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The Antecedents of Student Satisfaction and Loyalty in Higher Education Instititons: An empirical Study of Students of the University of Ghana

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Preface

Summary

Purpose: The purpose of this research is to analyze the antecedents of student satisfaction and loyalty in Higher Education Institutions (HEIs) in Ghana, using the University of Ghana (UG) as an empirical setting. The research questions to be answered are: (1) What are the relationships between student satisfaction and its antecedents? (2) Which of the antecedents most influence student satisfaction? (3) What are the relationships between student loyalty and its antecedents? (4) Which of the antecedents most influence student loyalty?

Design / methodology / approach: Questionnaires were developed and administered to 205 student respondents from the Legon campus of the University of Ghana. The Statistical Package for Social Sciences (SPSS version 22) was used to analyse the results. Standard Multiple Regression Analyses, Collinearity statistics and Pearson's correlation coefficients were also calculated to find out which of the antecedents most influence student satisfaction and loyalty.

Findings: The findings of this study indicate that perceive value, image of the university and perceive service quality positively influence the level of student satisfaction and these three antecedents together with student satisfaction positively influence student loyalty. Perceive value is the most influential antecedent of student satisfaction, followed by the image of the university and perceive service quality. Also, perceive value is the most influential antecedent of student loyalty, followed by the image of the university, perceive service quality and student satisfaction.

Research limitations: The main limitation of this study is that the findings are based only on 205 student respondents from the research setting (University of Ghana) and therefore the results cannot be generalized.

Practical implications: The findings of this study give insight to policy makers within the Higher Education Institutions in Ghana as to which antecedents most influence their students' satisfaction and loyalty. This insight can help them make strategic decisions that will increase their students' satisfaction and loyalty, in order to continue to operate profitably and successively.

Keywords: Antecedents, student satisfaction, student loyalty, Higher Education Institutions, University of Ghana, Ghana

The Antecedents of Student Satisfaction and Loyalty in Higher Education Institutions: An empirical Study of Students of the University of Ghana

Isaac Kwasi Egyir

This Master Theses is submitted to Ålesund University College, as part of the requirement for the degree of Master of Science in International Business and Marketing

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"Now to our God and father be the glory forever and ever! Amen". (Philippians 4:20)

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Isaac Kwasi Egyir
Aalesund, May, 2015

DEDICATTION

I dedicate this master thesis to my lovely wife Mrs. Mireille Sophie Adou Egyir.

Table of contents Pages

Lists of tables

Lists of figures

List of appendices

Pages

List of abbreviations

AfDB	African Development Bank
ANOVA	Analysis of Variance
CFA	Confirmatory Factor Analysis
EFA	Exploratory Factor Analysis
FU	Facility of the University
GDP	Gross National Product
H	Hypotheses
HE	Higher Education
HEIs	Higher Education Institutions
HEdPERF	Higher Education PERFormance-only
HND	Higher National Diploma
ID	Identity
IAU	International Association of Universities
ISP	Image of the study programmes
IU	Image of the University
KMO	Kaiser-Meyer-Olkin
OLS	Ordinary Least Square
PSQ	Perceive service quality
PV	Perceive value
SPSS	Statistical Package for Social Sciences
SS	Student satisfaction
SL	Student loyalty
UG	University of Ghana
USA	United States of America
WOM	Word of mouth

ABSTRACT

Purpose: The purpose of this research is to analyze the antecedents of student satisfaction and loyalty in Higher Education Institutions (HEIs) in Ghana, using the University of Ghana (UG) as an empirical setting. The research questions to be answered are: (1) What are the relationships between student satisfaction and its antecedents? (2) Which of the antecedents most influence student satisfaction? (3) What are the relationships between student loyalty and its antecedents? (4) Which of the antecedents most influence student loyalty?

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CHAPTER 1: INTRODUCTION

1.0 Introduction

This chapter gives the outline of the study. The chapter deals with the background of the study, the research problem, the research purpose and questions. It also explains the justification of the study, gives the scope of the study and finally the organization of the study.

1.1 Background of the study

In this current competitive global market, customers' satisfaction and loyalty are major survival factors to any business (O'Loughlin and Coenders, 2002). Businesses, therefore, are investing huge resources to improve their service quality, and assess the other factors that can help them improve their customers' satisfaction and loyalty (Howard and Sheth, 1969; O'Loughlin and Coenders, 2002).

Higher Education Institutions (HEIs), like any other business, are no exception. With increasing costs of education across the globe, students, parents and prospective employees have intensified their scrutiny of the value delivered by HEIs (Thomas, 2011). Universities have come to terms with the fact that Higher Education (HE) is a service (Lovelock, 1983) and must ensure that their primary customers (i.e. students) are very satisfied in order to ensure their loyalty (Hill, 1995; Owlia and Aspinwall, 1997; Thomas, 2011; Martensen *et al*., 2000).

Several factors contribute to making student satisfaction and loyalty an important issue for HEIs. As Martensen *et al*., (2000) rightly puts it, "without students to teach to, there is no business for HEIs, no research to conduct or service to provide". Enhanced student satisfaction and loyalty can lead to a stronger competitive position resulting in attracting new students, maintaining the existing ones, positive word of mouth (WOM) communication and business profitability (Nesset and Helgesen, 2009; Thomas, 2011; Termizer and Turkyilmaz, 2012). There is also the issue of increased performance-based public funding to HEIs, new legislation designed to reform higher education, high student mobility, and intense global competition (Nesset and Helgesen, 2009). This implies that HEIs that develop insights into students' satisfaction and loyalty, and antecedents

influencing student satisfaction and loyalty will reap great benefits (Tinto, 1993; Kortler and Fox, 1995).

1.2 Research Problem

Higher Education (HE) industry is one of the vital service industries to every nation. It helps bring about economic growth, national development and provision of human resources to the country (Husain *et al*., 2009; Dib and Alnazer, 2013). In the last twenty years, the HE industry in Ghana has seen some profound changes. The number of institutions operating in this industry and number of students have increased. Ghana's HEI industry comprise of both the public and private. The public HEIs are publicly funded, most prestigious, has subsidized fees and are the most preferred by students. The private education sector which is growing rapidly over these years aim to give an alternative road map for tertiary education for those who could not gain admission into the public HEIs, but intend to go for HE locally (Dib and Alnazer, 2013).

With the rapid increment of private HEIs in Ghana competing for students who want quality education and value for the services rendered by these institutions, it is very vital that antecedents of students' satisfaction and loyalty to these HEIs be measured. Knowing the antecedents to students' satisfaction and loyalty to the HEIs can provide the factors to consider for the continuous improvement of the study programmes, teaching, staff and equipments of the HEIs (Martensen *et al*., 2000). Furthermore, empirical studies have shown that HEIs with high students' satisfaction rates produce better grades, enjoy higher enrollment and graduation rate, have fewer drop-outs, reduce probability of loan defaults and raise sizeable alumni donations (Serenko, 2011).

The importance of measuring student satisfaction and loyalty has prompted a number of empirical studies to be carried out in the developed world to ascertain the links between students' satisfaction and loyalty, and their drivers (antecedents) in the HEIs (Martensen *et al*., 2000; Helgesen and Nesset, 2007 ab; Butt and Rehman, 2010; Thomas, 2011). However, very little research has been done in this area in the developing world, particularly in Ghana (Gyamfi *et al*., 2012). To the best of the knowledge of the author, aside the study conducted by Gyamfi *et al*., (2012), there appears

to have been no other published study that has empirically explored the factors that drive students' satisfaction and loyalty to HEIs in Ghana. There is therefore the need for further research into this area to fill the knowledge gap. This study therefore seems to have value both managerially and academically. The purpose of this research is to analyze the antecedents of student satisfaction and loyalty to HEIs in Ghana, using the University of Ghana (UG) as an empirical setting. The research questions to be answered therefore are: (1) What are the relationships between student satisfaction and its antecedents? (2) Which of the antecedents most influence student satisfaction? (3) What are the relationships between student loyalty and its antecedents? (4) Which of the antecedents most influence student loyalty?

1.3 Justification of the study

In Ghana, students' satisfaction and loyalty is an important issue that HEI administrators, policymakers, instructors and the general public should be concerned about. Also, HEIs in Ghana can continue to operate profitably and successively, only if they enhance their service quality, assess their students' perceived values, and increase their students' satisfaction to ensure their loyalty. This study therefore has academic, practical and managerial implications. The findings of this study may enable the HEIs in Ghana to have an idea of what the interrelationship and antecedents of its students' satisfaction and loyalty are, and uncover any problems with the services quality they provide (Hayes, 2008). Furthermore, the HEIs in Ghana may have information for continuous quality improvement of their study programmes, teaching and support services. Thus, based on the findings, management and leadership of the HEIs in general and the University of Ghana in particular can make informed strategic decisions.

