Hunt et al. 1982; Green et. al. 1988, p. 185).

(5) Pre-test sample size:

The sample should remain small but it should cover all subgroups of the target population (Green et al 1988).

When that pre-test sample size is discussed in the literature it is generally small, ranging from 5-10 to 50-100 , depending on the author(s) concerned.

In this survey the pretest sample size was 20 passengers.

Procedures followed to develop and improve the questionnaire:

1- Searching through the previous literature in the areas of service quality, consumer satisfaction and loyalty. this helped to identify the main variables that should be covered to conduct this study.

2- Supervisors comments and advices.

3- A sample of Ph.D students in the school had been asked to identify their comments about the structure and content of the questionnaire.

4- A group of RJ managers were asked to give their comments according to their experience in the airline industry.

5- An Arabic translation of the questionnaire was prepared. This translation was reviewed by many specialists in Arabic language, and a professor of business studies in Jordan University, besides the RJ managers who checked the Arabic translation of airlines terminology's.

6- Member of staff comments in the school (i.e., JO Padmore, Pob Morgan) were asked to give their comments according to their experiences in the areas of business statistics and questionnaire design.

7- Pre-test (pilot test): a sample of 20 passengers were surveyed during a flight from Amman to London through Berlin. This survey was conducted By two ways:

- (a) An interview with 5 passengers while they completed their questionnaires.
- (b) Distributing a questionnaire to a sample of 15 passengers by a cabin staff to see how they deal with the questionnaire (this is exactly the way to be followed in the main study).

Table 1
Content of pretesting areas

Areas of pretesting	Types	
Pretest scope	Individual questions	double questions (e.g., 5, 31;17,18; 44, 45; 50, 51; 69, 72)
		ambiguous questions (e.g., 17,48, 58)
	Overall design	too long questionnaire
	Data analysis	Na, DK (e.g., 2,5,14,17,18,29,30)
Methods of pretesting	Interviews	the researcher (protocol & debriefing)
	Distribution questionnaires	cabin staff
Who does the pretest	Experienced interviewer	
	Interviewer with some experience	
Pretest sample	Similar to the main sample	passengers wit RJ in a flight from Amman to London
Pretest sample size		20 passengers

Summary:

1. Add “Don’t Know” column especially to the service quality scale.
2. Delete the open ended questions (Q 48, Q58) because respondents didn’t give important comments or new information to these covered by the questionnaire (most respondents keep these questions un answered)
3. Delete other questions that found to be either double questions or ambiguous ones as seen in the previous discussion.
4. It was found that the most suitable time to distribute the questionnaires to passengers will be after introducing meals to passengers and before enough time (at least 1-2 hours) from the end of the flight.

Appendix IV

Description of Acronym Identifiers for variables and their Measures

Construct	Variables	Measures	Description of Identifiers
Service Quality (SQ)	<i>Reservation (RESS)</i>	1- RES1 2- RES2	1- Friendly response to reservation calls 2- Flexibility in changing reservation
	<i>Airport Services (PORTS)</i>	1- PORT1 2- PORT2 3- PORT3 4- PORT4 5- PORT5 6- PORT6 7- PORT7 8- PORT8 9- PORT9 10-PORT10	3- Ground staff are very helpful 4- Employees are consistently courteous 5- Employees show sincere concern at delays 6- Clear terminal announcements at QAIP 7- Signs at QAIP are clearly written 8- Airport facilities are very clean 9- Check-in procedures are efficient 10- Baggage handling is quick 11- Flight departures are punctual 12- Efficient security procedures
	<i>Scheduling (SCHDLS)</i>	1-SCHEDL1 2-SCHEDL2 3-SCHEDL3	13- Reliable (un changing flights) schedule 14- Convenient flight schedule 15- Offering many non-stop flights
	<i>Price (PRICS)</i>	1-PRICE1 2-PRICE2	16- Offering competitive ticket prices 17- Offering discount prices for children
	<i>Image (IMAGS)</i>	1-IMAGE1 2-IMAGE2 3-IMAGE3 4-IMAGE4	18- Have a good reputation among passengers 19- Have a safe journey while travelling 20- Modern looking planes 21- Offering different flight classes
	<i>Cabin-Staff Services (CABS)</i>	1- CAB1 2- CAB2 3- CAB3 4- CAB4 5- CAB5 6- CAB6 7- CAB7 8- CAB8 9- CAB9 10- CAB10	22- Courteous cabin crew 23- Giving passengers individual attention 24- Provide prompt service to passengers 25- Cabin crew are always willing to help 26- Cabin crew can speak foreign languages 27- Awareness of different cultures 28- Cabin-crew have a smart appearance 29- Cabin announcements are clear 30- Providing appropriate services for children 31-Following acceptable smoking regulations
	<i>Food (FODS)</i>	1- FOOD1 2- FOOD2 3- FOOD3	32- Provide good quality meals 33- Provide a sufficient quantity of food 34- A menu selection is available
	<i>Other Services (OTHRS)</i>	1- OTHER1 2- OTHER2 3- OTHER3 4- OTHER4 5- OTHER5 6- OTHER6	35- The aircraft interior is very clean 36- Interested in-flight entertainment 37- Comfortable plane seats 38- Good transit facilities 39-Following an appropriate complaint system 40-Dependable when having service problems
	<i>Overall service Quality</i>	1- OVER1 2- OVER2 3- OVER3	41- Overall impression of airport service quality 42- Overall impression of on-board service quality 43- Overall impression of all services offered by airline

