

The Relationship of Service Quality and Customer Satisfaction in the Airline Industry and the Moderating Effect of the Airline Type

Bachelor Thesis

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Date of submission: 14th of June 2018

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Abstract

With the rising competition in the markets, a goal that many companies follow is satisfying their customers and ensuring high levels of service quality. Especially in the highly competitive airline industry, that has become even more competitive due to the emergence of low-cost carriers (LCCs), service quality and customer satisfaction gain importance in order to retain customers and gain an advantageous position in the market. A problem that confronts researchers and marketers is the measurement of service quality. Recently, the AIRQUAL scale has been developed to overcome this obstacle.

Purpose – The aim of this study is to test the reliability of the AIRQUAL scale, to examine the influence that the service quality dimensions have on customer satisfaction and to identify the dimension that has the largest influence on the satisfaction. Subsequently, the differences in the service quality perceptions among different airline types are investigated.

Theoretical background – In the literature review findings from previous research regarding the concepts of customer satisfaction and service quality are reviewed, as well as differences between distinct airline types. These form the basis for the development of the hypotheses that were tested in the study.

Method – An online questionnaire was sent out which included questions about the service quality perceptions according to the AIRQUAL scale, the level of satisfaction, the general travel behavior and the demographic background of the respondents. In total, 371 usable responses were collected. Statistical methods such as descriptive analysis, factor analysis, Cronbach's Alpha, correlation analysis, stepwise regression analysis and the Mann-Whitney U test were applied.

Findings – The results show that only some of the AIRQUAL dimensions are reliable, the items from the other dimensions were analyzed on their own. It was found out that service quality influences the level of customer satisfaction in the airline industry and that the personnel constitutes the most important dimension. Moreover, the service quality perceptions of almost all the AIRQUAL dimensions or items differ between low-cost and full-service airlines.

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List of Abbreviations

AT	Airline tangibles
CA	Cronbach's Alpha
EM	Empathy
EU	European Union
FSC	Full-service carrier
IM	Image
LCC	Low-cost carrier
PE	Personnel
SPSS	Statistical Package for the Social Sciences
TT	Terminal tangibles
UK	United Kingdom
US	United States
VIF	Variance inflation factor

1 Introduction

1.1 Background and Problematization of the Study

With rising competition in the markets, a goal that many companies follow is satisfying their customers. Especially in the service industries, improving the quality of the services is an important strategy in order to assure the satisfaction. In the past, service quality and customer satisfaction have been studied in research. Many researchers agree that customer satisfaction influences customer loyalty and recommendations and thus has an impact on the profitability and market share of a company (Anderson, Fornell & Lehmann, 1994; Ekiz, Hussain & Bavik, 2006; Jiang & Zhang, 2016). Customers that are satisfied with the product or service they receive tend to have repurchase intentions and spread positive word-of-mouth (Nadiri et al., 2008). Likewise, service quality is found to be an important requirement for the survival and success of companies in a competitive business environment (Gilbert & Wong, 2003).

Today's airline industry is characterized by the aforesaid competitive environment. Moreover, it is an industry of major importance in the global economy because it is a fundamental component of the tourism industry and indispensable for international business (Tiernan, Rhoades & Waguespack, 2008). In the past, the air traffic was tightly regulated (Malver, 1998). In 1978, however, the regulatory scheme in the US was abolished because it was expected that a deregulation of the air traffic would improve competition between the airlines and thus result in increased service quality and lower fares. The EU followed this example and started to eliminate regulatory rules in 1987 (ibid.). As a result, the door was opened for new entrants in the market, in particular the deregulation has led to the emergence of low-cost airlines (Tiernan, Rhoades & Waguespack, 2008). Low-cost carriers (LCC) differ from traditional full-service carriers (FSC) by offering only the basic service and thus being able to offer tickets at a lower fare (Bjelicic, 2007). Their goal in all business operations is optimizing and reducing costs to be able to generate a competitive advantage in the market (Groß & Schröder, 2007). LCCs introduced a new product in the market because “[f]lying has become comparable to a cab drive – an every day feature, affordable and accessible to everyone” (Bley & Büermann, 2007, p.52). Consequently, the emergence of LCCs has significantly changed the market structure in the airline industry by increasing the competition among airlines. In order to gain an advantageous position in the market, airlines

need to understand how they can differentiate from other competitors in their business environment. It has been found that two particularly important aspects for the passenger are low prices and high service standards (Loureiro & Fialho, 2017). This study will focus on the second aspect, namely the service standards that are required to satisfy airline passengers because in recent years, passenger's awareness of and interest in service quality has increased (Chou et al., 2011). In this regard, it is not only interesting to investigate how service quality in general affects the satisfaction of the passengers, but also if service quality is perceived in a different way among low-cost and full-service airlines. These different types of airline business models focus on different strategies to attract their customers (Tiernan, Rhoades & Waguespack, 2008). While LCCs mainly focus on price leadership, FSCs apply a full-service differentiation strategy (ibid.). Thus, it can be expected that the way the service quality is perceived differs between the passengers of LCCs and FSCs.

Through the increased interest in service quality of the recent years, a fundamental problem that researchers and managers have to face has come to the surface, which is the measurement of service quality. Parasuraman, Zeithaml & Berry (1988) established the SERVQUAL scale. It is a 22-item instrument that measures the difference between a consumer's expectations and his perceptions of the offered service and encompasses five dimensions: tangibles, reliability, responsiveness, assurance and empathy (ibid.). It has been criticized for including the consumer's expectations, therefore the SERVPERF method has been developed which focuses only on the consumer's perceptions (Ekiz, Hussain & Bavik, 2006). Adapting this to the airline industry, the AIRQUAL scale has been established, including the five dimensions airline tangibles, terminal tangibles, personnel, empathy and image (ibid.). To measure the service quality in this study, the AIRQUAL scale will be applied not only because it includes industry-specific items, but also because it has not received much attention yet due to its recent emergence.

Other studies have already investigated if service quality in general has an influence on customer satisfaction (e.g. Sandada & Matibiri, 2016; Jiang & Zhang, 2016) and some already focus on part of the AIRQUAL dimensions of service quality (e.g. Nadiri et al., 2008; Farooq et al., 2018). There are researchers that have explored differences between low-cost and full-service airlines, but using different models, such as the SERVPERF scale (e.g. Leong et al., 2015; Kos Koklic, Kukar-Kinney & Vegelj, 2017). However, no study has been found that examines the influence of the single

AIRQUAL service quality dimensions in detail, considering the dissimilarities of different types of airlines.

1.2 Purpose of the Study

The purpose of this study is to investigate if service quality influences the level of customer satisfaction in the airline industry. In doing so, a special emphasis is set on the different dimensions of the AIRQUAL model to find out which aspects of service quality are of greater importance. Before analyzing this relationship, the reliability and applicability of the AIRQUAL scale will be tested. Moreover, this study is designed to find out if there are differences between low-cost and full-service airlines regarding the service quality perceptions of the passengers.

1.3 Disposition

The study is structured as described in the following. In the subsequent chapter, concepts and theories that are the basis for the study are explained. It starts with the fundamental characteristics of customer satisfaction followed by the concept of service quality and the relationship of both those two topics. Thereafter, the hypotheses are developed which are in accordance with the AIRQUAL dimensions. The fourth part describes the methodological procedures used to collect and analyze the data. Thereafter, the results are presented and analyzed, before they are discussed in the sixth chapter which also concludes the findings, including limitations, areas for further research and practical implications.

2 Literature Review

In this chapter, theories and concepts that the study is based on are explained. First, customer satisfaction will be focused. After that, the fundamental ideas of service quality are described and the relationship between the two concepts is discussed.

2.1 Customer Satisfaction

Customer satisfaction is a key concept in marketing literature. Therefore, several definitions of customer satisfaction will be discussed in the following part, followed by the presentation of the expectancy-disconfirmation theory, different conceptualizations and components of customer satisfaction and its role in the business context.

2.1.1 Defining Customer Satisfaction

The term satisfaction has its origins in the Latin language. It is derived from the two words 'satis', which means enough, and 'facere', which can be translated with to do or make (Oliver, 2010). In this sense, products or services that are satisfying the customer are able to provide what the customer thinks to be enough (ibid.). Other researchers define customer satisfaction as "(...) the overall evaluation based on the total purchase and consumption experience with a good or service over time" (Leong et al., 2015, p.6623), as "(...) the feeling of pleasure or disappointment when a customer compares a product's perceived performance with his or her prior expectations" (Jiang & Zhang, 2016, p.81) or as "(...) consumer's response to the evaluation of the perceived discrepancy between prior expectation and the actual performance of the product as perceived after its consumption" (Suhartanto & Noor, 2012). The last two definitions have in common that consumers compare expectations and perceptions, which is also the basis assumption of the expectancy-disconfirmation model.

2.1.2 Expectancy-Disconfirmation Theory

There are many different theories to describe customer satisfaction, for example the expectancy-disconfirmation theory, the equity theory or the comparison-level theory (Suhartanto & Noor, 2012). The model that has received the widest acceptance is the expectancy-disconfirmation theory. According to this model, the customer form expectations, which can be defined as "(...) pre-consumption perception[s] associated with goods and services (...)" (Suhartanto & Noor, 2012, p.2) before the consumption of the offerings. After the consumption, the customer perceives the good's or

service's performance, which can be described as the "(...) basic of the customer's perception of goods and services" (Suhartanto & Noor, 2012, p.2). The main assumption of the expectancy-disconfirmation theory is that the customer forms expectations which are then disconfirmed through performance comparison. The disconfirmation is caused by the discrepancy between the expectations and actual performance that a customer perceives through the consumption of goods and services (ibid.). When the customer's expectations are not met, the service quality is considered unacceptable and the customer feels dissatisfied (Ringle, Sarstedt & Zimmermann, 2011). Nonetheless, there are situations in which it is impossible for the customer to form expectations, evaluate the performance or compare those two elements (Alotaibi, 2015).

2.1.3 Components of Satisfaction

Two components are representing customer satisfaction: cognitive and affective elements (Alotaibi, 2015). The cognitive component includes the comparison between expectations that the customer made in advance and the perceived performance of the good or service (Loureiro & Fialho, 2017). Thus, it encompasses the expectancy-disconfirmation theory as described before. Affective components, on the other hand, involve emotions as a basis for evaluation (Loureiro & Fialho, 2017). Satisfaction depends on whether the customer has a favorable or unfavorable attitude towards the outcome of the consumption (Alotaibi, 2015). Affective satisfaction is more subjective than cognitive satisfaction.

2.1.4 Customer Satisfaction in the Business Context

Overall, customer satisfaction is a basic concept in marketing (Bawa, 2011). In any market-oriented company, it is an outcome of their marketing activities (Sandada & Matibiri, 2016). Hence, it should be a goal for all these companies, especially for service operators (Bawa, 2011). Satisfying customers in the service environment is a greater challenge than delighting clients that purchase goods because services have a more complex and multi-layered nature (Farooq et al., 2018). Moreover, it is important in the service industries to retain customers by satisfying them (Kim & Lee, 2011). It has been found that the acquisition of new customers costs five times more than their satisfaction and retention (Sandada & Matibiri, 2016).

Whether a customer is satisfied or not depends on a variety of factors. Satisfaction is influenced by the perceived service quality (Zeithaml & Bitner, 1996). The higher the service quality, the more satisfied is the

customer. Furthermore, the perceived value and the price have an impact on customer satisfaction, as well as other situational and personal factors (Zeithaml & Bitner, 1996; Suhartanto & Noor, 2012). These can include the customer relationship, reliability, empathy, technology, commitment or maintaining privacy (Moslehpour et al., 2017).

Customer satisfaction influences a company's performance and consumer behavior significantly. Many researchers agree that it has a positive impact on the profitability, market share and return on investment of the firm (Ekiz, Hussain & Bavik, 2006; Oliver, 2010). When customers are satisfied, the company has lower marketing expenditures because it is more economical to satisfy customers than to acquire new ones (Anderson, Fornell & Lehmann, 1994). Furthermore, possessing a basis of satisfied customers is an indication for the general health of a company (Alotaibi, 2015). It can lead to an enhanced reputation of the company because satisfied clients often engage in positive word-of-mouth and recommend the firm to others (Anderson, Fornell & Lehmann, 1994; Nadiri et al., 2008). It is also more likely that these customers repurchase a product or service of the firm which can eventually lead to customer loyalty (Anderson, Fornell & Lehmann, 1994). Moreover, these customers tolerate price changes more easily because they value the benefits they receive through the purchase or consumption of the good or service. In addition, when customers are satisfied they have no reason to complain so that the firm needs to invest less resources for managing return, rework on defective products and managing complaints (ibid.). In the airline industry, there is a great competition in the market and exit barriers are limited (Sandada & Matibiri, 2016). There, customer satisfaction can help to insulate customers from competitive efforts and retain them (Anderson, Fornell & Lehmann, 1994).

2.2 Service Quality

Service quality is an important antecedent of customer satisfaction and in general an important prerequisite for the survival and success of a company (Parasuraman, Zeithaml & Berry, 1988). Due to the specific characteristics of services, service quality is an abstract and elusive construct, differing from the concept of goods quality that can be determined objectively by indicators such as the number of defects or the durability (ibid.).

2.2.1 Difference between Goods and Services

To understand the concept of service quality, it is important to take the differences of goods and services into consideration. According to Zeithaml & Bitner (1996, p.5)

“[s]ervices include all economic activities whose output is not a physical product or construction, is generally consumed at the time it is produced, and provides added values in forms (such as convenience, amusement, timeliness, comfort or health) that are essentially intangible concerns of its first purchaser”.

Consequently, intangibility can be seen as the main determinant that decides whether the company's offering is a service or not. The four main characteristics that differentiate services from goods are intangibility, heterogeneity, inseparability and perishability (Zeithaml & Bitner, 1996; Parasuraman, Zeithaml & Berry, 1985; Lovelock & Gummesson, 2004).

Intangibility implies that services differ from goods because they are actions or performances rather than physical objects. (Zeithaml & Bitner, 1996). Thus, services cannot be sensed in the same way as tangible goods. However, most goods are accompanied by a service, so that only few products are entirely tangible or intangible. Most offerings are a mixture of tangible and intangible components. Under those circumstances, a service is said to be composed of more intangible components than manufactured goods (ibid.). The problems resulting from intangibility are that services cannot be stored and thus it is difficult to handle fluctuations in demand, which is a typical phenomenon in the airline industry. Moreover, new business concepts in the service industries cannot be patented legally and hence be copied easily by competitors (ibid.). An example for this is the business concept of the low-cost airlines which not only led to the emergence of many new airlines but also influenced the strategies of existing business units.

The second characteristic of services, heterogeneity, suggests that two services are never alike because they are processes produced by human beings (Zeithaml & Bitner, 1996). It depends on the employees that provide the service as well as on the customer that receives it and can vary from day to day (Parasuraman, Zeithaml & Berry, 1985). Consequently, assuring consistency of the employees' behavior and of service quality is difficult if not impossible (Zeithaml & Bitner, 1996). In the airline context, customers only get in contact with a limited number of personnel, therefore the perceived quality depends on those employees' skills to satisfy the customers' needs (Alotaibi, 2015).