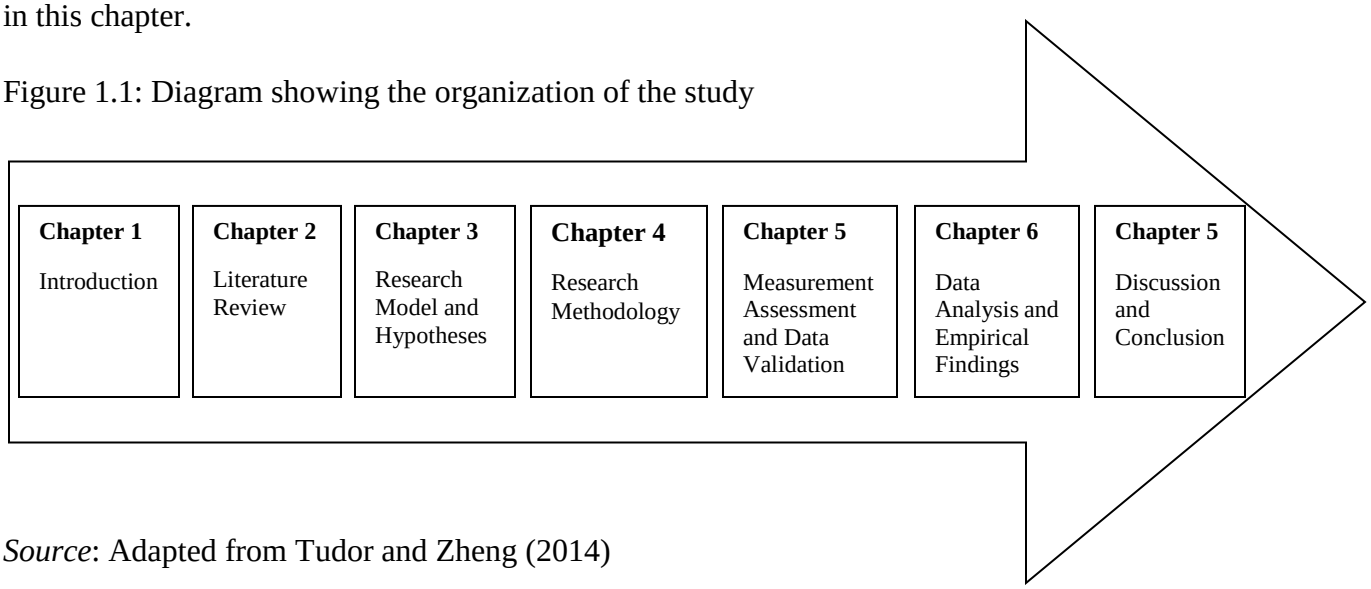
1.4 Scope of the study

This thesis scope is to analyze the antecedents of students' satisfaction and loyalty to HEIs in Ghana. The study is limited to a specific sample: students of the University of Ghana (UG), Legon campus. Survey is used to collect the data. The UG is used as the research setting for the analysis because it is the oldest, largest and most prestigious HEI in Ghana.

1.5 Organization of the study

This thesis is organized in seven chapters. As shown in figure 1.1, chapter one, introduction, contains the background of the study, research questions, the justification of the study, the study scope and the way in which the study is organized. Chapter two will give a literature review about the various constructs. In this chapter the various constructs will be defined. Chapter three will focus on the research model and hypotheses formulation. In this chapter the various constructs, and their interrelationships will be looked at. The fourth chapter presents the research methodology. The fifth chapter presents measurements assessments and validation while the sixth chapter is on data analysis and empirical findings. The last chapter seven is the conclusion. Summary of the main findings, discussions, implications and limitations of the study are also done in this chapter.

Figure 1.1: Diagram showing the organization of the study



Source: Adapted from Tudor and Zheng (2014)

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter reviews the literature about students' satisfaction and loyalty, and their key antecedents. The chapter starts with a brief review of service marketing, HEIs as service providers, why students can be considered as the main customers of HEIs.

2.1 Higher education institutions as service providers

Berry (1980) defines service as a "deed, act, or performance". Service is directed at someone (something) and the act can be either tangible or intangible in nature (Lovelock, 1983). Service represent majority of the economic output and employment of most countries. For example, services constituted about 78% of the United State of America's economy in 2008 and the figure keeps rising (Fine, 2008). It is not surprising according to Fine (2008) that much research in marketing has been focused on service. Fine (2008) indicated that the number of journals created specifically to explore the issues of service marketing has also increased.

Service marketing emerged half a century ago as a distinct subfield of the marketing discipline (Brown *et al*., 1994). Kunz and Hogreve (2011) indicated that service marketing puts the service discipline on the marketing agenda and shows the intellectual bonds between service academics and the marketing fields. Service marketing ensures that managers seek ways to differentiate service offerings to provide value to consumers (Fine, 2008). Further, it ensures that managers can predict and influence their consumers' behaviours in the service context either via emotional or cognitive responses. Some of the recent service marketing researches focus on issues surrounding customer satisfaction and loyalty, switching cost, service failures and self-service technologies.

Education is considered a service and higher education institutions (HEIs) belong to the service providers who deal with intangible actions directed at people's minds (Lovelock, 1983). Nguyen (1997) and Lovelock (2001) therefore concluded that since education is a service and HEIs belong

to the service industry, all concepts of service marketing can be applied to HEIs. This study therefore considers HEI as service oriented organization.

2.2 Students as main customers of higher education institutions

Definition of the customers is very critical for the HEIs (Termizer and Turkylmaz, 2012). Customers of HEIs can be categorised as the students, the parents of students, the employees, the employers, the public sector, the industry and wider community (Tanji and Tabi, 1999; Vatolkina and Salimova, 2011). There are some controversies as to whether the student can be viewed as the main customer of HEI (Hill, 1995) and no agreement among academics has been reached (Franz, 1998; Halbesleben *et al*., 2003).

According to Serenko (2011), contemporary literature offers various metaphors on the roles of students in higher education. Students may be viewed as customers, products, clients, citizens, subjects or co-workers. Even though there are disagreements, students are considered in most education and marketing literature as primary customers of HEIs (Hill, 1995; Owlia and Aspinwall, 1997; Thomas, 2011; Martensen *et al*., 2000). This study therefore considers students as the main customers of HEIs.

2.3 Student loyalty

Customer loyalty has been defined and measured in many various ways over the past decades. It is defined as a customer's intention or predisposition to purchase from the same firm (Edvardsson *et al*., 2000). Oliver (1997) defines it as "a deeply held commitment to rebuy or repatronize a preferred product or service in the future, despite situational influences and marketing efforts having the potential to cause switching behavior". Loyalty is made up an affective component as well as behavioral dimensions (Oliver, 1997; Eshghi *et al*., 2007). As an affective state, loyalty represents a psychological reason and conviction to a product or service experience (Eshghi *et al*., 2007). The behavioral dimension is a manifestation of that effective state, which is sometime equated with customer retention (Eshghi *et al*., 2007). Loyalty can be measured by repurchase

intention, price tolerance and intention to recommend product or services to others (O'Loughlin and Coenders, 2002; Lam *et al.,* 2004; Yu *et al*., 2006).

Paralleling the related concept of customer loyalty, student loyalty also contains an attitudinal and behavioral component (Henning-Thurau *et al*., 2001; Marzo-Navarro *et al*., 2005a). The attitudinal component can be defined as tripartite according to Helgesen and Nesset (2007b), consisting of cognitive, affective and conative elements. The behavior component can be seen as being related to decisions that students make regarding their mobility options (Helgesen and Nesset, 2007b). Helgesen and Nesset (2007b), indicate that student loyalty is not restricted to the period during which students are formally registered but also former loyal students are vital for an educational institution. This study bases measurement of student loyalty on the attitudinal component of the concept such as customers' intentions to repeat transactions, or recommend to others through positive word of mouth (Zeitaml *et al*., 1996; Hening-Thurau *et al*., 2001; Yu *et al*., 2006; Eshghi *et al*., 2007). The term "loyalty" is similar or equivalent to the term "behavioral intensions" and both terms are used interchangeably in the service marketing literature, hence in this study.