Appendix IV (Continued)

Construct	Variables	Measures	Description of Identifiers
Passenger Satisfaction	- Encounter satisfaction - Overall satisfaction	1- SAT1	44- Fly with an airline next time
		2- SAT2	45- It was a wise decision to fly with this airline
		3- SAT3	46- In general, I am satisfied with an airline services
		4- SAT4	47- Over all satisfaction with airport services
		5- SAT5	48- Overall satisfaction with on-board services
		6- SAT6	49- Compared with other airlines, how you rate your satisfaction with this airline.
		7- SAT7	50- Based on your experience, how was your satisfaction with this airline
		8- SAT8	51- After flying with this airline, how you feel about it's services.
Passenger Loyalty	<i>Behavioural Measures</i> (LOYBEH)	1- LOY1	52- This airline will be my first choice to fly with
		2- LOY2	53- I will feel differently about this airline if I had to fly again
		3- LOY3	54- Recommend this airline to any one seeks for my advice
		4- LOY4	55- Buy a ticket from any airline with less price
		5- LOY5	56- Continue to fly with this airline even though its prices increase
		6- LOY6	57- Switch to another airline when facing problems with this one.
		7- LOY7	58- Complain to airline employees when facing problems
		8- LOY8	59- Complain to an external agency when facing problems.
	<i>Attitudinal Measures</i> (LOYATT)	9- LOY9	60- Preference to fly with this airline is my own decision, freely chosen from other alternatives.
		10- LOY10	61- Preference to fly with this airline will not change
		11- LOY11	62- I am fully responsible for the decision to fly with this airline.
		12- LOY12	63- Don't know that much about this airline
		13- LOY13	64- Will not change preference for this airline, even close friend recommended that.
	Overall Loyalty	1- LOY14	65- Consider my self to be a loyal passenger of this airline

Appendix V
Items Used to Measure Airline Service Quality

(a) Pre-flight Services

(i) Reservation

- 1- RJ employees show a friendly and helpful response to reservation calls
- 2- RJ shows good flexibility in changing reservations

(ii) Airport services

- 3- Ground staff are very helpful
- 4- RJ employees are consistently courteous
- 5- RJ employees show sincere concern when there are delays
- 6- Terminal announcements at QAIP are very clear
- 7- Signs at QAIP are clearly written
- 8- Airport facilities are very clean
- 9- Check-in procedures are efficient
- 10- Baggage handling is quick
- 11- Flight departures are punctual
- 12- Security procedures (for persons & Luggage) are efficient

(iii) Scheduling

- 13- RJ provides reliable schedules (e.g., un changing flights schedule)
- 14- RJ has convenient flight schedule
- 15- RJ offers many non-stop flights

(iv) Price

- 16- RJ offers competitive ticket prices
- 17- RJ offers discount prices for children

(v) Image

- 18- RJ has a good reputation among passengers
- 19- I think I will have a safe journey while travelling with RJ
- 20- RJ has modern looking planes
- 21- RJ offers different flight classes (e.g., first, business, coach classes)

(b) On-board services

(i) Cabin-staff services

- 22- The cabin crew are very courteous toward passengers
- 23- RJ cabin crew give passengers individual attention
- 24- Cabin crew give prompt service to passengers
- 25- Cabin crew are always willing to help
- 26- Cabin crew can speak foreign languages
- 27- Cabin crew show an awareness of different cultures
- 28- Cabin-crew have a smart appearance
- 29- Cabin announcements are clear
- 30- RJ offers appropriate services for children
- 31- RJ follows acceptable smoking regulations

(ii) Food

- 32- RJ offers good quality meals
- 33- RJ offers a sufficient quantity of food
- 34- A menu selection is available

(iii) Others

- 35- The aircraft interior is very clean
- 36- In-flight entertainment (e.g., Videos and Reading materials) are very interesting
- 37- RJ planes have comfortable seats
- 38- Transit facilities at QAIP are good
- 39- RJ follows an appropriate complaint system
- 40- RJ is dependable when passengers have service problems.