A further difference between goods and services is the inseparability of service production and consumption. Services are mostly produced and consumed simultaneously, hence the customer is not only present during the production but also a part of it (Zeithaml & Bitner, 1996). Consequently, quality is created during the interaction of the service provider and the customer and depends on the client's participation (Parasuraman, Zeithaml & Berry, 1985).

The last characteristic of services is perishability, which indicates that services can neither be saved, stored, resold nor returned (Zeithaml & Bitner, 1996). For this reason, it is important for service providers to forecast the demand and plan their capacity utilization. Furthermore, they need to consider what to do and how to react when something in the service delivery process goes wrong in order to compensate the customer (ibid.).

2.2.2 Defining Service Quality

The four attributes intangibility, heterogeneity, inseparability and perishability that differentiate services from goods show that it is a more difficult task to ensure service quality than product quality. Service quality can be defined as "(...) the delivery of excellent or superior service relative to customer expectations" (Zeithaml & Bitner, 1996, p.117). It is the outcome of an evaluation process in which customers compare their expectations and perceptions of the service (ibid.). Service quality is produced in an interaction process between the service provider and the customer and can be divided into physical quality, corporate quality and interactive quality (Parasuraman, Zeithaml & Berry, 1985). Physical quality involves the physical element of the service (ibid.). As no service is completely intangible and no good is entirely tangible, they are always a mixture of both (Zeithaml & Bitner, 1996). The corporate quality includes the profile or image that the company possesses and the interactive quality evolves in the interaction process between employee and client as well as in the interaction between different customers (Parasuraman, Zeithaml & Berry, 1985).

2.2.3 Service Quality in the Business Context

Service quality is a key factor for a company's survival and success in a competitive business environment (Suhartanto & Noor, 2012; Gilbert & Wong, 2003). Superior service quality reinforces customer satisfaction which leads to clients that recommend the firm and that have repurchase intentions (Leong et al., 2015). A service firm that delivers high-quality services can charge up to eight per cent more for their offerings and

therefore increases their profits (Gilbert & Wong, 2003). These firms can differentiate from its competitors and through this gain a unique position in the market (Bawa, 2011). By obtaining an advantageous status in the business environment, high-quality service companies can increase their market share more easily and thus reach a higher profitability (Gilbert & Wong, 2003).

After the deregulations in 1978, the airline industry has become a highly competitive environment (Tiernan, Rhoades & Waguespack, 2008). In this industry, firms that are directly competing against each other can only differentiate through the price or the service quality (Kim & Lee, 2011). The competition on price, however, leads to a no-win situation in the long run (Chou et al., 2011). Furthermore, airline passengers often use their perceptions of the service quality as a basis for the overall quality evaluation of the company (Babbar & Koufteros, 2008).

2.2.4 Gaps Model of Service Quality

The gaps model of service quality was developed by Parasuraman, Zeithaml & Berry (1985) and includes five gaps. It functions as a framework for service firms to improve their service quality (Zeithaml & Bitner, 1996). The concept of the model is presented in Figure 1.

The first gap is found between the consumer expectations and the management perceptions. (Parasuraman, Zeithaml & Berry, 1985). The service provider might not always understand which elements determine service quality to the customer. The management and the customer may have different perceptions of the needs that the client has and how to satisfy them with a high-quality service (ibid.).

The gap between the management perceptions and the service quality specifications is the second gap of the model (Parasuraman, Zeithaml & Berry, 1985). The company might have problems in achieving or exceeding customer expectations because they are not totally committed to service quality or have to face resource and market constraints (ibid.).

A further gap can exist between the service quality specifications and the service delivery (Parasuraman, Zeithaml & Berry, 1985). As services are provided by the employees of a firm, the performance can vary every time. The management cannot ensure a standard of service quality even if guidelines exist for the performance of a service (ibid.).

The fourth gap is the discrepancy between the service delivery and the external communications (Parasuraman, Zeithaml & Berry, 1985). The way

in which a company communicates its services, for example through media advertising, influences the customer's expectations. If a firm promises more than it will deliver, the customer's expectations will increase but the perception of quality will be lower in the end if these expectations are not met (ibid.).

The last gap is between the expected service and the perceived service (Parasuraman, Zeithaml & Berry, 1985). The main requirement to ensure good service quality is by matching or surpassing customer expectations (ibid.).

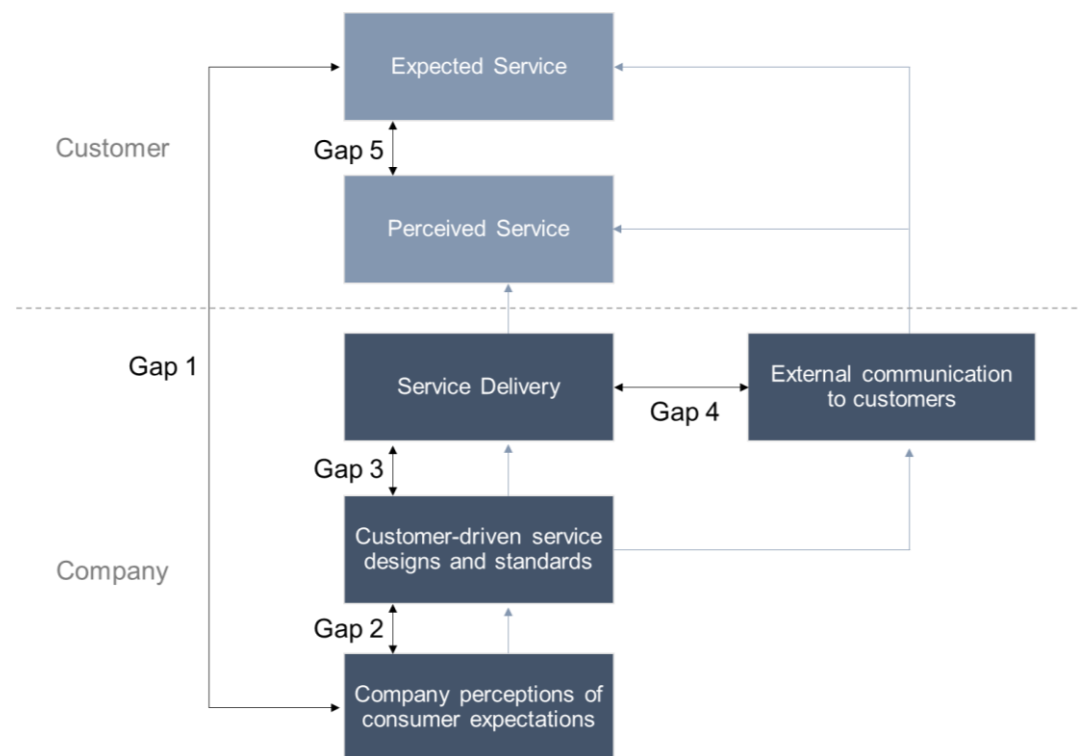


Figure 1: The gaps model of service quality. Based on Zeithaml & Bitner, 1996, p. 48.

2.2.5 Conceptualizations of Service Quality

There are two main conceptualizations of service quality: the Nordic approach and the American approach (Suhartanto & Noor, 2012).

According to the Nordic approach, service quality consists of technical and functional quality (Suhartanto & Noor, 2012). The technical quality can be described as the quality of the technical outcome of the service delivery process (Grönroos, 1984). Thus, it is the result of the interaction with the service company that the customer receives. This type of quality can be measured in a relatively objective way by the client (ibid.). The functional quality, on the other hand, comprises the way in which the service is delivered (Parasuraman, Zeithaml & Berry, 1985). The service delivery

process always depends on the performance of the employees, the influence of other customers and the participation of the customer himself (Grönroos, 1984). This type of quality is perceived rather subjectively, which complicates its measurement (ibid.).

From the perspective of the American approach, service quality consists of five dimensions, which are also known as the SERVQUAL dimensions (Suhartanto & Noor, 2012). These dimensions are reliability, responsiveness, empathy, assurance and tangibles. The basis for this approach is the expectancy-disconfirmation model, which understands service quality as a gap between the customer's expectations and perceptions of the service (ibid.). In terms of the gaps model of service quality, SERVQUAL measures the fifth gap, which represents the discrepancy between perceived and expected service.

2.2.6 Measuring Service Quality

Due to the complex and multi-layered nature of services that depends on the service personnel and the customers, service quality is dependent on a subjective evaluation of the customer (Chou et al., 2011). This challenges researchers and marketers in measuring the service quality that a customer perceives. To overcome this problem, Parasuraman, Zeithaml & Berry (1988) developed the SERVQUAL scale. It is a survey instrument that was created to measure the gap between the customer's perceptions and expectations (Gilbert & Wong, 2003). Researchers agree that quality should not be measured directly, but should be decomposed into different dimensions or components (Alotaibi, 2015). Originally, Parasuraman, Zeithaml & Berry (1988) found ten dimensions that are potential indicators for service quality, which are tangibles, reliability, responsiveness, security, credibility, understanding and knowing the customer, competence, courtesy, access and communication. However, they summarized the last seven dimensions into two new ones, which are called empathy and assurance. The tangibles dimension evaluates the customers' expectations and perceptions regarding physical facilities, appearance of personnel and equipment (ibid.). Reliability involves the "ability to perform the promised service dependably and accurately" (Parasuraman, Zeithaml & Berry, 1988, p.23). The dimension called responsiveness displays if the service personnel is willing to help the customer and provide the service promptly (ibid.). Assurance can be defined as "knowledge and courtesy of employees and their ability to inspire trust and confidence" (Parasuraman, Zeithaml & Berry, 1988, p.23) and empathy includes the customers' evaluation of the

caring and individualized attention that the service company provides. Each dimension consists of several items, in total the SERVQUAL scale comprises 22 items. Each item is rewritten into two statements. One of these statements measures the expectations and the other one the perceptions of the customers (ibid.). The difference between these two statements represents the service quality that the client perceives.

The expectations measured by the SERVQUAL scale can be interpreted in different manners (Gilbert & Wong, 2003). The customers might rate the importance of the service attribute in their response rather than their real expectations of the service delivery. Another alternative is that they respond corresponding to the forecasted performance, so the performance they would expect to receive. On the other hand, the customers could also have the ideal performance in mind, so the optimal performance that can happen. A different interpretation of expectations is the deserved performance, which can be understood as the performance that the clients feels they should receive. Moreover, the customers can expect the outcome they receive to equate to the costs that were created. One last possible interpretation of the customers' expectations is the minimum performance that they tolerate (ibid.).

The SERVQUAL model is often used in practice but has also received some criticism. One major issue that researchers criticize is the inclusion of the expectations (Ekiz, Hussain & Bavik, 2006). As described before, the customers' expectations can be interpreted in different ways and therefore, it cannot be guaranteed that the results of the service quality research are consistent. Furthermore, some researchers argue that the disconfirmation approach is not supported, neither theoretically nor empirically (Ekiz, Hussain & Bavik, 2006; Nadiri et al., 2008). Another point of criticism is that the SERVQUAL scale cannot be used universally in all service industries (Ali, Dey & Filieri, 2015). Different industries require industry-specific dimensions and therefore many modified versions of the scale have been developed over time (Alotaibi, 2015). Furthermore, the SERVQUAL model is found to be context and culture-specific, it is for example important to consider the previous experiences that a customer has had with the service company (Leong et al., 2015).

In order to overcome the criticism regarding the inclusion of expectations in the SERVQUAL scale, a new scale has been developed which is called SERVPERF (Nadiri et al., 2008). This scale measures only the performance outcomes of a service delivery process, ignoring the expectations that the

customer has had in advance (ibid.). It comprises the same five dimensions as the SERVQUAL scale, namely tangibles, reliability, responsiveness, assurance and empathy (Leong et al., 2015) and was found to explore more the variance in an overall measure of service quality than the SERVQUAL scale (Ekiz, Hussain & Bavik, 2006). However, the SERVPERF scale is criticized for its generality and failure to take into consideration industry-specific dimensions of service quality (Ali, Dey & Filieri, 2015).

With the intention to defeat the problem of generality that both the SERVQUAL and the SERVPERF scale are criticized for, the AIRQUAL model was developed, taking into account specific elements of the airline industry (Alotaibi, 2015). It consists of five industry-specific dimensions: airline tangibles, terminal tangibles, personnel, empathy and image (Ekiz, Hussain & Bavik, 2006). Alotaibi (2015) found out that the items included in the AIRQUAL scale have a good reliability and validity to measure the service quality in the airline sector. The dimensions of the AIRQUAL scale will be further elaborated in chapter 3.1 when the hypotheses for the research are developed.

2.3 The Relationship of Service Quality and Customer Satisfaction

The concepts of service quality and customer satisfaction are closely connected, however they are not synonymous (Jiang & Zhang, 2016). Both of them involve a comparison of the expectations and the actual performance of the service delivery (ibid.). This might lead to confusion about the separation of the concepts (Parasuraman, Zeithaml & Berry, 1994).

There are, however, several differences between the concepts of service quality and customer satisfaction. First, perceiving quality does not necessarily require the experience of the consumption (Oliver, 2010). To form an opinion on the quality of a product or service, it is enough to relate to other customers' experiences or their descriptions of the product or service. For the formation of a state of satisfaction, on the other hand, it is required to have experienced the product or service. A second difference between service quality and customer satisfaction are the dimensions or attributes that underlie the evaluation. While quality is the result of the evaluation of rather specific dimensions, satisfaction can be judged with any dimension. Furthermore, service quality and customer satisfaction differ by whether they are evaluated by cognition or affect. Quality, on the one hand, is mainly attribute-based and thus a rather cognitive judgment. On the other

hand, satisfaction includes both cognitive and affective elements (ibid.). Another significant dissimilarity of the two concepts is that service quality is a global judgment, whereas satisfaction is a transaction-specific evaluation (Parasuraman, Zeithaml & Berry, 1988). Service quality relates to the general superiority of the service that is judged based on reflections of past experiences in form of a summary judgment (Oliver, 2010). In contrast, customer satisfaction is evaluated during or immediately after a particular service delivery process and is only based on that experience (ibid.).

Next to the differentiation of the two concepts, the casual direction of the relationship between service quality and customer satisfaction is a topic that is debated about (Parasuraman, Zeithaml & Berry, 1994). Mostly found in literature, quality is considered to be an antecedent of customer satisfaction (Ekiz, Hussain & Bavik, 2006; Suhartanto & Noor, 2012; Ali, Dey & Filieri, 2015). The better the service quality, the higher is the customer satisfaction (Rajaguru, 2016). However, there are also researchers that claim that customer satisfaction leads to service quality or that the two concepts are independent from each other (Kim & Lee, 2011). In this study, the first type of relationship will be tested, thus if service quality, measured through the AIRQUAL scale, will influence the level of customer satisfaction.

3 Hypotheses Development

In order to find out if service quality is an antecedent of customer satisfaction in the airline industry, Alotaibi (2015) recommends to decompose quality into measurable dimensions. Therefore, in this study the impact of the single AIRQUAL dimensions on customer satisfaction will be tested.

3.1 AIRQUAL Dimensions

3.1.1 Airline Tangibles

The first AIRQUAL dimension is called airline tangibles and is often acknowledged as one of the most important dimensions in order to satisfy passengers in the airline industry (Farooq et al., 2018). It includes items relating to the overall condition of the aircraft. In this dimension, it is mainly asked for tangible elements that can be associated with the service quality of an airline, which comprise the quality of the equipment of the airplane, the comfort of the seats and the cleanliness of the interior (ibid.). It can be expected that the better the quality of the airline tangibles, the higher is the level of customer satisfaction.