2.4 Student satisfaction

The satisfaction construct has gained an important role in the marketing literature (Eggert and Ulaga, 2007). Customer satisfaction is defined as the overall assessment of the purchases and consumption experience of customers (Johnson and Fornell, 1991; Edvardsson *et al*., 2000). Rust and Oliver (1994) also define it as the degree to which one believes that experience evokes positive feeling. Customer satisfaction research is mainly influenced by the disconfirmation paradigm (Oliver, 1980; Parasuraman *et al*., 1998) which states that the customer's feeling of satisfaction is a result of a comparison process between perceived performance and one or more comparison standard, such as expectations. The customer is satisfied when he or she feels that the products' performance exceeds expectations (positively disconfirming), if it remains below expectations, the customer will be dissatisfied (negatively disconfirming) (Oliver, 1980; Eggert and Ulaga, 2007).

Elliot and Healy (2001) proposed an adaptation of the customer satisfaction concept in education. They indicate that students' satisfaction result from the evaluation of their experience with the

educational service received. Student satisfaction is influenced by a number of factors, such as sex of the student, teaching styles by instructors, quality of instructions and promptness of feedback from instructors, interactions with classmates, infrastructural facilities at the institutions among others (Fredericksen *et al*., 2000; DeBourgh, 2003; Stokes, 2003; Helgesen and Nesset, 2007a).

2.5 Perceive service quality

In today's world of global competition, providing high quality service is a key for success (Abdullah, 2006). Customer perceived service quality has been defined in various ways (Ulaga and Chacour, 2001). Asubonteng *et al*., (1996) define service quality as the difference between customer's expectations for services performance prior to the service encounter and their perceptions of the service perceived. Perceived service quality is the evaluation of recent consumption experience of associated services like customer service, condition of product display, range of services, among others (O'Loughlin and Coenders, 2002). Many of the definitions describe quality as conformance to requirements, fitness for purpose, meeting customer requirement and predictable degree of conformity and dependability at low cost and suited to the market (Juran, 1974; Crosby, 1979; Deming, 1982; Oakland, 1989).

In the last decade, several diverse instruments of measuring service quality has emerged (Abdullah, 2006). Parasuraman *et al*., (1985, 1998) developed the SERVQUAL instrument, According to Jiewanto *et al*., (2012), using focus group studies, Parasuraman, *et al*., (1985) identified five detailed dimensions of service quality: First are tangibles, which are appearance of physical facilities, equipment, personnel, and communication materials. Second is reliability, which is the ability to perform the promised service dependably and accurately. Third is responsiveness, which is willingness to help customers and provide prompt service. Fourth is assurance, which is knowledge and courtesy of employees and their ability to convey trust and confidence (competence, courtesy, credibility and security of the service). The last is empathy, which is caring, individualized attention the firm provides its customers (Access to organization's representatives, communication and understanding the customer).

Cronin and Taylor (1992) developed the SERVPERF and Teas (1993a, b) came up with the Evaluated Performance (EP). The SERVQUAL operationalizes service quality by comparing the perceptions of the service received with expectations, whereas SERVPERF keeps only the perceptions of service quality. On the other hand, EP scale measures the gap between perceived performance and the ideal amount of a feature rather the customer's expectations (Abdullah, 2006).

Quality in HE is rather difficult to define due to its "notoriously ambiguous term" (Pounder, 1995; Becket and Brookes, 2008). Based on the methodologies developed by Parasuraman *et al*., (1985), Cronin and Taylor (1992), Teas (1993ab) and other researchers in the service marketing research, Firdaus (2005) proposed HEdPERF (Higher Education PERFormance-only), a new and more comprehensive performance – based measuring scale that attempts to capture the authentic determinants of service quality within the higher education. The HEdPERF instrument developed by Firdaus (2005) contains 41-items which have been empirically tested for unidimensionality, reliability and validity using both exploratory and confirmatory factor analysis within the higher education industry (Abdullah 2006).

According to Brown and Mazzarol (2009), perceived service quality can be categorized into two; "human-ware" (for example, people and process) and "hard-ware" (for example, infrastructure and tangible service elements). In most research there is a split between the "hard-ware" and the "human-ware" (Martensen *et al*., 2000). Relating to HE "hard-ware" also called non-human elements may include study programme, courses provided and support functions such as classrooms, library, computer facilities, equipments, student offices among others (Martensen *et al*., 2000). The "human-ware" which is called the human elements is made up of teaching (academic standard, pedagogical methods and personal contact with teaching staff), personal contact with administrative staff, etc., (Martensen *et al*., 2000). In this research, the measure of perceived service quality combines both the "hard-ware and human-ware".

2.6 Perceived value

Customer perceived value is defined as a trade-off between benefits and sacrifices perceived by the customer in a supplier's offering (Zeithaml, 1998). Bolton and Drew (1991) show that a customer's assessment of value depends on sacrifice (i.e., the monetary and nonmonetary costs associated with utilizing the service), customer characteristics and customer intention. Monroe (1990, 1991) sees perceived benefits as a combination of physical attributes, services attributes and technical support available in relation to a particular use situation.

Perceived value can be analyzed with either a self-reported unidimensional measure (Gales, 1994) or a multidimensional scale (Sheth *et al*., 1991; Petrick and Backman, 2002). However, Chen and Chen (2010) indicate that the validity of unidimensional measure is always criticized due to its assumption that consumers have a shared meaning of value. Sheth *et al*., (1991) claim that multidimensional scale can overcome the validity problem by operationalizing perceived value by, for example, a five-dimensional constructs made up of social, emotional, functional, epistemic, and conditional responses. Petrick and Backman (2002) also proposed the SERV-PERVAL scale to measure perceived value.

2.7 Corporate image and allied constructs

The influence of corporate image and its allied construct has been studied by many researchers (Helgesen and Nesset, 2009; Dib and Alnazer, 2013). The continuous research in this area is a must for those organizations that want to successfully differentiate their positions in the market (Abd-El-Salem, *et al*., 2013). Corporate image and its allied constructs, especially identity and reputation are defined and linked together in various ways (Chun, 2005; Brown *et al*., 2006; Helgesen and Nesset, 2007b). Corporate image refers to outside stakeholder's perception of an organization (Chun, 2005 as cited by Helgesen and Nesset, 2007b). Kandampully and Hu (2007) indicated that corporate image consisted of two main components; the first is functional such as the tangible characteristics that can be measured and evaluated easily. The second is emotional such as feelings, attitudes and beliefs the person has towards the organization. These emotional

components are consequences from accumulative experiences the customer has with the passage of time with the organization (Kandampully and Hu, 2007).

Corporate identity refers to internal stakeholders' perceptions, whereas corporate reputation includes views of both internal and external stakeholders (Chun, 2005 as cited by Helgesen and Nesset, 2007b). MacMillan *et al*., (2005) define reputation as the overall perception of an organization, what the organization stands for, what people associate with the organization, and what an individual may expect when buying the products or using the services of the organization. Helgesen and Nesset (2007b) therefore perceive reputation as being an umbrella construct, referring to the cumulative impressions of internal and external stakeholders, especially the impressions of employees and customers.

The student's perception of image and reputation of the HEI is very important regarding attracting and retaining students (Standifird, 2005). Measuring corporate image and its allied construct in this study include the perception of the image of the university compared to competing universities (Torpor, 1983), the internal and external public perception to the university image using the analogous way. Termizer and Turkyilmaz, (2012) advised that it is important that image of HEIs be seen from the eyes of the students. The analogous way assumes that students' perceptions of the image of the university are developed by their perceptions of the external prestige of the University (Helgesen and Nesset, 2007b).

2.8 Image of the study programmes

Researches involving image of study programme in service marketing is relatively few. However, a research by Helgesen and Nesset (2007b) has shown that the image of university study programme is perceived as a different construct by students from the image of the university. In this study, the image of the study programmes is measured first by the student's own perception of the image of the study programmes offered by the University of Ghana and also in the analogous way (Helgesen and Nesset, 2007b). The analogous way assumes that students' perceptions of the image of the programmes of the university are developed by their perceptions of the external prestige of the study programmes (Helgesen and Nesset, 2007b). The questions therefore involve

that of student's own perception and the third-party technique or projective questioning (Wilson, 2003). Helgesen and Nesset (2007b) recommend analogous way because the answers to these types of questions usually reflect the opinions of the respondents, taking into consideration various constituencies, thus increasing the reliability and validity of the measurements.

2.9 Facilities of the university

Facilities of HEIs are important to students. They improve the perception of the image of the institution which enhances student enrollment (Jiewanto *et al*., 2012). Facilities of HEIs vary from institution to the other and in different countries. However, they may include international curriculum, high speed internet access, compatible computer laboratory, audio systems in class, library, student offices, lecture rooms, campus book store, catering facilities, and other luxurious ones such as Sports Centres, NBA Basket Ball Courts, swimming pools, Department stores, hospitals among others (Martensen *et al*., 2002; Jiewanto *et al*., 2012).