Appendix VI
Respondents Rating of service Quality Items

Variable	disagree			neutral	agree			Mean	don't know
	1	2	3	4	1	2	3		%
	%			%	%				%
RES1	11.0			14.8			73.0	5.47	11.2
RES2	11.4			16.0			51.6	5.27	20.0
PORT1	14.2			19.4			65.3	5.74	3.0
PORT2	11.6			13.2			71.4	5.42	3.8
PORT3	16.6			11.6			40.4	4.74	31.4
PORT4	24.4			15.2			53.4	4.73	7.0
PORT5	13.2			19.4			60.8	5.17	6.6
PORT6	18.2			17.2			55.2	4.89	9.4
PORT7	19.4			17.4			57.0	4.94	6.2
PORT8	14.4			14.6			64.4	5.18	6.6
PORT9	32.0			17.8			46.6	4.3	3.6
PORT10	13.0			14.4			67.0	5.3	5.6
CAB1	4.8			7.4			85.2	6.08	2.6
CAB2	6.8			10.2			80.0	5.77	3.0
CAB3	8.0			7.4			79.0	5.86	5.6
CAB4	6.8			8.8			79.4	5.87	5.0
CAB5	5.6			10.2			68.8	5.88	15.4
CAB6	6.8			10.2			64.0	5.7	19.0
CAB7	6.0			8.6			82.0	5.86	3.4
CAB8	12.4			16.2			65.4	5.34	6.0
CAB9	7.4			11.0			39.0	5.17	52.6
CAB10	12.4			10.2			65.2	5.46	12.2
FOOD1	11.2			13.6			72.2	5.39	3.0
FOOD2	9.2			8.2			78.0	5.69	4.6
FOOD3	15.2			14.2			63.8	5.18	6.8
OTHER1	11.8			14.6			70.4	5.31	3.2
OTHER2	25.2			20.2			47.0	4.45	7.6
OTHER3	16.8			18.4			58.6	4.9	6.2
OTHER4	13.2			8.8			40.2	4.99	37.8
OTHER5	11.0			10.4			26.0	4.60	52.6
OTHER6	12.8			11.2			34.4	4.85	41.6
PRICE1	15.0			22.0			51.0	4.95	12.0
PRICE2	7.8			12.4			26.2	4.93	53.6
SCHED1	18.2			14.4			42.8	4.62	24.6
SCHED2	12.6			17.4			56.2	5.09	13.8
SCHED3	10.4			12.2			41.4	5.02	36.0
IMAGE1	14.6			17.6			55.0	5.06	12.8
IMAGE2	5.0			12.8			77.2	5.86	5.0
IMAGE3	12.2			16.2			65.8	5.19	5.8
IMAGE4	6.6			9.4			71.2	5.88	12.8
OVER1	14.4			26.8			56.4	4.71	2.4
OVER2	4.0			14.8			81.0	5.38	0.2
OVER3	7.0			20.4			72.6	5.11	-

Appendix VII

Assumptions of using statistical tests

1 Assumptions of Analysis of Variance (ANOVA)

ANOVA model tests the difference between population means among the factor levels of interest. The general ANOVA model is as follows:

$Y_{ij} = \mu_i + \varepsilon_{ij}$; where: μ_i are independent parameters corresponding to the mean of each factor level. The response variable has two components: the factor level mean and the error term. The error term is assumed to have the following distributions: $\varepsilon_{ij} = N(0, \sigma^2)$. This implies that the ANOVA model assumes that the individual populations, corresponding to the different factor levels, are normally distributed with mean μ_i and variance σ^2 for each factor level (e.g. economic, business, and first class). In ANOVA it is assumed that the error terms (ε 's) in the population are: (i) independent; (ii) normally distributed; and (iii) have equal variances. Therefore, when groups sample sizes (n 's) are equal, ANOVA is "robust" to violations of assumptions (ii and iii). When n 's are not equal, however, homogeneity of variance is necessary for accurate results.

Since n 's in the passenger diversity variables are not equal (different numbers in each class, and different numbers for passengers travelling for different purposes,...); the homogeneity of variances assumption can not be ignored in comparing means. To ensure that the above conclusions are valid, Duncan, and Scheffe tests for equality of variance were performed for each of the ANOVAs. Therefore, we can feel comfortable with the conclusions drawn from the ANOVAs since the most important assumption made by the ANOVA (equality of variance) is met for each ANOVA.

2 Assumptions of The Regression Models

The regression models assume the error term (residuals) to be normally distributed with mean zero and variance σ^2 . This assumption is important when

testing the terms in the model for their significance. If this assumption is violated, then the test for a parameter's significance in the model may be misleading. Nonetheless, a high value of the test statistic is likely to be indicative of true significance in the model despite the violation of this assumption (Myers and Alpert 1968).