Hypothesis 1: Service quality with regard to airline tangibles positively influences customer satisfaction.

3.1.2 Terminal Tangibles

The terminal tangibles dimension contains the services that are provided at the airport (Alotaibi, 2015). In particular, this dimension involves the cleanliness of airport toilets, the effectiveness of sign systems, the availability of shops and trolleys and a reliable security control system (ibid.). According to Farooq (2018), they are considered to directly influence the airline's overall image building. From another point of view, the terminal tangibles dimension and the customer's satisfaction with the airline could be independent from each other because many airlines use the same airport and thus provide the same terminal tangibles. Nevertheless, the hypothesis in this study tests the first perspective. Thus, the assumption made is that the higher the perceived quality of the terminal tangibles, the greater the passenger's satisfaction level.

Hypothesis 2: Service quality with regard to terminal tangibles positively influences customer satisfaction.

3.1.3 Personnel

The personnel play an important role in the provision of a service because they are the ones that take up contact to the passengers (Babbar & Koufteros, 2008). The customer contact through the personnel is the main difference between manufactured products and services. The personnel's behavior significantly influences the passengers' experience and perception of the service and therefore shapes their quality assessment (ibid.). Each interaction between customer and employee gives the employee the opportunity to satisfy or dissatisfy the passenger (Ringle, Sarstedt & Zimmermann, 2011). Hence, the employees of the airlines are a crucial part of the determination of the customers' satisfaction level (Babbar & Koufteros, 2008). The factors that primarily trigger the customers' perceptions of the service quality of the interaction with the airline are the personnel's attitudes, their behavior and their expertise (ibid.). In essence, the personnel dimension of service quality examines the quality the contact employees provide to the customer (Farooq et al., 2018).

Hypothesis 3: Service quality with regard to personnel positively influences customer satisfaction.

3.1.4 Empathy

Empathy is an important component of service quality regardless of the industry the company operates in (Farooq et al., 2018). The level of understanding the customers' needs and concern for their well-being shown by the personnel is an integral part of the passengers' quality evaluations (Babbar & Koufteros, 2008). In the AIRQUAL model, the items included in this dimension ask about problem-free service such as careful luggage handling, clearly communicated compensation schemes or punctuality (Alotaibi, 2015; Farooq et al., 2018). These items were used in other studies that worked with the AIRQUAL scale. Nevertheless, it is questionable whether the items can be put together into one dimension. Although it is doubtful, empathy has been found to be a driver for customer satisfaction in other studies (Moslehpour et al., 2017).

Hypothesis 4: Service quality with regard to empathy positively influences customer satisfaction.

3.1.5 Image

The brand image of the airline seems to play a relevant role in the passengers' evaluation of the service quality. The way in which a customer perceives the airline, for example through the image, influences the

expectations that the passenger has of the flight (Grönroos, 1984). Moreover, a positive brand image can improve the service quality level because the passenger will find excuses for the negative experience that he has undergone (ibid.). The image dimension of the AIRQUAL scale contains items such as promotional offers, value for money or the overall perception of the airline's image (Farooq et al., 2018). However, the solidarity of the items should be critically reflected. For example, the belonging of value for money to this dimension can be debated about. The price of the ticket might not have an influence on how the customer perceives the company. However, Forgas et al. (2010) found out in their study that the image a passenger has of an airline influences both loyalty and customer satisfaction.

Hypothesis 5: Service quality with regard to image positively influences customer satisfaction.

These hypotheses can be summarized in a conceptual framework as presented in Figure 2.

3.2 Moderating Effect of the Airline Type

With the emergence of the low-cost airlines as a consequence of the deregulations in previous years, the business environment in the airline industry has become more competitive. The spread of LCCs has been possible because of their new business concept which differs from the one that the traditional FSCs operate.

The business concept of LCCs is based on the idea to provide a basic product to the customer (Bjelicic, 2007). Therefore, instead of low-cost carrier, the term 'no frills airline' is often used to describe this airline type

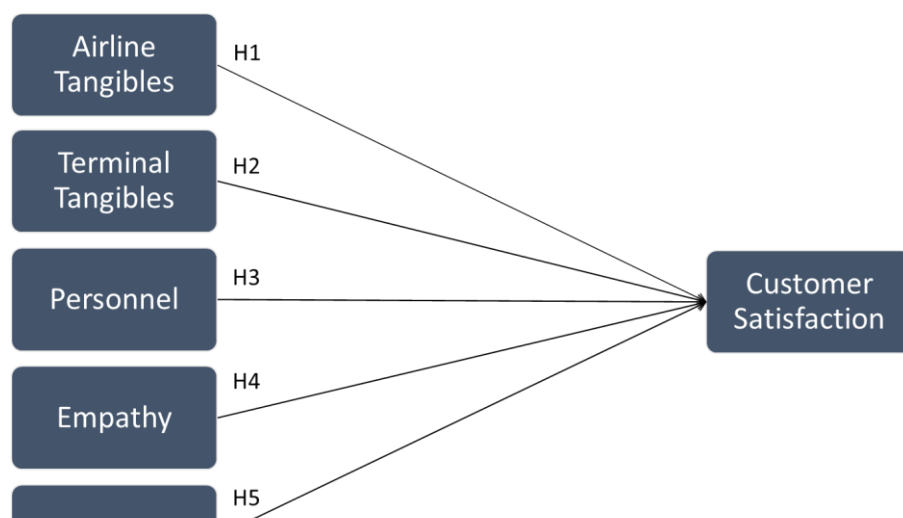


Figure 2: Conceptual framework

(ibid.). Normally, there is no catering included during a flight with a LCC, although passengers can buy food on board (Groß & Schröder, 2007). This enables the airline to reduce catering costs and at the same time they can create additional turnover (ibid.). In contrast, in the traditional FSCs the catering is part of the service that is provided by default. In order to simplify the service delivery, LCCs offer only one class for all passengers, while FSC offer multiple classes, such as economy, business and first class (Buaphiban & Truong, 2017). Furthermore, LCCs facilitate the boarding process by free seating (Bley & Büermann, 2007), they sell the tickets mainly online, reduce the services offered at the check-in by leaving the passenger with self-check-in desks and offer no in-flight entertainment (Chou, 2015). LCCs use all these measures of simplification and standardization to reduce the costs of the service provision (Bley & Büermann, 2007). Moreover, they outsource all the services that do not belong to their core competencies to specialists, for example technical services such as repair and maintenance of the aircrafts (Groß & Schröder, 2007). As a consequence of the reduced costs for the service delivery, LCCs are able to sell their tickets at lower fares than FSCs, providing them an advantageous position in the market and a competitive advantage over other airlines (ibid.). The prerequisite for this, however, is that passengers of LCCs consider the price as an important decision factor, while customers travelling with FSCs tolerate higher prices in order to exploit the additional service of these airlines (O'Connell & Williams, 2005). Another characteristic that differentiates LCCs from FSCs is that they mainly operate point-to-point routes (Kos Koklic, Kukar-Kinney & Vegelj, 2017). This strategy allows LSCs to save costs in case of delay and they do not need to calculate time gaps for connecting flights, so that the aircraft is used with shorter turnaround times (Groß & Schröder, 2007). FSCs, on the other hand, operate a hub-and-spoke model which means that they center their routes around specific hubs that have a strategic position (Kos Koklic, Kukar-Kinney & Vegelj, 2017). Other differences between the two airline types can have an influence on the different AIRQUAL dimensions, therefore these dissimilarities are presented in the following part according to the dimension they can be accounted for.

3.2.1 Airline Tangibles

Regarding the aircraft that an airline uses, LCCs are characterized by leasing aircrafts or purchasing used airplanes (Groß & Schröder, 2007). These airplanes are often less equipped and provide less space between the seats in order to maximize the efficiency. LCCs mostly use only one type

of aircraft in contrast to FSCs. This enables them to reduce the costs for personnel training and to facilitate the operational planning of their routes (ibid.). This basic equipment of the aircraft can have an influence on the comfort that the passenger perceives during the flight. Moreover, the shorter turnaround times of the aircrafts induce less time for cleaning and maintaining the airplane. Thus, the passenger's perception of the service quality regarding the airline tangibles might differ between FSCs and LCCs. Therefore, the following hypothesis is developed:

Hypothesis 6a: The airline type moderates the service quality perceptions of airline tangibles; the quality evaluations of airline tangibles are lower for low-cost airlines compared to full-service airlines.

3.2.2 Terminal Tangibles

A further difference between FSCs and LCCs is the airport that LCCs often use secondary airports (Groß & Schröder, 2007). Secondary airports are rather irrelevant and unknown regional airports that win importance and prominence through the cooperation with LCCs (Bley & Büermann, 2007). For the LCCs, the benefits of using those airports are that there are more free capacities and less congestion (Groß & Schröder, 2007). Moreover, the secondary airports often offer financial support to LCCs, so that the collaboration is a win-win situation for both of them (Bjelicic, 2007). However, the utilization of these smaller and less important airports can influence the way that the passenger perceives the airline service quality, because for example the connection to the city or the amount of shops can differ between these types of airports.

Hypothesis 6b: The airline type moderates the service quality perceptions of terminal tangibles; the quality evaluations of terminal tangibles are lower for low-cost airlines compared to full-service airlines.

3.2.3 Personnel

The personnel dimension of the AIRQUAL scale can also be influenced by the type of airline. A feature of LCCs is that they reduce their workforce to a minimum in order to lower their costs (Groß & Schröder, 2007). The personnel is expected to show a high level of flexibility and to waive all kinds of privileges (Bley & Büermann, 2007). This can have an impact on the friendliness and sympathy they show towards the passenger because dissatisfied employees cannot meet the customer's service quality expectations and satisfy their needs.

Hypothesis 6c: The airline type moderates the service quality perceptions of the personnel; the quality evaluations of the personnel are lower for low-cost airlines compared to full-service airlines.

3.2.4 Empathy

Often, LCCs are demanding extra payments if the passenger wants to bring luggage, so most of the customers choose to travel with hand luggage only (Bjelicic, 2007). As a consequence, the space available in the cabin for the hand luggage is often not sufficient. This can impact the passenger's perception of the luggage handling on the part of the airline, which means that the levels of perceived service quality can differ between LCCs and FSCs. Moreover, due to the minimization of personnel employed, some processes might not work problem-free and the short turnaround times might force the employees to hurry while loading and unloading the aircraft, so that careful handling cannot be guaranteed. Thus, the following hypothesis refers to the empathy dimension of the AIRQUAL scale:

Hypothesis 6d: The airline type moderates the service quality perceptions of empathy; the quality evaluations of terminal tangibles are lower for low-cost airlines compared to full-service airlines.

3.2.5 Image

Another difference between LCCs and FSCs is the image they communicate to the passengers. While FSCs try to convince the customer of the excellence of the services they offer, LCCs work with the image of being cheaper than the competition (Bley & Büermann, 2007). LCCs attract passengers by offering a high value for money with their basic product for a low price. Moreover, LCCs do not offer frequent flyer programs in contrast to the traditional FSCs (Groß & Schröder, 2007). Therefore, the perceptions that the customer has regarding the image dimension of the AIRQUAL scale differs between the two types of airlines.

Hypothesis 6e: The airline type moderates the service quality perceptions of the image; the quality evaluations of the image are lower for low-cost airlines compared to full-service airlines.

4 Methodology

The aim of the study is to test the reliability of the AIRQUAL scale, the influence that the service quality dimensions have on customer satisfaction and the differences in the service quality perceptions among different airline types. Therefore, a quantitative study is carried out. In contrast to a qualitative study, in a quantitative study data is collected from a large and representative group of respondents (Hollensen, 2011). The aim of this type of research is to quantify the data and to draw generalizing conclusions from the sample to the whole population (ibid.). First, to find information about findings from previous studies concerning this topic and about the theoretical concepts that the study is based on, peer-reviewed articles and books were primarily used. These secondary sources provide information about the research that has already been done in this field. To fulfil the purpose of the study, hypotheses were tested based on primary data that was collected through a questionnaire. The advantage of this data collection method is that exactly the data is procured that is needed to fulfil the purpose of the study.

4.1 Sampling and Data Collection

The population that is studied includes everyone who has been using the airplane in the last twelve months. The timeframe of twelve months was chosen because the respondents should be able to remember the service quality and be able to answer the detailed questions. If the flight was some years ago, it would be possible that the respondents only remember the negative experiences they had with an airline or are not able to recall their exact attitudes at all. Due to the location of the universities Mid Sweden University and FH Aachen, a special focus is set on passengers from Germany and Sweden. Nonetheless, respondents from all countries are included in the analysis, since the original background is not relevant for the purpose of the study. According to data conducted by Eurostat (2018), 973 million passengers travelled by air in the European Union in the year 2016. These statistics, as well as this study, take into consideration that one person might use the airplane several times a year, so that the population of this study consists of flight passengers rather than individuals.

The sample size that is required to conduct a valid study depends on the target population, the margin of error, the confidence level and the standard deviation (Smith, 2018). Smith uses the following formula to calculate the necessary sample size:

$$n = \frac{z^2 p(1-p)}{e^2},$$

with n = necessary sample size; z = Z-score; p = standard deviation; e = margin of error. The margin of error describes to what percentage the sample mean is allowed to differ from the population mean (Smith, 2018). The confidence interval expresses how often the actual percentage of the population choosing an answer lies within the confidence interval. The standard deviation represents the variance in the responses. This above-mentioned formula can be used for an unknown or very large population size (ibid.). As the population is quite large with 973 million passengers, the formula can be applied in this context. Considering a margin of error of 5%, a confidence level of 95% (Z-score of 1.96) and a standard deviation of 0.5 the sample size should be at least 385.

The sample frame can be defined as the “(...) set of people that has a chance to be selected, given the sampling approach that is chosen” (Fowler, 2009, p.19). For this study, the sampling was done by chance because there does not exist a list of the population that could be used. The first question of the questionnaire – if they have been using the airplane in the past 12 months – was used to verify that the respondent belongs to the population that is being studied. This approach can have impacts on the efficiency of the sampling because it can only be found out afterwards if the respondent is relevant for the study.

The used sampling procedure mostly consists of nonprobability sampling. At first, friends, family, co-workers and other convenient members of the population were sampled. They were asked to pass on the survey to other friends to cause a snowball effect. The advantage of this is that many people can be reached easily. However, this procedure of sampling has the disadvantage that not every member of the population has the same opportunity to be chosen. This can have an impact on the validity and reliability of the study.

Before sending out the questionnaire, it was pretested by five independent individuals. They gave a feedback about difficulties with the questionnaire, such as uncertainties or misunderstandings about the meaning of some questions. After discussing the feedback, some questions were changed in their wordings and some items were deleted because they were not applicable to all the respondents.

To collect the data, an online questionnaire was used. It was distributed by mail or via social networks, because then it could reach many possible

members of the population at a low cost. However, there exists the danger of a low response rate, therefore various reminders were send out. One was approximately one week after the publication of the survey and another one again after some days. Conducting the study only on the internet has the advantage that it is easy to access and can be carried out fast, but there is also the risk of excluding potential respondents that are not using the internet.