CHAPTER 3: RESARCH MODEL AND HYPOTHESES

3.0 Introduction

This chapter reviews the literature about the interrelationship between students' satisfaction and loyalty, and their antecedents. Based on the literature (theory), the various hypotheses of the study are developed.

3.1 Research model

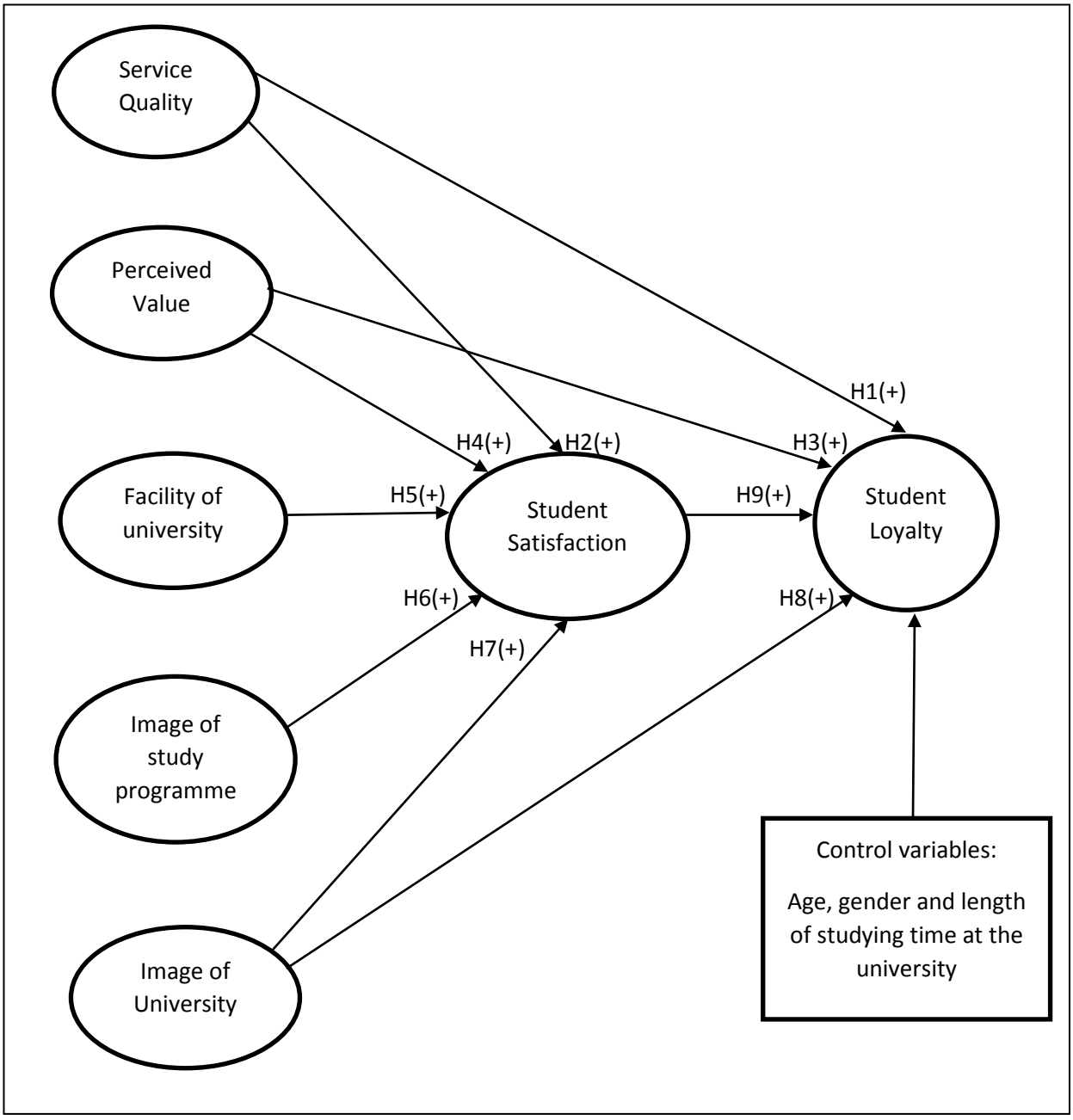
The model to be tested is based on theories and hypotheses that have been formulated. It illustrates the main antecedents of student satisfaction and loyalty. The model also illustrates the structural relationships between the university perceived service quality, student perceived value, facilities of the university, image of the university, image of the study programmes, student satisfaction and student loyalty (Cronin et al., 2000; Ryu et *al.*, 2008; Brown and Mazzarol, 2009; Helgesen and Nesset, 2007ab; Kuo et *al*., 2009; Chen and Chen, 2010; Lien *et al*., 2011).

Empirical studies have shown that perceived service quality leads to customer satisfaction and loyalty (Rust and Oliver, 1994; Zeithaml *et al*., 1996; Baker and Crompton, 2000; Cronin *et al*., 2000; Petrick and Backman, 2002; Chen, 2008; Chen and Chen, 2010, Guolla (1999), Marzo-Navarro *et al*., (2005b) and Wiers-Jenssen *et al*., (2002). Perceive value has also been shown to be antecedent of customer satisfaction and loyalty (McDougall and Levesque, 2000; Cronin *et al*., 2002; Petrick and Backman 2002; Tam 2002; Chen 2010; Chen and Chen 2010). A study by Helgesen and Nesset (2007a) show that there is an indirect effect of image of study programme on students' loyalty. However, this study is of the notion that there could even be a positive direct effect between the two. In Helgesen and Nesset (2007a) study, it was proved university facilities loaded significantly on student satisfaction.

Based on literature review, this model to be tested suggests that student loyalty to a university is determined by student satisfaction and other antecedents, and satisfaction in itself is also influenced by some of the other antecedents. This model also includes demographic variables

(age and gender, how long the student has been studying at the university) as control variables. Thus, Figure 3.1 presents the research model.

Figure 3.1: Research model to analyse the antecedents of student satisfaction and loyalty



Source: Adapted from Cronin *et al*., 2000; Ryu et *al.*, 2008; Brown and Mazzarol, 2009; Helgesen and Nesset, 2007ab; Kuo et *al*., 2009; Chen and Chen, 2010; Lien *et al*., 2011

3.2 Research hypotheses

This section presents the various hypotheses developed to be tested based on extensive literature review.

3.2.1 The influence of perceived service quality on student satisfaction and loyalty

Most customers tend to be loyal once they receive higher service quality and become highly satisfied (O'Loughlin and Coenders, 2002). This is in accordance with results from several empirical studies done within different sectors (Rust and Oliver, 1994; Zeithaml *et al*., 1996; Baker and Crompton, 2000; Cronin *et al*., 2000; Petrick and Backman, 2002; Chen, 2008; Chen and Chen, 2010).

Similarly, studies in higher education sector have indicated the same. For example, an empirical study by Termizer and Turkyilmaz (2012) in the HEI sector in turkey showed that perceived service quality has a positive significant impact on students' satisfaction. Another case study by Jiewanto *et al*., (2012) showed that service quality has a positive impact on students' satisfaction and positive word of mouth (WOM). Also, the results of Browne *et al*., (1998), Guolla (1999), Marzo-Navarro *et al*., (2005b) and Wiers-Jenssen *et al*., (2002) showed that a positive perception of service quality can lead to student satisfaction and satisfied students may then attract new students by engaging WOM communication to inform acquaintances and friends, and they may return to the HEI to take other courses. Based on the findings of literature review, the following hypotheses were formulated:

H1: *There is a positive relationship between the university perceived service quality and student loyalty.*

H2: *There is a positive relationship between the university perceived service quality and student satisfaction.*

3.2.2 The relationships among perceive value, satisfaction and loyalty

Customer satisfaction has been shown to be dependent on perceive value (Howard and Sheth, 1969; Fornell, 1992; Ryu *et al*., 2008). An empirical research conducted by Eggert and Ulaga

(2002) among German purchasing managers showed that customer perceived value has a strong positive and highly significant impact on satisfaction. Another empirical study by Ryu *et al.,* (2008) to ascertain the relationships among overall quick-causal restaurant image, perceived value, customer satisfaction and behavioral intentions in the USA showed that perceived value has a significant role in forming customer satisfaction. Furthermore, other empirical studies in the service industry have shown that customer perceived value has a positive effect on customer satisfaction (Yang and Peterson, 2004; Walter *et al*., 2002). In the higher education sector, Helgsen and Nesset (2007b) concluded that perceived value has a significant effect on student satisfaction.