A concern expressed prior to the analysis was that of multicollinearity in the regression. Multicollinearity is a legitimate concern if the data are highly correlated because of the resulting regression coefficients will be upwardly biased. Collinearity refers to the situation in which there is a high multiple correlation when one of the independent variables is regressed on the others (when there is a high correlation between independent variables). Therefore, it is difficult to separate out the effects of the individual variables (Norusis 1993, p. 347). The tolerance of a variable is a commonly used measure of Collinearity. Tolerance of variable is defined as $(1-r_i^2)$, where r_i is the multiple correlation coefficient when the i th independent variable is predicted from the other independent variables. Therefore, if the tolerance of a variable is small, it is almost a linear combination of the other independent variables. The variance inflation factor (VIF) is closely related to the tolerance. It is defined as the reciprocal of the tolerance.

$$VIF_i = \frac{1}{1-r_i^2}$$

There were two useful tools to examine the Collinearity of a data matrix. These tools were: first, the eigenvalues of the scaled, and second, uncentered cross-products matrix and the decomposition of regression variance corresponding to the eigen values.

(i) Eigen values and condition indexes:

when comparing the eigen values of the scaled, uncentered cross-products matrix, if some were much larger than others, the data matrix is said to be illconditioned. Thus, if the matrix is illconditioned, small changes in the values of the independent or dependent variables may lead to large changes in the solution. The condition index is defined as:

$$\text{Condition Index} = \sqrt{\frac{\text{eigenvalue}_{\max}}{\text{eigenvalue}_i}}$$

(ii) Variance proportion:

The variance of each of these regression coefficients, including the constant, can be decomposed into a sum of components associated with each of the eigenvalues. If a high proportion of the variance of two or more coefficients is associated with the same eigen value, there is evidence for a near- dependency.

3 Assumptions of T -test

The model underlying a t-test assumes that the data have been derived from normal distributions with equal variance. Computer simulations have shown that even with moderate violations of these assumptions, one may still safely proceed with a t-test, provided the samples are not too small, do not contain outliers (a typical scores), and are of equal (or nearly equal size). Should a preliminary exploration of the data indicate that the assumptions of t-test model have been seriously violated, an alternative test should be chosen from the portfolio of nonparametric tests in nonparametric tests menu. Nonparametric tests do not carry specific assumptions about population distributions and variance.

Appendix VIII
Measurement Model Results
(LISREL8)

Constructs and Indicators	Proposed model		Final model	
	Loadings	T-value	Loadings	T-value
λ_{x11}	0.56	--	0.76	--
λ_{21}	0.80	7.02	0.66	9.56
λ_{31}	0.58	5.73	0.67	9.67
λ_{41}	0.41	4.36	0.72	10.99
λ_{51}	0.73	6.67	0.48	5.70
λ_{61}	0.69	6.47	0.60	8.51
λ_{71}	0.55	5.55	0.76	10.69
λ_{81}	0.85	7.26	0.70	10.21
λ_{y11}	0.91	7.95	0.88	8.71
λ_{21}	0.91	7.95	0.93	8.59
λ_{32}	0.10	1.06	-.25	-1.50
λ_{42}	-.18	-1.81	0.70	1.59
λ_{52}	0.64	3.37	-.18	-1.22
λ_{62}	0.53	3.24	0.45	1.48
λ_{72}	0.60	3.32		
λ_{82}	0.60	3.74		
λ_{92}	0.30	--		
$\theta_{\delta 11}$	0.69	8.33	0.43	8.55
$\theta_{\delta 21}$	0.37	7.40	0.57	9.38
$\theta_{\delta 31}$	0.66	8.24	0.55	9.33
$\theta_{\delta 41}$	0.83	8.48	0.48	8.85
$\theta_{\delta 51}$	0.47	7.74	0.78	9.56
$\theta_{\delta 61}$	0.52	8.02	0.65	9.55
$\theta_{\delta 71}$	--	--	0.43	8.49
$\theta_{\delta 81}$	--	--	0.51	9.19
$\theta_{\epsilon 11}$	0.17	5.40	0.22	7.06
$\theta_{\epsilon 21}$	0.17	5.26	0.13	4.17
$\theta_{\epsilon 32}$	0.99	8.62	0.36	5.96
$\theta_{\epsilon 42}$	0.97	8.60	0.50	2.69
$\theta_{\epsilon 52}$	0.59	7.56	0.87	9.42
$\theta_{\epsilon 62}$	0.72	8.28	0.79	7.31
$\theta_{\epsilon 72}$	0.64	7.80		
$\theta_{\epsilon 82}$	0.64	8.12		
$\theta_{\epsilon 92}$	0.91	8.55		
ζ_1	0.19	2.26	0.19	2.60
ζ_2	0.09	2.05	0.91	2.14