To reach a larger share of the population, which focuses partly on German respondents, the questionnaire was translated into the German language. An independent person translated the questionnaire back from German to English to secure the quality of the translation and that the questions are understood in the same way. After this procedure, minor changes were made in the wording of the questions.

In total, 465 responses were collected which are, however, not all usable for the analysis. 35 respondents did not finish the questionnaire. These responses were deleted from the sample because they cannot be used in the analysis. Moreover, the population only includes passengers that have been travelling in the past twelve months. Therefore, all the cases in which the respondents answered with “no” to the question whether they have been using the airplane in the last twelve months were excluded as well. In fact, 59 responses were deleted for that reason. After the revision of the responses, 371 responses were left that could be used for the analysis. This sample size is slightly lower than the calculated sample size of 385, but this minor difference should not have an impact on the reliability of the results.

4.2 Construction of the Questionnaire

Both the English and the German versions of the questionnaire that were used for this study can be found in appendix I. As mentioned before, the first question of the questionnaire (“Have you been using the airplane in the last 12 months?”) was used to control if the respondent is a member of the population. Everybody who has answered this question with “no” is excluded from the analysis of this study. The second question (“Which airline do you frequently use?”) was used to categorize the respondents into passengers of low-cost and full-service airlines. There were several alternative answers proposed that are generally known, but the respondent also had the opportunity to add another airline. This was then classified into low-cost or full-service airline afterwards. If it had been asked whether they use low-cost or full-service airlines, it would have led to biased responses on the following questions.

Table 1: Operationalization of the AIRQUAL scale

Question	Dimension	Items
6	Airline Tangibles	AT1: Aircraft was equipped with latest and modern technology AT2: Cleanliness of the plane toilets was well maintained AT3: Plane seats were comfortable AT4: Plane seats were clean AT5: Quality of air-conditioning in the plane was good AT6: The interior of the aircraft was well maintained
7	Terminal Tangibles	TT1: Airport toilets were clean TT2: Number of shops in the airport was adequate for my needs TT3: Size of the airport in holding passengers was adequate TT4: Airport has an effective air-conditioning TT5: Airport had effective sign system TT6: Adequate number of trolleys were available at the airport TT7: Security control system was reliable TT8: Employees were well-dressed TT9: Waiting hall of the airport was comfortable
8	Personnel	PE1: Airline personnel had a good general attitude PE2: Employee's experience and education level were adequate PE3: Personnel showed personnel care equally to everyone PE4: Employees had the knowledge to answer my questions PE5: Airline personnel showed empathy PE6: Airline personnel was well aware of their duties PE7: Reservations and ticketing transactions were error-free
9	Empathy	EM1: Departures and arrivals were punctual EM2: Transportation between city and airport was not a problem EM3: Compensation schemes in case of loss or hazard are clearly communicated EM4: Luggage is handled very carefully EM5: Number of flights is enough to satisfy my demands
10	Image	IM1: Availability of seats was very much appealing to me IM2: Promotional offers were very much appealing to me IM3: Ticket prices were worth the services I received IM4: Airline bears a good brand image
11	Customer Satisfaction	CS1: I am satisfied with my decision to use this airline as a service provider CS2: My choice of this airline as a service provider was a wise one CS3: I think I did the right thing when I chose to travel by this airline CS4: I feel that my experience with this airline has been enjoyable

Questions 3-5 as well as the questions 12-17 serve to understand the sample and to control if there are differences because of different demographic characteristics or different flight behavior. Questions 6-11 are based on the AIRQUAL model. Which questions represent which dimension is presented in table 1. Customer satisfaction is not directly a dimension of the AIRQUAL model, but as it is connected theoretically to it and was also

used in many other empirical studies about the AIRQUAL model, it is added here in the operationalization. The questions were taken from previous studies using the AIRQUAL model (e.g. Ekiz, et al., 2006; Nadiri, et al., 2008; Farooq, et al., 2018) but being adapted in their wording for this study. Moreover, some of the items were deleted from the original AIRQUAL model because they were not applicable to all the respondents, for example one item with regard to the catering. Many LCCs do not offer catering in their services, therefore all the passengers flying with LCCs would not be able to answer this question. The questions regarding customer satisfaction are based on the study by Ali et al. (2015), but adapted to this study. To measure the attitude that the respondents have toward the statements, a 5-point Likert scale was used which ranges from (1) strongly disagree to (5) strongly agree (Upton & Cook, 2014).

4.3 Statistical Analysis

First of all, the demographic characteristics of the sample are summarized by using frequencies and mean values. This descriptive analysis serves to obtain an overview of the composition of the sample and the respondent's general travel behavior. After this, but before testing the hypotheses, reliability tests are carried out to examine whether the items represent the dimensions in the way that was found out in theory. At first, the factor analysis is used, with which it is possible to reduce the items to a smaller amount (Kim & Mueller, 1978). The method can be used either in an explanatory manner, which means finding the minimum number of dimensions that include all of the items, or in a confirmatory way, which means testing existing dimensions (ibid.). In this study, the factor analysis is used for the latter reason, so in order to test whether the AIRQUAL dimensions really represent the items included. The rotation method Varimax was used to simplify the columns of the factor matrix (Hair et al., 2010). Varimax is an orthogonal rotation method which has the advantage that the factors are independent of each other. In general, Varimax is the method that is applied most often (ibid.). To confirm the reliability of the findings of the factor analysis, it is tested with Cronbach's Alpha. The reliability coefficients show to what extent several items measure the same aspects (Hair et al., 2010).

After that, to test the hypotheses that were formulated for this study, a regression analysis is carried out. However, before doing the regression analysis, the data is analysed in a bivariate analysis to examine correlations between the variables in order to find connections between the variables as

well as relationships with the control variables. Therefore, Pearson correlation is used, although prerequisite for this type of correlation are continuous variables (Pallant, 2016). A comparison with Spearman correlation, which was developed for the use with ordinal data, has shown that there are no major differences between the results of the two different methods. While the correlation describes the mutual relationship between two variables, the regression analysis investigates the relationship between one dependent variable and several independent variables (Pallant, 2016). The regression analysis is based on the following equation:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + e$$

with:

$Y = \text{customer satisfaction}$

$a, b = \text{population parameters}$

$X = \text{AIRQUAL dimension}$ ($X_1 = \text{airline tangibles}$; $X_2 = \text{terminal tangibles}$;
 $X_3 = \text{personnel}$; $X_4 = \text{empathy}$; $X_5 = \text{image}$)

$e = \text{error term}$

Thus, customer satisfaction (Y) is the dependent variable, while the dimensions of service quality – airline tangibles (X_1), terminal tangibles (X_2), personnel (X_3), empathy (X_4) and image (X_5) – are the independent variables. To carry out this regression analysis SPSS was used. In this study, a stepwise regression is carried out in order to include only the significant variables of service quality and to rank them by their importance.

An upcoming problem could be seen in receiving the values for the variables, as in the questionnaire these are divided into several questions. Just like Oliver (2010) proposed for the SERVQUAL model, the values of the single items will be summed up to represent the complete dimension.

As a last step, the Mann-Whitney U test is carried out in order to test the second half of the hypotheses, which deals with the moderating effect of the airline type. This test is used to investigate differences between two independent groups by comparing the medians (Pallant, 2016). It examines the null hypothesis that the distribution of the tested dimension is the same among the different airline types. If this null hypothesis can be rejected with statistical significance, a dissimilarity between LCCs and FSCs exists.

4.4 Problems and Ethical Concerns

An aspect that could influence the validity of the study is whether the questions used in the AIRQUAL model really represent the important aspects of service quality or if they are rather irrelevant to the respondents. Different authors have used different dimensions of service quality, some including for example on-time performance, overbooking, mishandled baggage, customer complaints (Tiernan, Rhoades & Waguespack, 2008) or airline brand, price and sleep comfort (Boetsch, Bieger & Wittmer, 2011). However, the AIRQUAL model as a result of the SERVQUAL model has been applied by other authors (e.g. Ekiz, et al., 2006; Farooq, et al., 2018; Nadiri, et al., 2008). In contrast to this internal validity consideration, the external validity should be checked, so whether the sample is representative for the whole population. As nonprobability sampling was used and the questionnaire was spread out using the snowball effect, it could not really be checked if the sample is representative of the population. It will only be monitored with the first question of the questionnaire if the respondent is part of the population, but the demographic structure or other factors are not taken into consideration.

Regarding ethical concerns, it is important to guarantee anonymity and confidential usage of the data, especially because it is asked for the income in this study which can cause mistrust of the respondents. There were no deceptive practices used in this study and the respondents always had the opportunity to withdraw from the survey. The only aspect that the respondent did not know when taking part in the survey is that it was classified into low-cost and full-service airlines because this could cause biased responses. This is however not a deception but needed for the success of the study.

5 Results and Analysis

In this chapter, the data that was collected through the survey will be presented and analyzed. First, the sample will be presented in a univariate analysis, then the reliability of the AIRQUAL scale will be tested. This is followed by a bivariate and a multivariate analysis that examines the relationship of service quality and customer satisfaction. At last, the moderating effect of the airline type on the service quality perceptions will be tested.

5.1 Demographics

In order to analyze the result correctly, it is important to understand the characteristics of the respondents. Therefore, the demographic traits of the sample will be presented now. In total, 371 respondents are included in the analysis, 63.9% of them are female and 36.1% are male. Altogether, the respondents come from 24 different countries, with the majority coming from Germany (73.3%). The countries of origin following Germany are Sweden (5.4%) and UK (5.1%). Figure 3 presents the 24 countries that the respondents come from. The major part of the respondents lives in the city center (48.5%), while 29.4% live in the outskirts of a city and 22.1% in rural areas. Regarding the age of the respondents, the majority is between 20 and 29 years old (71.4%). 7.5% of the respondents are up to 19 years old, 6.2% between 30 and 39, 5.7% between 40 and 49, 7.5% between 50 and 59, 1.1% between 60 and 69 and 0.5% are 70 years old or more. The employment status is distributed in a similar way. Most of the respondents are students (67.7%). After the students, the next most frequent employment status is the employee with 25.1% of the responses. Less represented groups are pupils (1.6%), self-employed people (2.2%), unemployed people (1.6%), homemakers (0.8%) and retired people (1.1%). Concerning the net income of the respondents, 34.2% earn up to 500€ per



Figure 3: Map of the respondents' origins

month, 40.7% earn between 501€ and 1500€ per month and 13.2% earn between 1501€ and 2500€ per month.

Regarding the travel behavior, 184 of the 371 passengers stated that they fly with airlines that can be accounted to LCCs, which is 49.6% of the sample. The other 50.4% chose an airline that belongs to the FSCs. The majority of the passengers is travelling due to leisure (86.8%), some travel for business (8.6%) or for their studies (4.6%). 32.6% of the passengers normally travel alone, 29.4% with their family, 31.3% with friends, 5.7% with their partner and only 1.1% with coworkers. When deciding for an airline, the more important factor for the passengers is price and not quality. On a scale from 0 to 100, 0 meaning price and 100 meaning quality, the mean value of the sample is 30.41, which indicates a clear tendency towards price considerations.

5.2 Reliability Test of AIRQUAL Dimensions

Before analyzing the relationship of service quality and customer satisfaction in the airline industry, which is the main purpose of the study, the reliability of the measures for these concepts is reviewed. Therefore, in a first step, a confirmatory factor analysis is carried out with the help of the software SPSS. All 35 items that were found in literature to measure service quality and customer satisfaction are included in the analysis. As it was found out in the second chapter of this study, the AIRQUAL scale consists of five dimensions, namely airline tangibles, terminal tangibles, personnel, empathy and image. Adding customer satisfaction to this, there should be six dimensions in total that are measured by the 35 items. Therefore, the number of components was fixed to six factors. The outcome of the factor analysis, in form of a rotated component matrix, is shown in table 2. To improve the clarity of the results, all the values that are below 0.3 are hidden. The highest value in the line of each item shows to which component it should rather be allocated. The items that belong to the airline tangible dimension (AT) are all condensed in the first component. This is a confirmation of the AIRQUAL dimension as it is found in literature. Similarly, the nine items belonging to the dimension terminal tangibles (TT) are summed up in component three. For the personnel dimension (PE), there is one outlier which is PE7 asking about error-free reservations. All the other items for the personnel dimension are classified into the second component, only the one about the error-free reservations is found in component four. Therefore, it can be considered to eliminate this item as it might not measure the same aspect as the rest of the items. Whether it is necessary or even

Table 2: Rotated component matrix

	Component					
	1	2	3	4	5	6
AT1_modern	.768					
AT2_cleantoilets	.677					
AT3_comfortableseats	.643					
AT4_cleanseats	.659					
AT5_airconditioning	.546					
AT6_interiormaintained	.713					
TT1_cleantoilets			.478			
TT2_shops			.704			
TT3_size			.731			
TT4_airconditioning			.653			
TT5_signsystem			.616			
TT6_trolleys			.440			
TT7_securitycontrol		.310	.450			.368
TT8_employeeswelldressed		.302	.535			
TT9_waitinghall			.579			
PE1_generalattitude		.702				
PE2_experienceandeducation		.669				
PE3_equalcare		.601				
PE4_knowledge		.685				
PE5_empathy		.681				
PE6_duties		.659		.339		
PE7_reservations				.508		
EM1_punctual				.376		.522
EM2_transportation				.373		.353
EM3_compensation					.415	.487
EM4_luggage						.671
EM5_numberofflights					.360	
IM1_availabilityseats					.685	
IM2_promotionaloffers					.739	
IM3_price				.639		
IM4_brandimage	.539				.334	
CS1_satisfied	.369			.708		
CS2_wise	.349	.303		.720		
CS3_right	.310			.747		
CS4_enjoyable	.490			.635		

required to delete this item will be tested in the following Cronbach's Alpha test. In the empathy dimension (EM), there are also two items that cannot be assigned clearly to the other items. Most of the items for this dimension are summed up in component six. EM2 asking about the transportation between city and airport can be allocated to both component four and six, the values for this item do not differ much between the two components. Moreover, EM5 asking about the number of flights that an airline offers is rather matched with component five, although the value for this component

is not very high either. Therefore, the affiliation of these items to the dimension will be tested in the Cronbach's Alpha test as well. In the image dimension, there are also two items whose belongings have to be verified again, which are IM3 asking about the price IM4 asking about the brand image. The other items are clustered in component five. The last dimension is the one that examines customer satisfaction. For this dimension, all the items are summed up together in component four. All in all, the dimensions of the AIRQUAL scale can be confirmed in this study with only some items that might be deleted. However, this elimination of items does not have an influence on the results because there are still enough items to measure the dimensions.