Many empirical studies have shown that perceive value is an important antecedent of satisfaction and loyalty (McDougall and Levesque, 2000; Cronin *et al*., 2002; Petrick and Backman 2002; Tam 2002; Chen 2010; Chen and Chen 2010). An empirical studies by Zeithaml (1998) and Dodds *et al*., (1991) show that customer perceived value directly and positively affect customer loyalty. Other empirical studies in the service industry have shown that customer perceived value significantly influence customer loyalty (Yang and Peterson, 2004; Walter et *al*., 2002). Based on the findings, the following hypotheses were formulated:

H3: *There is a positive relationship between the **s**tudents' perceived value and student loyalty.*

H4: *There is a positive relationship between the students' perceived value and student satisfaction.*

3.2.3 Relationship between image of study programme, facilities of the university and student satisfaction

Not many studies have looked at the influence image of study programme has on students' satisfaction and loyalty. However, a study by Helgesen and Nesset (2007) shows that there is an indirect effect of image of study programme on students' loyalty. However, this study is of the notion that there could even be a positive direct effect between the image of the study programme and student loyalty.

All things being equal, it is common for students with access to better facilities at their university among other things to be satisfied. A Study by Helgesen and Nesset (2007) show that facility loaded significantly on student satisfaction. Butt and Rehman (2010) investigated the determinants of students' satisfaction in higher education and their influence on level of satisfaction in Pakistan. Their result show that classroom facilities is one of all the variables that was significant and positively related to students' satisfaction. Another study by Jiewanto *et al*., (2012) indicated that when the university facility is improved, the student enrolment is enhanced. Based on these findings and common notion, the following hypotheses are advanced:

H5: *There is a positive relationship between the facilities of the university and the student satisfaction.*

H6: *There is a positive relationship between the image of the study programmes and the student satisfaction.*

3.2.4 Influence of corporate image (reputation) on satisfaction and loyalty

Empirical study by Dib and Alnazer (2013) to analyze the influence of perceived service quality, perceived value, and image on student satisfaction in Syrian Universities show that there is a positive effect of image of the university on student satisfaction. Another empirical study by Termizer and Turkyilmaz, (2012) in the HEI sector in Turkey showed that image has a positive significant impact on students' satisfaction.

Loyalty relates positively to a favorable corporate image (reputation) as shown by Johnson *et al*., 2001). Methlie and Nysveen (1999) researched on the antecedents of the loyalty of on-line banks customers using intention to keep using the banks as a measure of loyalty. Their findings indicate that brand reputation has an impact on loyalty. A study by Adb-El-Salem *et al*., (2013) in the Egyptian context show that there is a significant positive relationship between corporate image (reputation) and customer loyalty. Within the HE sector, a 'cross-over' study by Nesset and Helgesen (2009) in Norway show that image has a direct effect on loyalty. Furthermore, Thomas (2010) study in the HE sector in India show that reputation of the institution has a positive effect on

student loyalty through the mediating variable student satisfaction. The following arguments suggest the following hypotheses:

***H7**: There is a positive relationship between image (reputation) of the university and student satisfaction.*

***H8**: There is a positive relationship between image (reputation) of the university and students' loyalty.*

3.2.5 Satisfaction as a predictor of loyalty

Greater levels of customer satisfaction lead to greater levels of customer loyalty and positive word of mouth (Ulaga and Chacour 2001). These outcomes resonate with series of research in different industries that have revealed that customer satisfaction positively affects loyalty (Fornell 1992; Fornell et al 1996; Zeithaml *et al*., 1996; Methlie and Nysveen, 1999; Oliver, 1999; Martensen *et al*., 2000; Yang and Peterson, 2004).

The findings of an empirical study by Ryu et *al*., (2008) showed that customer satisfaction has a positive influence on customer loyalty (behavioral intentions). Similar, empirical research by Eggert and Ulaga (2002) showed satisfaction has a strongly positive and highly significant impact on loyalty. In the higher education sector in India, the results of the empirical study by Thomas (2010) shows student satisfaction is a major driver of student's loyalty. Similarly, a 'cross-over' study by Nesset and Helgesen (2009) in the HEI in Norway show that student satisfaction positively influences student loyalty. Similarly, in the higher education sector, empirical studies by Dib and Alnazer (2013) showed that student satisfaction has a positive effect on student loyalty to universities. Therefore, the following hypothesis is advanced.

***H9**: There is a positive relationship between the student satisfaction and the student loyalty.*

3.3 Control variables

3.3.1 Age and gender

This study includes demographic variables (age and gender) as control variables. A considerable number of empirical research, suggest that the difference between genders is partially from biological way to act and partially from socialization experience (Putrevu, 2001). Ndubisi (2006), Pan and Zinkan (2006) indicate that females are more relationship oriented and loyal than males. Based on the suggestions of Ndubisi (2006), Pan and Zinkan (2006), age and gender are expected to provide some explanation of one of the dependent variables - student loyalty.

3.3.2 Length of studying time at the university

This study also includes the demographic variable (how long the student has been studying at the university) as a control variable. It is expected that student loyalty increases the longer the student studies at the university. Thus, students will not continue to study at a particular university if they are loyalty to that university. Hence the length of studying time at the university is included in this research model since it provides explanation to one of the dependent variables - student loyalty

Table 3.1: A summary of the hypotheses formulated

Hypotheses	Association between variables	Hypothesize effect
H1:	Perceive service quality is positively associated with student loyalty.	+
H2:	Perceive service quality is positively associated with student satisfaction.	+
H3:	Perceive value is positively associated with student loyalty.	+
H4:	Perceive value is positively associated with student satisfaction.	+
H5:	Facility of the university is positively associated with student satisfaction.	+

H6:	Image of the study programme is positively associated with student satisfaction.	+
H7:	Image of the university is positively associated with student satisfaction.	+
H8:	Image of the university is positively associated with student loyalty.	+
H9:	Student satisfaction is positively associated with student loyalty.	+

CHAPTER 4: RESARCH METHODOLOGY

4.0 Introduction

This chapter contains the research methodology used for the study. It starts with the empirical settings and geographical location of the study. Followed by questionnaire development, pilot study, techniques, procedures and analyses of the data collected. Finally, measurements of research variables are explained. The empirical investigation of this study is exploratory and quantitative in nature (Vuuren, 2012).

4.1 The empirical and geographic location of the study

4.1.1 Background of educational system in Ghana

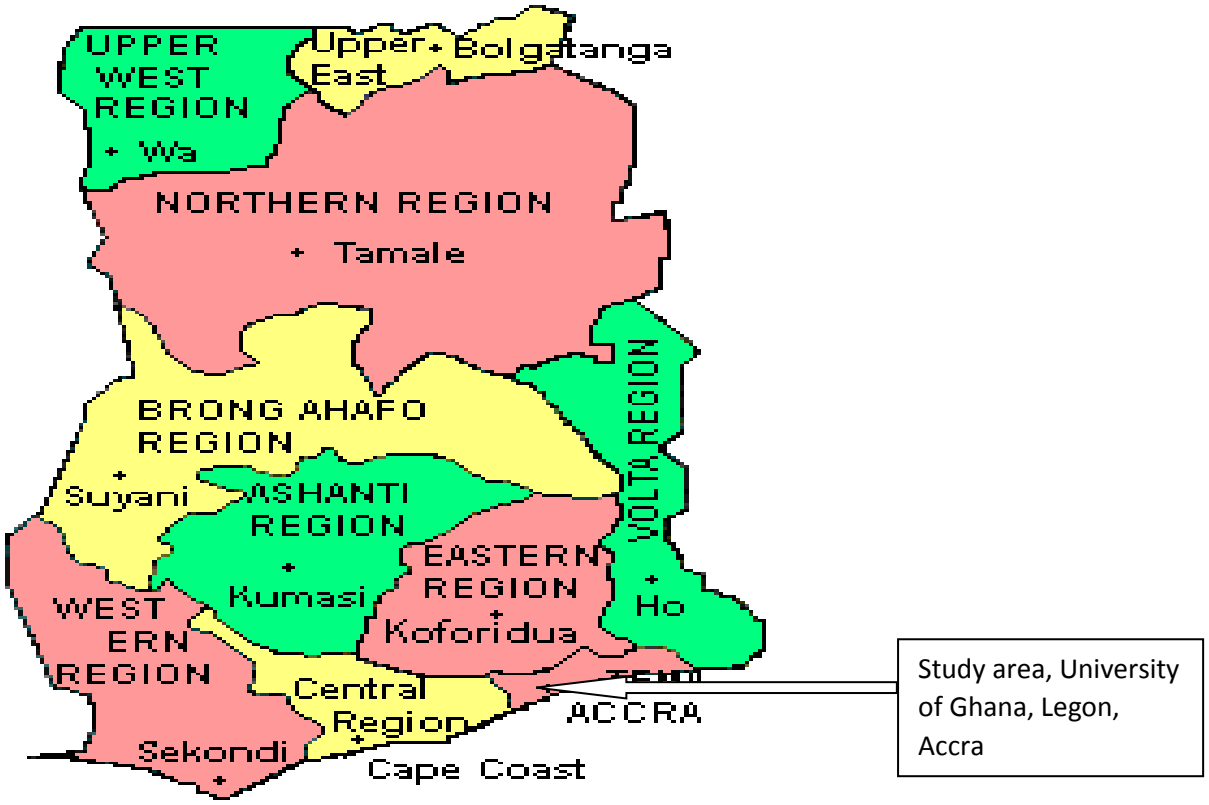
Ghana is geographically located at the Western part of Africa and has a total land size of about 238,583 square kilometers (Government of Ghana, 2013). Ghana has a population of about 25.37 million, with an annual growth rate of about 2.7% per annum and a Gross Domestic Product (GDP) of 40.71 billion in 2012 (AfDB, 2013; World Bank, 2013). Ghana gained its independence from the British on the 6th of March 1957. Ghana has a multiparty democracy and the country is politically stable. The country is subdivided into ten regions with Greater Accra region as the nation's capital (see figure 4.1).