In order to test the affiliations of the items to the dimensions and to measure the reliability of the AIRQUAL dimensions, a Cronbach's Alpha (CA) test is carried out. The value is an indicator for the reliability of the scale and should be higher than 0.7 (Hair et al., 2010). To test the affiliation of the items, the CA is calculated again, leaving out every item once in every dimension. If the CA is even higher then, it is recommendable to delete this item from the dimension. All the tables with the result of the CA test can be found in appendix II. The first dimension, airline tangibles, has a CA of 0.817. Thus, the recommended level of 0.7 is exceeded. Leaving out an item does not provide a higher value of CA, therefore all the items should stay in the dimension. Similarly, the terminal tangibles dimension has a CA of 0.807, which is also bigger than 0.7. Just as in the airline tangibles dimension, leaving out an item only lowers the value of CA, so no item should be excluded. For the personnel dimension, first a CA of 0.829 was calculated. This is already quite a high value. While testing how the CA changes when leaving out an item, it could be found that it increases to 0.852 if PE7, which asked about the error-free reservation, is deleted (see appendix II. iii). This result confirms the findings of the factor analysis, which also found out that this item does not fit into the same dimension as the other items. Thus, this item will be left out from the analysis, so that the CA for the personnel dimension is 0.852. The empathy dimension has a CA of 0.581. This value is lower than 0.7, thus the reliability of this dimension is not satisfying. By leaving out any item, one at a time, the CA does not increase, which indicates that no item should be deleted. For the image dimension, the value of CA was also below the 0.7 border, with only 0.563. In the factor analysis, there were two items of this dimension that did not fit in, which were IM3 asking about the price and IM4 asking about the brand image. The test of leaving out one item at a time shows that without IM3, the CA increases to

0.592 and without IM4, the value is lower. Thus, the item asking about the price should be eliminated from the dimension, although the increased CA is still lower than 0.7. An interpretation of the low CA values of the empathy and image dimension is that these items do not fit together. Thus, all the items of these two dimensions, including the ones that were found to be excluded from the study, will be analyzed alone item by item. The last dimension, customer satisfaction, shows the highest CA of all dimensions with a value of 0.915. This dimension is highly reliable and the reliability cannot be increased by leaving out an item. The final values of CA for the six AIRQUAL dimensions are shown in table 3. To sum up, the Cronbach's Alpha test demonstrates that one item in the personnel dimension should be deleted. Overall, the reliability of the dimensions airline tangibles, terminal tangibles, personnel and customer satisfaction are all higher than 0.7. Only the empathy and image dimensions have a very low reliability, thus the items that were found in literature to belong to these dimensions will be analyzed on their own because the Cronbach's Alpha test shows that they cannot be condensed into the dimensions.

Table 3: Final Cronbach's Alpha values for the AIRQUAL dimensions

Dimension	Cronbach's Alpha
Airline Tangibles (AT)	0.817
Terminal Tangibles (TT)	0.807
Personnel (PE)	0.852
Empathy (EM)	0.581
Image (IM)	0.592
Customer Satisfaction (CS)	0.915

In previous research, Alotaibi (2015) found a good reliability of the AIRQUAL scale. However, in that study only the reliability of the whole model was analyzed and not every dimension on its own (ibid.). Another reason for the different result can be that some items had to be deleted in this study because they were not applicable to both LCCs and FSCs. Therefore, less items are included in the single dimensions which also reduces the CA.

5.3 Relationship of Service Quality and Customer Satisfaction

5.3.1 Correlation Analysis

A correlation analysis is used to examine the direction and strength of a relationship between two variables (Pallant, 2016). The table illustrating the correlation matrix can be found in appendix III.

Beginning with the variables that refer to the concepts of service quality and customer satisfaction, it can be observed that there exist positive and

significant relationships between almost all the variables (see Table 4). First, the focus will be on the relationships of the variables with customer satisfaction. There are strong¹ and significant correlations between airline tangibles and customer satisfaction ($r=0.579$, $n=371$, $p<0.01$), between the personnel dimension and customer satisfaction ($r=0.586$, $n=371$, $p<0.01$) and customer satisfaction and brand image ($r=0.519$, $n=371$, $p<0.01$). Thus, if the service perceptions of the airline tangibles, the personnel or the brand image increases, the customer satisfaction with the airline increases as well. Variables that show a medium strong and significant correlation with customer satisfaction are terminal tangibles ($r=0.380$, $n=371$, $p<0.01$), transportation between airport and city ($r=0.326$, $n=371$, $p<0.01$), availability of seats ($r=0.339$, $n=371$, $p<0.01$) and ticket price ($r=0.480$, $n=371$, $p<0.01$). Here, the customer satisfaction increases when the service quality perceptions regarding the terminal tangibles, the transportation between airport and city, the availability of seats or the ticket price increases. However, the relationship between these variables and customer satisfaction is less strong than it was for the first three tested variables. For the other variables of the service quality dimensions, there can be found only weak, but still significant correlations with customer satisfaction.

Table 4: Correlations of customer satisfaction and service

	CS_cumulative
AT_cumulative	,579**
TT_cumulative	,380**
PE_cumulative	,586**
EM1_punctual	,279**
EM2_transportation	,326**
EM3_compensation	,230**
EM4_luggage	,207**
EM5_numberofflights	,296**
IM1_availabilityseats	,339**
IM2_promotionaloffers	,155**
IM3_price	,480**
IM4_brandimage	,519**

The next step is to examine the correlations between the different airline service quality dimensions. If there are strong correlations between the dimensions of service quality, there might be a problem of multicollinearity later in the regression analysis. Analyzing the correlation matrix, it can be found that there are two strong and significant correlations between service quality variables. One is between personnel and terminal tangibles

¹ To determine the strength of a relationship, the correlation coefficient will be classified into three categories: $r<0.299$ is a weak relationship, $0.300<r<0.499$ is a medium relationship and $r>0.500$ is a strong relationship (Pallant, 2016).

($r=0.524$, $n=371$, $p<0.01$). Thus, if the service quality perceptions of the personnel increase, so do the perceptions of the terminal tangibles. An explanation for this relationship could be that the respondents did not only evaluate the flight attendants during the flight but also the personnel working at the airport. The other strong and significant correlation is between airline tangibles and the brand image ($r=0.549$, $n=371$, $p<0.01$). The higher the service quality perceptions of the airline tangibles are, the better is the brand image evaluated. Thus, having a good brand image is in connection with the overall condition with the aircraft, which includes for example cleanliness and comfort. Nevertheless, these correlations are lower than 0.7, which is the critical level according to Pallant (2016), therefore there should be no danger of multicollinearity. Moreover, it is interesting to investigate whether there are medium or high correlations between the items of the empathy and image dimensions, because the items had to be separated due to the finding of the Cronbach's Alpha reliability test. Normally, it can be expected that items from the same dimension correlate with each other, because they are measures for the same aspect of service quality. For the items of the former empathy dimension, there is only one medium strong significant correlation which is between compensation schemes and luggage ($r=0.414$, $n=371$, $p<0.01$). The fact that there is only this one relationship between items of the former empathy dimension shows that the decision of separating the items was the right one. For the former image dimension, there is also only one medium strong, significant correlation. It can be found between availability of seats and promotional offers ($r=0.398$, $n=371$, $p<0.01$). The same conclusion as for the empathy dimension can be drawn here, which is that it was the right decision to analyze the items on their own.

After examining the correlations of the service quality dimensions and customer satisfaction and the correlations of the dimensions within each other, the correlations of these variables with the control variables will be analyzed. Between gender and the service quality dimension, there cannot be found any significant correlations. The control variable age only shows one weak and significant correlation with punctuality ($r=0.161$, $n=371$, $p<0.01$). With all the other service quality dimensions, age does not correlate significantly. The origin of the respondents and the area in which they live correlate weakly with some of the service quality dimension, but there is no strong or medium relationship that can be found here. The same is found for the variables employment status and income. Between the service quality dimension and the control variables purpose of travel, there

can be no significant correlation found. The variables asking about who the respondents travel with and whether price or quality is more important both have only some weak correlations with the service quality dimensions. The only control variable that has significant correlations with almost all of the service quality dimensions is the airline type. The only items with which this variable does not significantly correlate are punctuality and promotional offers. The airline type correlated medium strongly with airline tangibles ($r=0.339$, $n=371$, $p<0.01$) and with brand image ($r=0.402$, $n=371$, $p<0.01$). The correlations with the other dimensions are weak but still significant. Therefore, the moderating effect of the airline type on the service quality perceptions of the single dimensions and items will be investigated in chapter 5.4.

5.3.2 Regression Analysis

In the regression analysis, the dimensions airline tangibles, terminal tangibles and personnel are independent variables as well as the items that belonged to the empathy and image dimensions before. All the tables showing the results of the regression analysis can be found in appendix IV.

As it can be seen in Table 22 in appendix IV, six variables were entered into the model step by step, thus there are six models in total. The first model only includes the personnel dimension, in the second model the airline tangibles are added and the third one encloses the ticket price. After that, the brand image, careful handling of the luggage and punctuality were added one after another in the following models. The model summary that is depicted in Table 23 in appendix IV gives information about the model fit. The R^2 value shows how much of the variance of customer satisfaction - which is the dependent variable - is explained by the model. In the first model, which only includes the personnel dimension, only 34.4% of the variance of customer satisfaction is explained. Adding more and more variables in the other models, the R^2 value rises with each step. The last model, which includes all the six variables, explains 59.7% of the variance of customer satisfaction. This is an acceptable result. The adjusted R^2 takes into account the sample size, because when the sample size is small, the R^2 value tends to be an overestimation of the true value. In this study, the adjusted R^2 does not differ much from the regular R^2 , because the sample size with 371 respondents is quite large. The ANOVA table (see Table 24 in appendix IV) demonstrates whether the results are statistically significant. As all the models have a significance level of $p=0.000$ which is smaller than $p=0.05$, statistical significance can be assessed for all six models.

Table 5: Results of the regression analysis

Model		Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	Sig.	Collinearity Statistics	
		B	Std. Error	Beta		Tolerance	VIF
6	(Constant)	.175	.722		.809		
	PE_cumulative	.266	.033	.325	.000	.685	1.460
	AT_cumulative	.192	.032	.260	.000	.602	1.660
	IM3_price	.909	.108	.299	.000	.874	1.144
	IM4_brandimage	.649	.124	.212	.000	.670	1.493
	EM4_luggage	-.392	.114	-.126	.001	.822	1.216
	EM1_punctual	.245	.085	.101	.004	.899	1.112

a. Dependent Variable: CS_cumulative

To evaluate the strength of the relationship between the service quality variables and customer satisfaction, only the last model, which contains all six variables, will be analyzed. The results for these variables are presented in table 5. The variables are measured on different scales because the two dimensions personnel and airline tangibles both contain several items, while the other variables are single items measured by the Likert scale. Therefore, the standardized coefficients are analyzed here, as the values of the different variables are converted to one single scale, which makes it possible to compare these values. The largest beta coefficient can be found for the personnel dimension with 0.325. Thus, this dimension has the strongest unique contribution to the explanation of customer satisfaction. In the service delivery process, the employees always play an important role because services are produced in the interaction of the employee and the customer. In theory, the type of quality that is measured by the personnel dimension is named interactive quality (Parasuraman, Zeithaml & Berry, 1985). This type of quality evolves in the interaction of the service personnel and the client (ibid.). The second largest contribution has the item ticket price with a beta value of 0.299, followed by the airline tangible dimension with 0.260. Services are never fully composed of intangible elements, it is always a mixture of both tangible and intangible aspects. The beta coefficient for airline tangibles shows that not only intangible aspects of the service are evaluated, but tangible elements as well. For customers, it is easier to evaluate the physical quality of the outcome than subjective judgments such as the personnel's performance. Thereafter, the brand image has a beta coefficient of 0.212. These are all positive relationships, so the higher the service quality perceptions regarding the personnel, ticket price, airline tangibles or brand image, the higher is the level of customer

satisfaction. The next variable is careful handling of luggage. Unlike the other variables, this item has a negative unique contribution to explaining customer satisfaction with a beta coefficient of -0.126. The higher the service quality perceptions regarding careful handling of the luggage, the lower is the level of customer satisfaction with the airline. This is a surprising result, especially because the correlation that was discussed in chapter 5.3.1 shows a weak but positive relationship between the item careful handling of luggage and customer satisfaction. The item with the lowest unique contribution to explaining customer satisfaction is the punctuality of the flight with a beta value of 0.101. All these variables are significant with $p < 0.05$. The only value that is not significant is the constant ($p = 0.809$). This is, however, not of major importance because having a constant variable is not necessary in the context of this study because there is no constant aspect that influences customer satisfaction.

Next, it will be investigated if multicollinearity can be found between the variables. Therefore, the tolerance value and variance inflation factor (VIF) will be analyzed. A tolerance level that is lower than 0.1 as well as a VIF greater than 10 are critical with regard to multicollinearity (Hair et al., 2010). All the variables that are included in the sixth model of the regression analysis have a tolerance value of 0.6 or higher. Moreover, the VIF values are between 1.112 and 1.660. A conclusion of these values is that there cannot be any kind of multicollinearity found in this model of the regression analysis.

The variables that are excluded from the last model of the regression analysis because they are not statistically significant are the terminal tangibles dimension and the items transportation between airport and city, communication of compensation schemes, number of flights, availability of seats and promotional offers. This might seem surprising at first sight, but not finding a relationship between these variables and customer satisfaction with the airline can be explained in respect of the business context. The items from the terminal tangibles dimension ask about the quality of the airport facility. Being satisfied with them does not automatically mean that the passengers are also satisfied with the airline, although they use both business institutions during a flight. An airport, however, is used by the passengers of many different airlines, thus the satisfaction with the airport facilities cannot be translated to satisfaction with one specific airline. The same argumentation can be applied to the item transportation between airport and city. The transportation is a service that is independent of the airline, it might depend more on the service that an airport provides.

Compensation schemes also seem to be important in order to satisfy airline passengers. However, if the passengers never had an incident regarding hazard or loss, they might not consider compensation schemes as important factor for his satisfaction. The number of flights, availability of seats and promotional offers might have an influence on the decision whether to choose an airline or not, but not the level of satisfaction with the service that the airline provided.

The regression analysis was carried out with the aim of testing the first five hypotheses. Hypothesis 1 is supported by the findings, because airline tangibles were found to have a positive and significant relationship with customer satisfaction. The second hypothesis is rejected, because the relationship between terminal tangibles and customer satisfaction is not significant. Hypotheses 3, dealing with the positive influence of personnel tangibles on customer satisfaction, is supported. Personnel has even been found to be the most important service quality dimension of those dimensions and items that were studied. Hypotheses 4 and 5 can only be partly supported, because these dimensions do not exist in their original constellation anymore. The items of the former empathy and image dimensions were analyzed on their own due to the low Cronbach's Alpha values. From the former empathy dimension, only punctuality has a positive and significant influence on customer satisfaction. On the other hand, the influence of the careful handling of luggage is also significant, but negative. All the other items from the former empathy dimension are not significant, so that for those items the hypothesis has to be rejected. From the former image dimension, ticket price and brand image have a positive and significant influence on customer satisfaction. For those items, the hypothesis is supported, but for the other two items, which are not significant, the hypothesis is rejected. A summary of the support or rejection of the hypotheses is presented in Table 6.

Table 6: Results of testing hypotheses 1-5

Hypothesis	Status
1. Service quality with regard to airline tangibles positively influences customer satisfaction.	supported
2. Service quality with regard to terminal tangibles positively influences customer satisfaction.	rejected
3. Service quality with regard to personnel positively influences customer satisfaction.	supported
4. Service quality with regard to empathy positively influences customer satisfaction.	partly supported
5. Service quality with regard to image positively influences customer satisfaction.	partly supported

5.4 Moderating Effect of the Airline Type

When analyzing the correlations between the service quality dimensions and the control variables in chapter 5.3.1, it was found that the only control variable that has a positive and significant relationship with the service quality dimensions is the airline type. Therefore, the moderating effect of the airline type on the service quality perceptions will be tested now with the help of the Mann-Whitney U test.

The results of the Mann-Whitney U test are presented in table 7. Just like in the correlation analysis, it can be observed that the airline type significantly influences almost all the service quality dimensions or items. The only exceptions are punctuality and promotional offers, where no significant difference in the distribution across the airline types could be found. For these items, the significance level is greater than 0.05. The importance of punctuality does not differ between passengers of LCCs and FSCs because every passenger, independent of the chosen airline, might expect the flight to be punctual. Similarly, promotional offers are appreciated by both passengers LCCs and FSCs. For all the other dimensions or items, there can be found significant differences between the airline types. There is a significant discrepancy in the airline tangibles dimension across the airline types. A reason for that can be that there is less space and equipment

Table 7: Mann-Whitney U test comparing LCCs with FSCs

	Mann-Whitney U	Standardized Test Statistics (Z)	Sig.	Mean Rank LCC	Mean Rank FSC	Effect size
AT_cumulative	24,032.000	6.634	.000	148.89	222.51	.119
TT_cumulative	19,911.000	2.630	.009	171.29	200.48	.019
PE_cumulative	21,353.500	4.037	.000	163.45	208.19	.044
EM1_punctual	17,687.000	.490	.624	183.38	188.58	.000
EM2_transportation	19,719.500	2.625	.009	172.33	199.45	.018
EM3_compensation	19,492.000	2.342	.019	173.57	198.24	.015
EM4_luggage	20,059.500	2.920	.003	170.48	201.27	.023
EM5_numberofflights	20,039.500	2.946	.003	170.59	201.16	.023
IM1_availabilityservices	20,303.000	3.178	.001	169.16	202.57	.027
IM2_promotionaloffers	17,742.500	.545	.586	183.07	188.88	.000
IM3_price	14,629.500	-2.650	.008	199.99	172.23	.019
IM4_brandimage	24,741.500	7.653	.000	145.04	226.31	.158

in airplanes used by LCCs because they aim to reduce their costs and maximize their efficiency. Moreover, the maintenance of the aircraft might suffer from the short turnaround times of the LCCs (Groß & Schröder, 2007). The effect size demonstrates the percentage of the variability in the ranks that is accounted for by the independent variable. Hence, 11.9% of the variability in the ranks is accounted for by the airline tangibles. Due to these results, hypothesis 6a can be supported. The perceptions of terminal tangibles also differ significantly across the two airline types. The mean ranks indicate higher service quality perceptions among passengers of FSCs. This finding can be explained by the different types of airports that are used by LCCs and FSCs. In theory, LCCs often use secondary, regional airports that offer less stores and comfort than the large, international airports that are used by FSCs (Bley & Büermann, 2007). Concluding this finding, hypothesis 6b is supported as well. In the same fashion as the first two AIRQUAL dimensions, personnel perceptions also differ significantly between LCCs and FSCs. The mean ranks are lower for LCCs than for FSCs, which shows that the service quality is evaluated lower for LCCs. The minimization of the workforce with which LCCs aim to reduce their costs seems to have an influence on the personnel's work motivation (Groß & Schneider, 2007). In addition, LCCs probably invest less in the further training of their employees. Hypothesis 6c is therefore supported, too. The former empathy items transportation between airport and city, compensation schemes and careful handling of luggage all have a significance level that is lower than 0.05, therefore significant differences between LCCs and FSCs can be observed. For all these items, the mean ranks are higher for FSCs than for LCCs. Transportation between airport and city might be evaluated worse for LCCs because they often use secondary airports. They are farther away from large cities and often not well connected through public transportations. Compensation might be kept to a minimum in LCCs in order to keep the costs low. FSCs, on the other hand, put more efforts in retaining their customers, which includes compensating them in case of a poor service delivery performance. Moreover, the careful handling of luggage has received lower evaluation scores by LCC passengers. The personnel responsible for handling the luggage is forced by the short turnaround times to hurry while loading or unloading the luggage from the aircraft. Due to this circumstance, careful handling cannot always be guaranteed. The effect size is very small for these items, like it is for most of the items and dimensions. Hypothesis 6d seems to be supported due to the finding regarding the transportation between airport and city, the compensation schemes and the careful

handling of luggage. However, punctuality does not show a significant difference among the airline types and in general, the items cannot be examined together as one dimension. Therefore, hypothesis 6d is only partly supported. The items from the last dimensions, namely the image dimension, are also examined on their own. The availability of seats was evaluated more positively by FSC passengers than by the customers flying with LCCs. The ticket price, in contrast, has received better scores for LCC passengers. The flight tickets for LCCs are normally less expensive than those for FSCs because the cost reduction obtained by LCCs are passed on to the customers by reducing the fares for a flight. The brand image has received higher service quality evaluations for FSCs than LCCs. FSCs spend more money on creating a high-quality and appealing brand image with which the passengers can identify. The brand image produces the highest variance in the ranks compared to all the other dimensions and items. In particular, it accounts for 15.8% of the variability in the ranks. All in all, hypothesis 6e can be neither fully supported nor fully rejected. A summary of the hypothesis tests is presented in Table 8.

Table 8: Results of testing hypotheses 6a-6e

Hypothesis	Status
6a. The airline type moderates the service quality perceptions of airline tangibles; the quality evaluations of airline tangibles are lower for low-cost airlines compared to full-service airlines.	supported
6b. The airline type moderates the service quality perceptions of terminal tangibles; the quality evaluations of terminal tangibles are lower for low-cost airlines compared to full-service airlines.	supported
6c. The airline type moderates the service quality perceptions of the personnel; the quality evaluations of the personnel are lower for low-cost airlines compared to full-service airlines.	supported
6d. The airline type moderates the service quality perceptions of empathy; the quality evaluations of terminal tangibles are lower for low-cost airlines compared to full-service airlines.	partly supported
6e. The airline type moderates the service quality perceptions of the image; the quality evaluations of the image are lower for low-cost airlines compared to full-service airlines.	partly supported

6 Discussion and Conclusion

The results from this study show a high reliability of some of the AIRQUAL dimensions, namely airline tangibles, terminal tangibles and personnel, as well as customer satisfaction. The items of these dimensions fit well together and can be used in order to measure the service quality perceptions of airline passengers. This finding is in consent with previous research on this topic. For the two dimensions empathy and image, however, the reliability that was found was very low, thus these dimensions cannot be used as a measure for service quality. This is in contrast to the findings in previous research (e.g. Alotaibi, 2015). Nevertheless, the investigations on the AIRQUAL scale are still quite young, so that there is not much evidence for the applicability of the scale yet. That is the reason why there is a necessity for a revision of the model.

With regard to the influence that service quality has on the satisfaction of the airline passengers, it can be concluded that many of the AIRQUAL dimensions or items have a positive relationship with customer satisfaction. Especially the personnel are an important creator of satisfaction, because they are the major contact point that the passenger has with the firm and are a crucial part of the service production and delivery. The other dimensions and items that influence customer satisfaction are price, airline tangibles, brand image, careful handling of luggage and punctuality. Customers take the ticket price into account when evaluating the service quality. If the price is too high in comparison with the service they receive, they are rather unsatisfied because they might have expected more high-quality service for their money. The condition of the aircraft also plays an important role in the service quality evaluations because it is the surrounding that the passengers receive their service in and which they cannot escape during the flight. Moreover, it is the tangible aspect of the service provision and can therefore be evaluated more easily. The image that the customer has of the airline influences the expectations that he has of the flight. An airline that has an image that is known for high-quality service provision is expected to deliver this level of service quality again, otherwise the satisfaction of the passenger will decrease. Arriving punctual to the destination is also a driver of satisfaction. This determinant of satisfaction is sector specific, as customers of all kinds of transportation services expect to arrive punctually. In fact, punctuality is not limited to the airline industry. In general, the findings confirm that service quality is an antecedent of customer satisfaction in the airline industry which is in accordance with the results of previous research.

The differences in the business models of LCCs and FSCs have an impact on the service quality perceptions of airline passengers. For almost all of the AIRQUAL dimensions or items, the service quality perceptions were higher for FSCs than for LCCs. Thus, the fact that FSCs focus more on the high-quality service provision in order to differentiate from competitors is an effective approach, as the service quality perceptions of FSCs are improved. In contrast to LCCs, FSCs provide services such as catering or personal check-in and their aircrafts provide more space and comfort than the ones LCCs use. FSCs try to make the flight as enjoyable as possible for the customer, while LCCs provide the basic service for a low fare. Therefore, the value for money perceptions of the customers are higher in LCCs than in FSCs. The only items that do not differ between LCCs and FSCs are punctuality and promotional offers. All flight passengers, independent of the airline they choose, value punctual departure and arrival. Moreover, the punctuality is often not determined by the airline, but depends on external factors such as the weather conditions, the passengers' punctuality or the airport regulations. Thus, being unpunctual can happen to both LCCs and FSCs and cannot be prevented by the airline. Promotional offers are provided by both types of airlines and are valued by the passengers in the same way. All in all, the study revealed many significant differences in the service quality perceptions between LCCs and FSCs.

Summing up the findings of the study, it can be concluded that the AIRQUAL scale is only partly reliable, service quality perceptions have an influence on customer satisfaction and there are differences in the service quality perceptions between LCCs and FSCs. It reveals that the AIRQUAL scale still needs to be revised and improved in order to be applicable without reliability problems. Moreover, the study confirms the positive relationship of service quality and customer satisfaction that has already been found by other researchers. At last, this study points out differences between LCCs and FSCs. In general, dissimilarities were already found before, but this study refers to the differences concerning the AIRQUAL dimensions, which have not been investigated before.

6.1 Practical Implications

The findings from this study show some practical implications for airline managers. Previous research revealed that satisfying customers can increase the profitability and success of a company (Ekiz, Hussain & Bavik, 2006; Oliver, 2010). However, it is often difficult for a firm to understand what customers value and which elements of the service provision

determine the satisfaction level of customers. The results of this study imply that personnel are the most important determinant of customer satisfaction. The consequence for firms should be that they focus more on the needs and knowledge of their employees. In order to achieve this, the internal marketing within an airline should be improved. Internal marketing describes the use of external marketing knowledge on the internal market, so on the (Gummesson, 2008). The purpose of internal marketing is to motivate the employees that are in contact with the customers to improve the service encounter. This can be achieved by enhancing the employees' understanding of the company's offerings, its business mission, strategies and goals (ibid.). Improving the internal marketing within an airline can lead to an enhanced service provision, thus to satisfied customers which results in increased profitability and business success.

In addition, the value that the customers receive for their money is also an important determinant of customer satisfaction (Suhartanto & Noor, 2012). This was also confirmed by the high contribution of the ticket price on customer satisfaction that was found in the regression analysis. Therefore, the airline should price their tickets according to the service they provide. In doing so, it is important not to overestimate the value of the service and keep the price as low as possible. The first aspect that a customer perceives when booking a flight is the price, without knowing which services are included. It should therefore also be ensured that the customer knows which services are delivered and maybe even how the airline differentiates from others. The better the passenger understands what he is paying for, the more precise will be his expectations which can then be satisfied during the flight. This can also be applied for the brand image. The more exact it represents the offerings and strategies of the airline, the better is the accordance of the customer's expectations and the performance of the airline.

A third aspect that should be taken into consideration by airlines is the condition of the aircraft. On the one hand, this tangible aspect of the service provision can be evaluated more easily by the passenger than other intangible aspects, but on the other hand, a high quality can also be ensured without difficulty by the airline. The airplane is the environment of the service provision and determines the first impression of the passengers' service quality evaluation. The quality of the internal maintenance can be ensured by developing guidelines and regulations for the process of maintenance, guaranteeing a constant quality standard.

6.2 Limitations and Future Research

In general, no study is conducted under perfect circumstances, there are always limitations that need to be taken into consideration. One aspect that limits the study is the sample. The questionnaire was spread out using nonprobability sampling and applying the snowball effect. This ensured a large sample, but the representativeness of the population can be questioned. The sample mostly consists of females and the majority of the respondents are students. This does not represent the composition of the population, which includes mostly employed people. Moreover, the origin of the respondents was wide-spread. This does not limit the study, but focusing on one country or comparing the service quality perceptions of two or more countries could be a goal for future research. Although this sample included many countries of origin, it was not possible to compare them because the majority of the respondents came from Germany and the number of respondents from other countries was always quite low, so that the sample sizes vary strongly.

A further limitation of this study is that it focused only on the AIRQUAL scale as fundament for the service quality dimensions. In addition, two of these dimensions did not provide a high reliability. In this study, the items that previously belonged to the empathy and image dimension were analyzed on their own for this reason. In future research, the AIRQUAL scale should be revised regarding the items that represent the dimensions and taking into consideration also other aspects that could influence the service quality evaluation, such as security perceptions.

Furthermore, satisfaction is not solely determined by the level of service quality, but depends also on other factors. To name some examples, the price, the relationship between customer and firm or the commitment can have an influence as well. The R^2 value of the regression analysis demonstrates, that 59.7% of the variance in customer satisfaction is explained by the service quality dimensions that are included in the model. Thus, there are still other factors that have an influence on customer satisfaction. In a future research, it can therefore be examined of the price, the commitment, the relationship between customer and firm or other aspects relate to customer satisfaction.

Appendix I. Questionnaire

i. English Version

Dear participant,

I am conducting a survey for my bachelor thesis at the Mid Sweden University in cooperation with the FH Aachen. The purpose of my study is to investigate the relationship of service quality and customer satisfaction regarding different airlines. It would be great if you could take 5-10 minutes to fill out the following questionnaire. I will treat your data confidentially and only use it for my bachelor thesis. Your answers are completely anonym and you can withdraw from the survey at any time.

Please contact me for further questions: jusc1700@student.miun.se

Thank you for your support!

Julia Scheffler

1. Have you been travelling by airplane in the last 12 months?

- Yes [1]
- No [0]

2. Which airline do you frequently use?

(If more than one answer corresponds to you, please choose the one that you rather use at the moment)

- Lufthansa [2]
- SAS [2]
- British Airways [2]
- Ryanair [1]
- Eurowings [1]
- EasyJet [1]
- Emirates [2]
- Vueling [1]
- Iberia [2]
- KLM Royal Dutch Airlines [2]
- Turkish Airlines [2]
- Other: _____

Please answer the following questions regarding your last flight with the airline you just chose!

3. What was the purpose of your travel?

- Business [1]
- Leisure [2]
- Other: _____

4. With whom did you travel?

- Alone [1]
- Family [2]
- Friends [3]
- Coworkers [4]
- Other: _____

5. What is more important to you when you choose an airline?

Price [0]  Quality [100]

Please answer the following questions regarding your last flight with the airline you chose in the beginning!