Ghana presently operates a 6-3-4-4 system or 6-3-4-3 system. Primary school - 6 years, junior high school - 3 years, senior high school - 4 years, university bachelor's degree - 4 years or polytechnic's Higher National Diplomas (HND), Teacher Training Colleges Diplomas and Nursing Training Colleges Diplomas, – 3 years (NUFFIC, 2013). Students can continue to pursue studies at the masters' level in some of these institutions. HEIs in Ghana have a bicameral system of governance; the Council and the Academic Board (Effah *et al*., 2001)

HEIs in Ghana comprise of universities, polytechnics, Teacher Training Colleges, Nursing Training Colleges and other professional institutions. The HEIs enroll over 100,000 students in undergraduate, graduate, certificate and diploma programs in a full range of academic and professional fields (http://ghana.usembassy.gov/education-of-ghana.html). The public universities are the University of Ghana at Legon, Accra, Kwame Nkrumah University of Science and

Technology, Kumasi, University of Cape Coast, University of Education at Winneba, University of Development Studies, Tamale, Ghana Institute of Management and Public Administration/Greenhill College, Accra, University of Mines and Technology, Tarkwa. Twenty-one private institutions are also accredited by the National Accreditation Board (www.nab.gov.gh) to award Bachelor's degrees. The private institutions enroll about 5,000 and are expected to grow during the next decade. Ten public polytechnics offer three-year Higher National Diplomas (HNDs) in applied business and technology fields. The HND is not equivalent to a Bachelor's degree, but undergraduate transfer credit can be awarded, as is also the case for Teacher Training Colleges and other tertiary non-degree programs.

Figure 4.1: Map of Ghana with arrow showing the study area



Source: www.springerimages.com, last sourced 01.04.2015

4.1.2 Background of the University of Ghana

The University of Ghana (UG) is the oldest, largest and most prestigious university in Ghana. It was founded in 1948. It is a public academic institution located at Legon, Accra. It follows the system of governance molded on British institutions of higher learning (Effah *et al.*, 2001). It is a member of the International Association of Universities (IAU), the Association of Commonwealth Universities and the Association of African Universities (OER Africa, 2013). It is managed on bicameral system of governance; the Council and the Academic Bard. The mission of the university is to develop world-class human resources and capabilities of meet national development needs and the global challenges through quality teaching, learning, research and knowledge dissemination (OER Africa, 2013; University of Ghana, 2013).

Currently, the student population of the university is about 29754 (representing male/female ratio of about 2:1). Post-Graduate students are 1816, Bachelors' Degrees students are 26154, Sub-Degrees students are 1784 (University of Ghana, 2013). International students currently enrolled in the University are also 1142. It has 865 Senior Members engaged in research and teaching, 128 Senior Administrative and Professional staff and other affiliate colleges (Gondwe and Walenkamp, 2011). The University has campuses in Legon (main campus), Korle-Bu and Accra City campus.

It awards diploma, bachelor, master and PhD degrees. The academic programmes are organized in colleges and faculties, which house departments, institutes, schools and research centres. The College of Health Sciences (constituted by a medical school, dental school, school of allied health sciences, school of public health, medical research institute, school of nursing , school of pharmacy and a medical research centre. Each school has several departments falling under it (University of Ghana, 2013). The College of Agriculture and Consumer Sciences (is constituted by the school of agriculture which has several departments and research centres under it). There are faculties of arts, law, science, social studies, business and engineering sciences. Each of the faculties is constituted by several departments and some of the faculties additionally have research centres, colleges and institutes falling under them (Gondwe and Walenkamp, 2011).

4.2 Questionnaire development

The study aims to measure what antecedents influence student satisfaction and loyalty. The most appropriate research instrument to use according to Hayes (2000) is questionnaire. The questionnaire developed for this study is based on literature review and pilot study. The findings of studies by Martensen *et al*., (2000), O'Loughlin and Coenders (2002), Østergaard and Kristensen (2005), Parasuraman *et al*., (2005), Helgesen and Nesset (2007b), Brown and Mazzarol (2009), Nesset and Helgesen (2009), Lien *et al*., (2011), Dib and Alnazer (2013) provided the input in developing the questionnaire for this study. See appendix 1 for the final questionnaires administered to the respondents.

The final structured questionnaire, with a seven-point Likert scale ranging from strongly disagree (=1) to strongly agree (=7), was used to gather the data. The questionnaire was in English, the official language of Ghana. The questionnaire consisted of eight sections incorporating scale measurements and demographics. The scales had 41 items and 5 demographic variables. Perceive service quality (PSQ) has 7 items, perceived value (PV) 4 items, student satisfaction (SS) 5 items, facility of the University (FU) 7 items, student loyalty (SL) 7 items, image of the University (IU) 5 items and image of study programme (ISP) 6 items. The 5 demographic variables include gender, age, faculty of the respondents, programme of study and how long the respondent has been a student of the University. Appendix 1 contains the final questionnaire used for the survey.

4.2.1 Pilot study

Pallant (2013) recommends that when distributing a survey, it is prudent to pilot-test first on the sample of respondents who will be used in the main study to ensure that the instructions, questions and scale items are understood. This questionnaire was therefore pilot tested on 20 students of University of Ghana to examine the wording, relevance to the context and ensure that the students understand the questions and respond appropriately (O'Loughlin and Coenders, 2002; Pallant, 2013). Feedback from the pilot study indicated that most of the questions were well understood and relevant to the Ghanaian context. However, there was misunderstanding of the label ID, where students mistook it for their student identification number and therefore were not willing to provide in order to remain anonymous. The feedback was considered and the final questionnaire

administered corrected in order to ensure content validity (Chen and Chen, 2010). To further ensure reliability and validity of the questionnaire, each of the construct used had already reliability (Cronbach's alphas over 0.7) and validity evidence well established (Salkind, 2011). Further validity was ensured by having the content of the questionnaire aligned with the research objectives and context of this study (Vuuren, 2012).

4.3 Data collection

4.3.1 Population and sample size

Most often it is not possible to administer surveys to all customers of an organization when they have tens of thousands of customers as a result of financial, time and other resources limitation. In fact, it may not be necessary to survey all of a company's customers to be able get a reliable picture of their levels of satisfaction or loyalty (Hayes, 2008). Judgement about a large group of customer can be obtained from the observations of a sizeable smaller subset of those customers (Salkind, 2011).

Typically, the large group of customers is referred to as the *population* and the small subset of that group as the *sample* (Hayes, 2008; Salkind, 2011). The procedure of selecting a sample from a population is called *sampling* (Hayes, 2008). In this study, the major goal of sampling is to ensure that the results of the student satisfaction and loyalty questionnaire are representative of the larger population of students of the University of Ghana. University of Ghana has a population of about 29754 students. Simple random sample of 205 students were obtained for the survey. That is, N = 29754 and n = 205.