6. To what extent do you agree with the following statements?

	Strongly disagree [1]	Disagree [2]	Neutral [3]	Agree [4]	Strongly agree [5]
Aircraft was equipped with latest and modern technology					
Cleanliness of the plane toilets was well maintained					
Plane seats were comfortable					
Plane seats were clean					
Quality of air-conditioning in the planes was good					
The interior of the aircraft was well maintained					

7. To what extent do you agree with the following statements?

(Please evaluate the airport of departure)

	Strongly disagree [1]	Disagree [2]	Neutral [3]	Agree [4]	Strongly agree [5]
Airport toilets were clean					
Number of shops in the airport was adequate for my needs					
Size of the airport in holding passengers was adequate					
Airport has an effective air-conditioning					
Airport had effective sign system					
Adequate number of trolleys were available on the airport					
Security control system was reliable					
Employees were well-dressed					
Waiting hall of the airport was comfortable					

8. To what extent do you agree with the following statements?

	Strongly disagree [1]	Disagree [2]	Neutral [3]	Agree [4]	Strongly agree [5]
Airline personnel had a good general attitude					
Employee's experience and education level was adequate					
Personnel showed personnel care equally to everyone					
Employees had the knowledge to answer my questions					
Airline personnel showed empathy					
Airline personnel was well aware of their duties					
Reservations and ticketing transactions were error-free					

9. To what extent do you agree with the following statements?

	Strongly disagree [1]	Disagree [2]	Neutral [3]	Agree [4]	Strongly agree [5]
Departures and arrivals were usually punctual					
Transportation between city and airport was not a problem					
Compensation schemes in case of loss or hazard are clearly communicated					
Luggage is handled very carefully					
Number of flights is enough to satisfy my demands					

10. To what extent do you agree with the following statements?

	Strongly disagree [1]	Disagree [2]	Neutral [3]	Agree [4]	Strongly agree [5]
Availability of seats was very much appealing to me					
Promotional offers were very much appealing to me					
Ticket prices are worth the services I received					
Airline bears a good brand image					

11. To what extent do you agree with the following statements?

	Strongly disagree [1]	Disagree [2]	Neutral [3]	Agree [4]	Strongly agree [5]
I am satisfied with my decision to use this airline as a service provider					
My choice of this airline as a service provider was a wise one					
I think I did the right thing when I chose to travel by this airline					
I feel that my experience with this airline has been enjoyable					

12. What is your gender?

- Male [1]
- Female [0]

13. How old are you?

- _____

14. Where are you from?

- Germany [1]
- Sweden [2]
- Other: _____

15. In what area do you live?

- City center [1]
- Outskirts of a city [2]
- Rural area [3]
- Other: _____

16. What is your current employment status?

- Pupil [1]
- Student [2]
- Employee [3]
- Self-employed [4]
- Unemployed and looking for work [5]
- Unemployed but currently not looking for work [6]
- Homemaker [7]
- Military [8]
- Retired [9]
- Unable to work [10]

17. What is your current net income per month?

- until 500€ [1]
- 501€ - 1500€ [2]
- 1501€ - 2500€ [3]
- 2500€ - 3500€ [4]
- more than 3500€ [5]

ii. German Version

Liebe/r Teilnehmer/in!

Ich führe eine Studie im Rahmen meiner Bachelorarbeit an der Mid Sweden University in Kooperation mit der FH Aachen durch. Die Absicht meiner Studie ist es, die Beziehung zwischen Servicequalität und Kundenzufriedenheit von verschiedenen Fluggesellschaften zu untersuchen. Es wäre schön, wenn Sie sich 5-10 Minuten Zeit nehmen würden um den folgenden Fragebogen auszufüllen. Ich werde Ihre Daten vertraulich behandeln und sie nur für meine Bachelorarbeit benutzen. Ihre Antworten sind komplett anonym und Sie können die Umfrage jederzeit abbrechen.

Bitte kontaktieren Sie mich bei weiteren Fragen:
jusc1700@student.miun.se

Danke für Ihre Unterstützung!

Julia Scheffler

1. Sind Sie in den letzten 12 Monaten mit dem Flugzeug gereist?

- Ja [1]
- Nein [2]

2. Welche Fluggesellschaft benutzen Sie häufig?

(Wenn mehr als eine Antwort zutrifft, wählen Sie bitte die Fluggesellschaft, die Sie im Moment eher benutzen würden)

- Lufthansa [1]
- SAS [1]
- British Airways [1]
- Ryanair [2]
- Eurowings [2]
- EasyJet [2]
- Emirates [1]
- Vueling [2]
- Iberia [1]
- KLM Royal Dutch Airlines [1]
- Turkish Airlines [1]
- Sonstiges: _____

Bitte beantworten Sie die folgenden Fragen im Hinblick auf die gerade gewählte Fluggesellschaft!

3. Was war der Grund für Ihre Reise?

- Arbeit [1]
- Freizeit [2]
- Sonstiges: _____

4. Mit wem sind Sie gereist?

- Alleine [1]
- Familie [2]
- Freunde [3]
- Kollegen [4]
- sonstiges: _____

5. Was ist für Sie wichtiger, wenn Sie eine Fluggesellschaft aussuchen?

Preis [0] Qualität [100]

Bitte beantworten Sie die folgenden Fragen im Hinblick auf Ihren letzten Flug mit der Fluggesellschaft, die Sie zu Beginn gewählt haben!

6. Inwieweit stimmen Sie den folgenden Aussagen zu?

	Stimme überhaupt nicht zu [1]	Stimme nicht zu [2]	Neutral [3]	Stimme zu [4]	Stimme voll und ganz zu [5]
Das Flugzeug war mit neuster und moderner Technologie ausgestattet					
Die Sauberkeit der Flugzeugtoiletten wurde gut instand gehalten					
Die Sitze im Flugzeug waren komfortabel					
Die Sitze im Flugzeug waren sauber					
Die Qualität der Klimaanlage im Flugzeug war gut					
Das Innere des Flugzeugs wurde gut instand gehalten					

7. Inwieweit stimmen Sie den folgenden Aussagen zu?

(Bitte bewerten Sie den Abflugflughafen.)

	Stimme überhaupt nicht zu [1]	Stimme nicht zu [2]	Neutral [3]	Stimme zu [4]	Stimme voll und ganz zu [5]
Die Flughafentoiletten waren sauber					
Die Anzahl der Geschäfte im Flughafen war angemessen für meine Bedürfnisse					
Die Größe des Flughafens war angemessen für die Anzahl der Fluggäste					
Der Flughafen hat eine effektive Klimaanlage					
Der Flughafen hatte ein effektives Schildersystem					
Eine angemessene Anzahl an Gepäckwagen war am Flughafen verfügbar					
Die Sicherheitskontrolle war zuverlässig					
Die Angestellten waren gut gekleidet					
Der Wartebereich des Flughafens war komfortabel					

8. Inwieweit stimmen Sie den folgenden Aussagen zu?

	Stimme überhaupt nicht zu [1]	Stimme nicht zu [2]	Neutral [3]	Stimme zu [4]	Stimme voll und ganz zu [5]
Das Flugzeugpersonal hatte eine gute Grundeinstellung					
Das Erfahrungs- und Bildungslevel der Angestellten war angemessen					
Das Personal hat alle Gäste gleich betreut					
Die Angestellten hatten das Wissen, um meine Fragen zu beantworten					
Das Flugzeugpersonal hat Empathie gezeigt					
Das Flugzeugpersonal war sich ihrer Pflichten bewusst					
Reservierungen und Ticket-Transaktionen waren fehlerfrei					

9. Inwieweit stimmen Sie den folgenden Aussagen zu?

	Stimme überhaupt nicht zu [1]	Stimme nicht zu [2]	Neutral [3]	Stimme zu [4]	Stimme voll und ganz zu [5]
Abflug und Ankunft waren pünktlich					
Der Transport zwischen Stadt und Flughafen ist kein Problem					
Schadens- ersatz- regelungen im Falle von Verlust oder Gefährdung wurden klar mitgeteilt					
Das Gepäck wurde vorsichtig behandelt					
Die Anzahl der Flüge ist ausreichend, um meine Nachfrage zu befriedigen					

10. Inwieweit stimmen Sie den folgenden Aussagen zu?

	Stimme überhaupt nicht zu [1]	Stimme nicht zu [2]	Neutral [3]	Stimme zu [4]	Stimme voll und ganz zu [5]
Die Verfügbarkeit der Sitze war sehr verlockend für mich					
Werbeange- bote waren sehr verlockend für mich					
Der Ticket- Preis war angemessen für den Service, den ich erhalten habe					
Die Fluggesell- schaft hat ein gutes Markenimage					

11. Inwieweit stimmen Sie den folgenden Aussagen zu?

	Stimme über- haupt nicht zu [1]	Stimme nicht zu [2]	Neutral [3]	Stimme zu [4]	Stimme voll und ganz zu [5]
Ich bin zufrieden mit meiner Entscheidung, diese Fluggesellschaft als Dienstleister genutzt zu haben					
Meine Wahl dieser Fluggesellschaft war eine weise Entscheidung					
Ich denke, dass ich das Richtige gemacht habe, als ich für das Fliegen mit dieser Fluggesellschaft entschieden habe					
Meine Erfahrung mit der Fluggesellschaft war angenehm					

12. Was ist Ihr Geschlecht?

- Männlich [1]
- Weiblich [0]

13. Wie alt sind Sie?

- _____

14. Woher kommen Sie?

- Deutschland [1]
- Schweden [2]
- Sonstiges: _____

15. In was für einer Gegend leben Sie?

- Stadtzentrum [1]
- Stadtrand [2]
- ländliche Gegend [3]
- Sonstiges: _____

16. Was ist Ihr aktueller Arbeitsstatus?

- Schüler [1]
- Student [2]
- Arbeitnehmer [3]
- Selbstständig [4]
- Arbeitslos und auf der Suche nach Arbeit [5]
- Arbeitslos, aber momentan nicht auf der Suche nach Arbeit [6]
- Hausmann/-frau [7]
- Soldat [8]
- Rentner [9]
- Arbeitsunfähig [10]

17. Was ist Ihr aktuelles monatliches Nettoeinkommen?

- bis 500€ [1]
- 501€ - 1500€ [2]
- 1501€ - 2500€ [3]
- 2500€ - 3500€ [4]
- 3500€ - 4500€ [5]
- 4500€ - 5500€ [6]
- 5500€ - 6500€ [7]
- 6500€ - 7500€ [8]
- mehr als 7500€ [9]

Appendix II. Cronbach's Alpha Test

i. Airline Tangibles

Table 9: Cronbach's Alpha statistics for airline tangibles

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.817	.823	6

Table 10: Item statistics of Cronbach's Alpha for airline tangibles

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
AT1_modern	18.03	10.626	.611	.420	.783
AT2_cleantoilets	17.61	11.936	.585	.355	.788
AT3_comfortableseats	18.14	11.146	.544	.307	.799
AT4_cleanseats	17.34	11.891	.621	.408	.782
AT5_airconditioning	17.65	12.098	.498	.299	.806
AT6_interior maintained	17.52	11.537	.666	.463	.772

ii. Terminal Tangibles

Table 11: Cronbach's Alpha statistics for terminal tangibles

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.807	.809	9

Table 12: Item statistics of Cronbach's Alpha for terminal tangibles

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
TT1_cleantoi lets	30.96	18.974	.411	.181	.800
TT2_shops	30.74	18.019	.516	.342	.786
TT3_size	30.58	18.270	.560	.397	.780
TT4_aircondi tioning	30.75	18.484	.564	.336	.780
TT5_signsyst em	30.71	18.569	.551	.310	.782
TT6_trolleys	31.06	19.242	.415	.223	.798
TT7_security control	30.62	19.409	.463	.247	.792
TT8_employ eeswelldress ed	30.48	19.547	.492	.258	.790
TT9_waiting hall	31.12	17.435	.558	.331	.780

iii. Personnel

Table 13: Cronbach's Alpha statistics for personnel

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.829	.834	7

Table 14: Item statistics of Cronbach's Alpha for personnel

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PE1_general attitude	23.26	11.721	.656	.515	.794
PE2_experienceandeducation	23.47	11.639	.647	.467	.795
PE3_equalcare	23.38	11.246	.595	.409	.804
PE4_knowledge	23.47	11.747	.602	.407	.802
PE5_empathy	23.53	11.271	.637	.432	.796
PE6_duties	23.16	11.954	.655	.449	.796
PE7_reservations	23.02	13.051	.296	.122	.852

iv. Empathy

Table 15: Cronbach's Alpha statistics for empathy

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.581	.589	5

Table 16: Item statistics of Cronbach's Alpha for empathy

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
EM1_punctual	13.60	6.441	.301	.110	.555
EM2_transportation	13.15	7.206	.349	.133	.521
EM3_compensation	14.26	6.940	.353	.188	.517
EM4_luggage	13.99	6.792	.421	.225	.482
EM5_numberofluggage	13.32	7.219	.289	.103	.551

v. Image

Table 17: Cronbach's Alpha statistics for image

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.563	.564	4

Table 18: Item statistics of Cronbach's Alpha for image

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
IM1_availabilityseats	10.05	4.044	.443	.239	.413
IM2_promotionaloffers	10.54	4.039	.379	.178	.464
IM3_price	9.45	4.757	.218	.051	.592
IM4_brandimage	9.69	4.257	.359	.153	.482

vi. Customer Satisfaction

Table 19: Cronbach's Alpha statistics for customer satisfaction

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.915	.915	4

Table 20: Item statistics of Cronbach's Alpha for customer satisfaction

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
CS1_satisfied	11.73	5.150	.826	.695	.883
CS2_wise	11.92	4.842	.840	.720	.877
CS3_right	11.78	5.078	.832	.733	.880
CS4_enjoyable	11.89	5.212	.728	.542	.916