Sample size is referred to as the size of sample that is enough to ensure generalization to the population from which the sample was drawn (Hair, 2012; Pallant, 2013). According to Hayes (2008), an important feature regarding a chosen sample is the degree of precision of the generalization. If the result cannot be generalized, then it is of small scientific value (Pallant, 2013). Precision can be defined as the degree of sampling error (the amount the sample statistics vary from the population parameter) (Hayes, 2008). The greater the sampling error, the less precision the population parameter estimate will be (Hayes, 2008; Salkind, 2011). Hair *et al*.,

(2014) indicates, "*as a general rule, the minimum of a sample is to have at least five times as many observations as the number of variables to be analysed, and the more acceptable sample size would be 10:1 ratio with some researches proposing the best sample size to be 20:1*". With 8 variables to be analysed in this study, the minimum sample size as proposed by Hair *et al*., (2014) would be 40 (5 multiplied by 8), acceptable 80 (10 multiplied by 8) and best 160 (20 multiplied by 8).

The population of this study comprised of all the students of the University of Ghana main campus in Legon, Accra. Based on the recommendation of Hair *et al*., (2012) and Pallant (2013), there was a need for at most 170 respondents. In total 215 questionnaires were administered with a total valid sample of 205 used for this study. The sample of 205 obtained and used for this study is very good because sampling error is reduced as the sample size is increased (Salkind, 2011). Also, since Multiple Regression Analysis would be used for the data analyses of the survey, a large valid sample is recommended by Stevens (1996) and Hair *et al*., (2014). Large sample size makes the analyses using Multiple Regression feasible. It gives highest cases-per variable ratio which helps to minimise the chances of over fitting the data. And, finally, it reduces sample error and enables generalizabity of the results if the sample is representative (Hair *et al*., 2014).

Though the sample of 205 drawn is a very low percentage (0.7%) of the estimated population (29754), it has been argued that one common misconception is that the adequacy of a sample depends on the proportion of the population included in the sample (Glavee-Geo, 2012). This is debatable according to Fowler (2009) since the size of the population from which a sample is drawn does not have much impact on how well that sample is likely to describe the population, but instead higher response rate with an adequate characteristics of the sample characteristics to that of the population should be considered (Glavee-Geo, 2012).

4.4 Data collection techniques, procedures and analysis

A simple random sampling approach was used and a convenience sampling technique applied to only the students from the main campus of the University of Ghana. The main campus was used because that is where most of the students are and also most of the courses offered by the University taken. To generate a random sample from the population of students, the researcher

first starts by knowing the total number of students enrolled in the University of Ghana (N = 29754). Next, the 205 students were randomly selected as the sample (n = 205) to ensure each student has an equal chance of representing.

From an initial target of 220 respondents, 215 (98%) were obtained of which 205 (93%) was valid. The data was gathered over a month period (Feb/20 – Mar/23, 2015) with the assistant of one other person who was trained on how to administer the questionnaires. The survey was a self-administered, where the respondents read and answered the questions themselves. The number of respondents obtained was found to be satisfactory for the data analysis (Termizer and Turkyilmaz, 2012).

The data collected from the questionnaire were coded, captured and edited. The Statistical Package for Social Sciences (SPSS version 22) was used to analyse the results. The normality of the distribution of the results of each of the scale items was ascertained in order to assess whether parametric or non-parametric tests should be used to test the hypotheses. The distribution of the findings can be regarded as normal if it displays a Skewness of less than an absolute value of 3.0, and kurtosis of the distribution of less than 10.0 (Kline, 2005.). All the scale items that were used for the survey fall within these parameters. Parametric tests were considered suitable for the hypotheses testing because the 205 survey sample is relatively large (Vuuren, 2012). Standard Multiple Regression analysis was considered appropriate to use base on the research objectives (Pallant, 2013). Collinearity statistics and Pearson's correlation coefficient were also calculated (Vuuren, 2012) to find out which of the independent variables has the largest influence on the student satisfaction and student loyalty.

4.5 Measurement development and approach

This section discusses how the various constructs understudied are measured. Previously used scales from other studies are adapted to suit the empirical settings of this study. Some of the items were reformulated slightly different from the ones that were used in the original previous studies (Glavee-Geo, 2015). Also, a few items were developed because there were no appropriate scales available that could capture the peculiar construct. The wording of the items as formulated in the

final questionnaire administered to respondents with respect to the previously used item statement; their sources and the adapted or new question item used in this study are presented next.

4.5.1 Student loyalty

Student loyalty contains an attitudinal and behavioral component (Henning-Thurau *et al*., 2001; Marzo-Navarro *et al*., 2005a). The attitudinal component can be defined as tripartite according to Helgesen and Nesset (2007b), consisting of cognitive, affective and conative elements. The behavior component can be seen as being related to decisions that students make regarding their mobility options (Helgesen and Nesset, 2007b). Helgesen and Nesset (2007b), indicate that student loyalty is not restricted to the period during which students are formally registered but also former loyal students are vital for an educational institution. This study bases measurement of student loyalty on the attitudinal component of the concept such as probability of recommending the university, attending the same university or pursuing further courses at the university and maintaining contact with the university during and after graduation (see table 4.1).

Table 4.1: Questionnaire items for student loyalty

Previously used item statement	**Source**	**Adapted / new item** **Statement**	**Item**
Probability of attending new courses / further education at the university college.	Nesset and Helgesen, 2009	I will attend further education at the University of Ghana after graduating.	SL 1
Probability of attending the same university college if starting from fresh.	Nesset and Helgesen, 2009	If I were to start studying today and had free choice as regards university, I will choose University of Ghana.	SL 2
Maintain contact with faculty and university.	Brown and Mazzarol, 2009	I will maintain close contact with the Faculty / University of Ghana after graduating.	SL 3
I will join the University alumni.	Brown and Mazzarol, 2009	I will join the University of Ghana Alumni Association when I graduate.	SL 4
Probability of recommending the university college to friends /	Nesset and Helgesen, 2009	I will recommend University of Ghana to others.	SL 5

acquaintances.			
-	New	I will recommend my study programme to others.	SL 6
Probability of attending new courses / further education at the university college.	Nesset and Helgesen, 2009	I will attend new courses at the University of Ghana after graduating.	SL 7

4.5.2 Student satisfaction

Customer satisfaction is defined as the overall assessment of the purchases and consumption experience of customers (Johnson and Fornell, 1991; Edvardsson *et al*., 2000). Elliot and Healy (2001) proposed an adaptation of the customer satisfaction concept in education. They indicate that student satisfaction results from the evaluation of their experience with the educational service received. Student satisfaction is influenced by a number of factors, teaching styles by instructors, quality of instructions and promptness of feedback from instructors, interactions with classmates, infrastructural facilities at the institutions among others (Fredericksen *et al*., 2000; DeBourgh, 2003; Stokes, 2003; Helgesen, 2007a). This study bases measurement of student satisfaction on the students' overall and spontaneous satisfaction comparing with the ideal and expectations (see table 4.2).

Table 4.2: Questionnaire items for student satisfaction

Previously used item statement	**Source**	**Adapted / new item Statement**	**Item**
Satisfaction with the university college (spontaneous judgment).	Nesset and Helgesen, 2007b	I am satisfied to be a student of the University of Ghana.	SS 1
Satisfaction with the university college in general.	Nesset and Helgesen, 2007b	I am the satisfied with University of Ghana in general.	SS 2
Satisfaction with the university college compared with ideal one.	Nesset and Helgesen, 2007b	I think that University of Ghana is very close to the	SS 3

		ideal University I imagined.	
Satisfaction with the university college compared with expectations.	Nesset and Helgesen, 2007b	My expectations of University of Ghana are fulfilled.	SS 4
-	New	My expectations of the study programmes are fulfilled.	SS 5

4.5.3 Perceive service quality

Perceived service quality is the evaluation of recent consumption experience of associated services like customer service, condition of product display, range of services, among others (O'Loughlin and Coenders, 2002). According to Brown and Mazzarol (2009), perceived service quality can be categorized into two; "human-ware" (for example, people and process) and "hard-ware" (for example, infrastructure and tangible service elements). In most research there is a split between the "hard-ware" and the "human-ware" (Martensen *et al*., 2000). Relating to HE "hard-ware" also called non-human elements may include study programme, courses provided and support functions such as classrooms, library, computer facilities, equipments, student offices among others (Martensen *et al*., 2000). The "human-ware" which is called the human elements is made up of teaching (academic standard, pedagogical methods and personal contact with teaching staff), personal contact with administrative staff, etc., (Martensen *et al*., 2000). In this research, the measure of perceived service quality combines both the "hard-ware and human-ware" (see table 4.3).