Appendix III. Correlation Matrix

Table 21: Correlation matrix including AIRQUAL dimensions and control variables

	CS_cumulative	AT_cumulative	TT_cumulative	PE_cumulative	EM1_punctual	EM2_transportation	EM3_compensation	EM4_luggage	EM5_numberof flights	IM1_availabilityseats	IM2_promotionaloffers	IM3_price	IM4_brandimage	Gender	Age	Origin	Area	EmploymentStatus	Income	PurposeTravel	TravelWith	PriceQuality	AirlineType
CS_cumulative	1	.579**	.380**	.586**	.279**	.326**	.230**	.207**	.296**	.339**	.155**	.480**	.519**	-.028	-0.010	0.091	-0.024	-.158**	-0.090	0.009	-.127**	0.039	.199**
AT_cumulative	.579**	1	.409**	.471**	.232**	.277**	.276**	.290**	.264**	.320**	.173**	.211**	.549**	0.058	0.031	.105**	-0.017	-0.053	-0.017	0.039	-0.090	.220**	.339**
TT_cumulative	.380**	.409**	1	.524**	.209**	.306**	.247**	.229**	.219**	.265**	.106**	.187**	.283**	0.038	0.074	0.053	-0.019	-0.039	-0.008	0.032	-0.040	0.065	.131**
PE_cumulative	.586**	.471**	.524**	1	.132**	.269**	.339**	.353**	.283**	.373**	.160**	.297**	.384**	0.094	-0.009	0.041	-0.061	-0.045	-0.026	-0.020	-0.058	0.042	.195**
EM1_punctual	.279**	.232**	.209**	.132**	1	.279**	.169**	.216**	.132**	0.091	0.043	.202**	.196**	-0.012	.161**	0.046	-0.016	0.009	-0.061	0.069	-0.043	0.038	0.012
EM2_transportation	.326**	.277**	.306**	.269**	.279**	1	.186**	.182**	.236**	.185**	0.062	.224**	.199**	-0.006	0.072	0.076	-0.017	-0.028	-0.012	0.000	-0.015	.134**	.138**
EM3_compensation	.230**	.276**	.247**	.339**	.169**	.186**	1	.414**	.158**	.264**	.239**	.169**	.323**	0.054	0.072	.127**	-0.085	0.051	0.084	-0.006	-0.053	.168**	.121**
EM4_luggage	.207**	.290**	.229**	.353**	.216**	.182**	.414**	1	.253**	.238**	.187**	.222**	.259**	0.069	0.002	-0.007	-0.029	0.005	0.022	-0.044	-0.111**	0.094	.169**
EM5_numberof flights	.296**	.264**	.219**	.283**	.132**	.236**	.158**	.253**	1	.255**	.130**	.163**	.225**	0.044	-0.099	-0.062	-0.041	-0.083	-0.070	-0.005	-0.034	0.085	.155**
IM1_availabilityseats	.339**	.320**	.265**	.373**	0.091	.185**	.264**	.238**	.255**	1	.398**	.136**	.364**	0.041	-0.052	.153**	-.142**	-0.015	-0.076	0.023	-0.111**	.121**	.161**
IM2_promotionaloffers	.155**	.173**	.106**	.160**	0.043	0.062	.239**	.187**	.130**	.398**	1	.174**	.221**	0.041	-0.005	.203**	-.135**	0.043	0.003	0.019	-0.033	0.092	0.021
IM3_price	.480**	.211**	.187**	.297**	.202**	.224**	.169**	.222**	.163**	.136**	.174**	1	.174**	0.007	-0.041	0.101	-0.078	-.114**	-.105**	0.006	-0.054	-0.086	-.126**
IM4_brandimage	.519**	.549**	.283**	.384**	.196**	.199**	.323**	.259**	.225**	.364**	.221**	.174**	1	0.025	0.079	.168**	-0.039	-0.032	0.085	-0.067	-.133**	.256**	.402**
Gender	-0.028	0.058	0.038	0.094	-0.012	-0.006	0.054	0.069	0.044	-0.008	0.041	0.007	0.025	1	0.010	-0.066	0.066	-0.009	.110**	-.102**	0.011	-.107**	-0.029
Age	-0.010	0.031	0.074	-0.009	.161**	0.072	0.072	0.002	-0.099	-0.052	-0.005	-0.041	0.079	0.010	1	-0.066	.232**	.595**	.386**	-0.069	-0.012	.224**	0.028
Origin	0.091	.105**	0.053	0.041	0.046	0.076	.127**	-0.007	.153**	.203**	.174**	.221**	.188**	0.001	-0.066	1	-.130**	-0.036	0.007	0.057	-0.090	-0.043	-0.036
Area	-0.024	-0.017	-0.019	-0.061	-0.016	-0.017	-0.085	-0.029	-0.041	-0.142**	-0.135**	-0.135**	-0.039	0.066	.232**	-.130**	1	.147**	0.037	-0.028	0.052	.130**	0.030
EmploymentStatus	-.158**	-0.053	-0.039	-0.045	0.009	-0.028	0.051	0.005	-0.093	-0.015	0.043	-.114**	-0.032	-0.009	.595**	-0.036	.147**	1	.227**	-0.024	0.038	.201**	-0.027
Income	-0.090	-0.017	-0.008	-0.026	-0.061	-0.012	0.084	0.022	-0.070	-0.076	0.003	-.105**	0.085	.110**	.386**	0.007	0.037	.227**	1	-.244**	0.022	.186**	.111**
PurposeTravel	0.009	0.039	0.032	-0.020	0.069	0.000	-0.006	-0.044	-0.005	0.023	0.019	0.006	-0.067	-0.102**	-0.069	0.057	-0.028	-0.024	-.244**	1	0.046	-0.021	-.126**
TravelWith	-.127**	-0.090	-0.040	-0.058	-0.043	-0.015	-0.053	-0.111**	-0.034	-.111**	-0.033	-0.054	-0.133**	0.011	-0.012	-0.090	0.052	0.038	0.022	0.046	1	-0.055	-.142**
PriceQuality	0.039	.220**	0.065	0.042	0.038	.134**	.168**	0.094	0.085	.121**	0.092	-0.086	.256**	-0.107**	.224**	-0.043	.130**	.201**	.186**	-0.021	-0.055	1	.304**
AirlineType	.199**	.339**	.131**	.195**	0.012	.138**	.121**	.169**	.155**	.161**	0.021	-.126**	-.402**	-0.029	0.028	-0.036	0.030	-0.027	.111**	-.126**	-.142**	.304**	1

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

* . Correlation is significant at the 0.05 level (2-tailed).

Appendix IV. Stepwise Regression

Table 22: Entered variables in the stepwise regression

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	PE_cumulative	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	AT_cumulative	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
3	IM3_price	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
4	IM4_brandimage	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
5	EM4_luggage	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
6	EM1_punctual	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
a. Dependent Variable: CS_cumulative			

Table 23: Model summary of the stepwise regression

Model Summary ^a					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.586 ^a	.344	.342	2.40133	
2	.680 ^b	.462	.459	2.17768	
3	.740 ^c	.547	.544	1.99990	
4	.760 ^d	.577	.573	1.93544	
5	.767 ^e	.588	.582	1.91395	
6	.773 ^f	.597	.590	1.89530	1.871
a. Predictors: (Constant), PE_cumulative					
b. Predictors: (Constant), PE_cumulative, AT_cumulative					
c. Predictors: (Constant), PE_cumulative, AT_cumulative, IM3_price					
d. Predictors: (Constant), PE_cumulative, AT_cumulative, IM3_price, IM4_brandimage					
e. Predictors: (Constant), PE_cumulative, AT_cumulative, IM3_price, IM4_brandimage, EM4_luggage					
f. Predictors: (Constant), PE_cumulative, AT_cumulative, IM3_price, IM4_brandimage, EM4_luggage, EM1_punctual					
g. Dependent Variable: CS_cumulative					

Table 24: ANOVA table of the stepwise regression

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1115.192	1	1115.192	193.396	.000 ^b
	Residual	2127.789	369	5.766		
	Total	3242.981	370			
2	Regression	1497.815	2	748.907	157.921	.000 ^c
	Residual	1745.167	368	4.742		
	Total	3242.981	370			
3	Regression	1775.128	3	591.709	147.942	.000 ^d
	Residual	1467.853	367	4.000		
	Total	3242.981	370			
4	Regression	1871.971	4	467.993	124.934	.000 ^e
	Residual	1371.010	366	3.746		
	Total	3242.981	370			
5	Regression	1905.906	5	381.181	104.056	.000 ^f
	Residual	1337.075	365	3.663		
	Total	3242.981	370			
6	Regression	1935.430	6	322.572	89.799	.000 ^g
	Residual	1307.551	364	3.592		
	Total	3242.981	370			
a. Dependent Variable: CS_cumulative						
b. Predictors: (Constant), PE_cumulative						
c. Predictors: (Constant), PE_cumulative, AT_cumulative						
d. Predictors: (Constant), PE_cumulative, AT_cumulative, IM3_price						
e. Predictors: (Constant), PE_cumulative, AT_cumulative, IM3_price, IM4_brandimage						
f. Predictors: (Constant), PE_cumulative, AT_cumulative, IM3_price, IM4_brandimage, EM4_luggage						
g. Predictors: (Constant), PE_cumulative, AT_cumulative, IM3_price, IM4_brandimage, EM4_luggage, EM1_punctual						

Table 25: Coefficients from the stepwise regression

Model		Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	Sig.	Collinearity Statistics	
		B	Std. Error	Beta		Tolerance	VIF
1	(Constant)	4.712	.805		.000		
	PE_cumulative	.481	.035	.586	.000	1.000	1.000
2	(Constant)	2.052	.788		.010		
	PE_cumulative	.330	.036	.403	.000	.778	1.286
	AT_cumulative	.288	.032	.389	.000	.778	1.286
3	(Constant)	.426	.749		.571		
	PE_cumulative	.266	.034	.325	.000	.737	1.357
	AT_cumulative	.267	.030	.361	.000	.772	1.295
	IM3_price	.933	.112	.307	.000	.906	1.104
4	(Constant)	.381	.725		.599		
	PE_cumulative	.240	.033	.293	.000	.719	1.391
	AT_cumulative	.194	.032	.263	.000	.616	1.623
	IM3_price	.914	.109	.301	.000	.905	1.106
	IM4_brandimage	.641	.126	.210	.000	.677	1.476
5	(Constant)	.520	.719		.470		
	PE_cumulative	.261	.033	.319	.000	.687	1.456
	AT_cumulative	.203	.032	.274	.000	.611	1.636
	IM3_price	.953	.108	.314	.000	.892	1.121
	IM4_brandimage	.672	.125	.220	.000	.673	1.486
	EM4_luggage	-.348	.114	-.112	.003	.838	1.194
6	(Constant)	.175	.722		.809		
	PE_cumulative	.266	.033	.325	.000	.685	1.460
	AT_cumulative	.192	.032	.260	.000	.602	1.660
	IM3_price	.909	.108	.299	.000	.874	1.144
	IM4_brandimage	.649	.124	.212	.000	.670	1.493
	EM4_luggage	-.392	.114	-.126	.001	.822	1.216
	EM1_punctual	.245	.085	.101	.004	.899	1.112

a. Dependent Variable: CS_cumulative

Table 26: Excluded variables from the stepwise regression

Excluded Variables ^a								
Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	AT_cumulative	.389 ^b	8.982	.000	.424	.778	1.286	.778
	TT_cumulative	.100 ^b	2.020	.044	.105	.725	1.379	.725
	EM1_punctual	.205 ^b	4.966	.000	.251	.983	1.018	.983
	EM2_transportation	.181 ^b	4.222	.000	.215	.927	1.078	.927
	EM3_compensation	.034 ^b	.767	.443	.040	.885	1.130	.885
	EM4_luggage	.000 ^b	.006	.995	.000	.876	1.142	.876
	EM5_numberofflights	.141 ^b	3.256	.001	.167	.920	1.087	.920
	IM1_availabilityseats	.140 ^b	3.122	.002	.161	.861	1.162	.861
	IM2_promotionaloffers	.063 ^b	1.476	.141	.077	.974	1.026	.974
	IM3_price	.335 ^b	8.258	.000	.395	.912	1.096	.912
	IM4_brandimage	.345 ^b	8.200	.000	.393	.853	1.173	.853
2	TT_cumulative	.013 ^c	.292	.770	.015	.691	1.446	.646
	EM1_punctual	.143 ^c	3.693	.000	.189	.945	1.058	.748
	EM2_transportation	.121 ^c	3.043	.003	.157	.898	1.113	.753
	EM3_compensation	-.017 ^c	-.413	.679	-.022	.867	1.153	.730
	EM4_luggage	-.056 ^c	-1.362	.174	-.071	.856	1.168	.727
	EM5_numberofflights	.088 ^c	2.195	.029	.114	.898	1.114	.751
	IM1_availabilityseats	.077 ^c	1.850	.065	.096	.834	1.199	.723
	IM2_promotionaloffers	.024 ^c	.622	.534	.032	.962	1.039	.768
	IM3_price	.307 ^c	8.327	.000	.399	.906	1.104	.737
	IM4_brandimage	.222 ^c	4.926	.000	.249	.678	1.475	.619
3	TT_cumulative	.006 ^d	.142	.887	.007	.691	1.447	.620
	EM1_punctual	.097 ^d	2.686	.008	.139	.922	1.085	.737
	EM2_transportation	.078 ^d	2.101	.036	.109	.879	1.137	.725
	EM3_compensation	-.038 ^d	-.994	.321	-.052	.864	1.158	.699
	EM4_luggage	-.096 ^d	-2.521	.012	-.131	.843	1.186	.700
	EM5_numberofflights	.066 ^d	1.771	.077	.092	.893	1.120	.717
	IM1_availabilityseats	.073 ^d	1.902	.058	.099	.834	1.199	.689

	IM2_promotion aloffers	-.014 ^d	-.376	.707	-.020	.947	1.056	.735
	IM4_brandima ge	.210 ^d	5.085	.000	.257	.677	1.476	.616
4	TT_cumulative	.005 ^e	.114	.909	.006	.691	1.447	.594
	EM1_punctual	.084 ^e	2.385	.018	.124	.916	1.092	.606
	EM2_transport ation	.074 ^e	2.038	.042	.106	.879	1.138	.605
	EM3_compens ation	-.073 ^e	-1.969	.050	-.102	.837	1.195	.615
	EM4_luggage	-.112 ^e	-3.044	.003	-.157	.838	1.194	.611
	EM5_numero fflights	.054 ^e	1.487	.138	.078	.889	1.125	.610
	IM1_availabilit yseats	.036 ^e	.948	.344	.050	.800	1.250	.613
	IM2_promotion aloffers	-.039 ^e	-1.099	.273	-.057	.929	1.076	.616
5	TT_cumulative	.007 ^f	.180	.857	.009	.691	1.448	.586
	EM1_punctual	.101 ^f	2.867	.004	.149	.899	1.112	.602
	EM2_transport ation	.080 ^f	2.232	.026	.116	.876	1.141	.600
	EM3_compens ation	-.043 ^f	-1.103	.271	-.058	.758	1.319	.611
	EM5_numero fflights	.070 ^f	1.949	.052	.102	.872	1.147	.606
	IM1_availabilit yseats	.046 ^f	1.216	.225	.064	.794	1.259	.609
	IM2_promotion aloffers	-.028 ^f	-.801	.423	-.042	.919	1.088	.611
6	TT_cumulative	-.007 ^g	-.180	.857	-.009	.680	1.471	.580
	EM2_transport ation	.061 ^g	1.697	.091	.089	.840	1.191	.595
	EM3_compens ation	-.048 ^g	-1.257	.210	-.066	.756	1.323	.602
	EM5_numero fflights	.066 ^g	1.858	.064	.097	.871	1.149	.598
	IM1_availabilit yseats	.048 ^g	1.280	.201	.067	.794	1.260	.600
	IM2_promotion aloffers	-.024 ^g	-.678	.498	-.036	.917	1.090	.602
a. Dependent Variable: CS_cumulative								
b. Predictors in the Model: (Constant), PE_cumulative								
c. Predictors in the Model: (Constant), PE_cumulative, AT_cumulative								
d. Predictors in the Model: (Constant), PE_cumulative, AT_cumulative, IM3_price								
e. Predictors in the Model: (Constant), PE_cumulative, AT_cumulative, IM3_price, IM4_brandimage								
f. Predictors in the Model: (Constant), PE_cumulative, AT_cumulative, IM3_price, IM4_brandimage, EM4_luggage								
g. Predictors in the Model: (Constant), PE_cumulative, AT_cumulative, IM3_price, IM4_brandimage, EM4_luggage, EM1_punctual								

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Closing Declaration

I hereby assure to have written the present paper without the help of others and without using any other aids than the ones I indicated. All passages directly or indirectly taken from published or unpublished sources have been marked as such. The paper has not been presented to any other examination office other than FH Aachen University of Applied Sciences and Mid Sweden University in the same or similar form.

Hiermit versichere ich, die vorliegende Arbeit ohne fremde Hilfe selbstständig und ohne Benutzung anderer als der angegebenen Hilfsmittel angefertigt zu haben. Alle Stellen, die wörtlich oder sinngemäß aus veröffentlichten und nicht veröffentlichten Quellen entnommen wurden, sind als solche kenntlich gemacht. Die Arbeit hat in gleicher oder ähnlicher Form noch keiner Prüfungsbehörde vorgelegen.

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