Table 4.3: Questionnaire items for perceived service quality

Previously used item statement	**Source**	**Adapted / new item** **Statement**	**Item**
Please rate the overall quality of customer products and services.	O'Loughlin and Coenders, 2002	I like the overall quality of courses offered in my study programme.	PSQ 1
Please rate the overall quality of	O'Loughlin and	I like the overall quality of	PSQ 2

customer products and services.	Coenders, 2002	facilities at the university.	
Please rate the overall quality of customer products and services.	O'Loughlin and Coenders, 2002	I like the overall quality of study materials being used.	PSQ 3
Satisfaction with professional qualities of lecturers.	Helgesen and Nesset, 2007b	I like the feedback from lecturers.	PSQ 4
Satisfaction with professional qualities of lecturers.	Helgesen and Nesset, 2007b	I like the overall quality of services rendered by the administrative staff.	PSQ 5
The overall quality of services rendered by the administrative staff.	Østergaard and Kristensen, 2005	I like the feedback from lecturers.	PSQ 6
Does the overall quality of services rendered by the administrative staff meet your demand on quality?	Østergaard and Kristensen, 2005	The overall quality of services rendered by the administrative staff meet my demand on quality.	PSQ 7

4.5.4 Perceived value

Customer perceived value is defined as a trade-off between benefits and sacrifices perceived by the customer in a supplier's offering (Zeithaml, 1998). Perceived value can be analyzed with either a self-reported unidimensional measure (Gales, 1994) or a multidimensional scale (Sheth *et al*., 1991; Petrick and Backman, 2002). However, Chen and Chen (2010) indicate that the validity of unidimensional measure is always criticized due to its assumption that consumers have a shared meaning of value. Sheth *et al*., (1991) claim that multidimensional scale can overcome the validity problem by operationalizing perceived value by, for example, a five-dimensional constructs made up of social, emotional, functional, epistemic, and conditional responses. However, in this study, only the self-reported unidimensional measure was used (see table 4.4).

Table 4.4: Questionnaire items for Perceived value (PV)

Previously used item statement	**Source**	**Adapted / new item** **Statement**	**Item**
…in relation to the time spent and other resources used on your studies.	Østergaard and Kristensen, 2005	I have had maximum benefit from studying at the University of Ghana, considering the time and resources spent.	PV 1
Please evaluate the quality you have experienced regarding human relations compared to your expectations.	Østergaard and Kristensen, 2005	The overall quality I have experienced regarding human relations exceeds my expectation.	PV 2
Please evaluate the quality you have experienced regarding non-human relations compared to your expectations.	Østergaard and Kristensen, 2005	The overall quality I have experienced regarding non-human relations exceeds my expectation.	PV 3
-	New	My expectations of University of Ghana are fulfilled.	PV 4

4.5.5 Image and reputation of the university

The student's perception of image and reputation of the HEI is very important regarding attracting and retaining students (Standifird, 2005). Measuring corporate image and its allied construct in this study include the perception of the image of the university compared to competing universities (Torpor, 1983), the internal and external public perception to the university image using the analogous way. Termizer and Turkyilmaz, (2012) advised that it is important that image of HEIs be seen from the eyes of the students. The analogous way assumes that students' perceptions of the image of the university are developed by their perceptions of the external prestige of the University (Helgesen and Nesset, 2007b). See table 4.5 for the questionnaire items for corporate image and allied constructs.

Table 4.5: Questionnaire items for image of the university

Previously used item statement	**Source**	**Adapted / new item** **Statement**	**Item**
-	New	I think University of Ghana is the preferred choice of most students compared to the other universities in Ghana.	IU 1
Perception of the university reputation among students.	Nesset and Helgesen, 2009	I perceive the image of the University of Ghana as good.	IU 2
Perception of the image to your acquaintances.	Dib and Alnazer, 2013	My friends perceive the image of University of Ghana as good.	IU 3
Perception of the image among the employees.	Dib and Alnazer, 2013	I think the employees of the University of Ghana perceive its image as good.	IU 4
Perception of the image among the general public.	Dib and Alnazer, 2013	I think the general public has good perception about the image of the University of Ghana.	IU 5

4.5.6 Image of the study programmes

Researches involving image of study programme in service marketing is relatively few. However, a research by Helgesen and Nesset (2007b) has shown that the image of university study programme is perceived as a different construct by students from the image of the university. In this study, the image of the study programmes is measured first by the student's own perception of the image of the study programmes offered by the University of Ghana and also in the analogous way (Helgesen and Nesset, 2007b). The analogous way assumes that students' perceptions of the image of the programmes of the university are developed by their perceptions of the external prestige of the study programmes (Helgesen and Nesset, 2007b). The questions therefore involve that of student's own perception and the third-party technique or projective questioning (Wilson,

2003). Helgesen and Nesset (2007b) recommend analogous way because the answers to these types of questions usually reflect the opinions of the respondents, taking into consideration various constituencies, thus increasing the reliability and validity of the measurements (see table 4.6).

Table 4.6: Questionnaire items for image of the study programme

Previously used item statement	**Source**	**Adapted / new item** **Statement**	**Item**
-	New	The study programme I am currently pursuing is focused on students' needs.	ISP 1
-	New	The study programme I am currently pursuing is job oriented.	ISP 2
Perception of the university reputation among students.	Nesset and Helgessen, 2009	I perceive the study programme I am currently pursuing has a good image for the job market.	ISP 3
Perception of the image among acquaintances	Dib and Alnezer, 2013	My friends think the study programme I am currently studying has a good image.	ISP 4
Perception of the image among the general public	Dib and Alnezer, 2013	I think the general public has good perception about the study programmes offered by the University of Ghana.	ISP 5
-	New	I think the course subjects I am currently studying are good for personal development.	ISP 6

4.5.7 Facilities of the university

Facilities of HEIs are important to students. They improve the perception of the image of the institution which enhances student enrollment (Jiewanto *et al*., 2012). Facilities of HEIs vary from institution to the other and in different countries. However, they may include international curriculum, high speed internet access, compatible computer laboratory, audio systems in class, library, student offices, lecture rooms, campus book store, catering facilities, and other luxurious ones such as Sports Centres, NBA Basket Ball Courts, swimming pools, Department stores, hospitals among others (Martensen *et al*., 2002; Jiewanto *et al*., 2012). In this study, the measurement of the facility of the university includes the evaluation of the students level of satisfaction with the reading rooms, library, computer services, lecture rooms and their locations, campus cleaning and student accommodation. (see table 4.7).

Table 4.7: Questionnaire items for facilities of the university

Previously used item statement	**Source**	**Adapted / new item** **Statement**	**Item**
Evaluation of the reading rooms	Nesset and Helgesen, 2009	I am satisfied with the reading rooms.	FU 1
Evaluation of the library	Nesset and Helgesen, 2009	I am satisfied with the library.	FU 2
Evaluation of the computer and data services	Nesset and Helgesen, 2009	I am satisfied with the lecture rooms.	FU 3
Satisfaction with the location of the lecture.	Nesset and Helgesen, 2009	I am satisfied with the location of the lecture rooms.	FU 4
Satisfied with the cleaning.	Helgesen and Nesset, 2007b	I am satisfied with the level of cleaning on campus.	FU 5
Evaluation of the computer and data services.	Nesset and Helgesen, 2009	I am satisfied with IT services on campus.	FU 6
-	New	I am satisfied with the student accommodation on campus.	FU 7

CHAPTER 5: MEASUREMENT ASSESSMENT AND DATA VALIDATION

5.0 Introduction

In this chapter, the measurement used for this study is assessed. Also, the data obtained from the respondents is assessed to ensure its reliability and validity for further analyses. First, the data is examined and descriptive statistics analyzed. Secondly, the reliability and validity of the measurements are assessed and discussed. Finally, the factor analysis is done. The chapter ends with a summary of the chapter.

5.1 Data examination and descriptive statistical analysis

The data examination and descriptive statistical analysis are shown in this subsection.

5.1.1 Checking for errors, missing data, outliers and assessing normality

Data examination is a very important initial step in any data analysis. Researchers should never overlook this process. The reasons according to Hair *et al*., (2010) is that though data examination process is time consuming, it helps the researcher to identify and evaluates the impact of missing data, identify outliers and tests for assumptions underlying most multivariate techniques. Missing data often result from errors in data collection, data entry or from the omission of answers by respondents (Hair *et al*., 2010; Salkind, 2011). Outliers are extreme responses that may unduly influence the outcome of any multivariate analysis (Hair et al., 2010). Since multiple regression analysis will be used for this study, it is crucial to assess the assumptions of normality, homoscedasticity, independence of errors, and linearity, and the effect of not remedying missing data and outliers can be enormous.

An examination of the datasets of this research revealed that there were no errors or missing data. However, some of the variables had outliers, how much these outliers can create a problem was checked. The 5% trimmed mean was compared with the mean of the respective variables. There was no significant difference in the means of each of the variables. This means that the outliers

cannot create problems and therefore those cases in the data file were retained (Pallant, 2013). The data was also inspected to see if it is appropriate for further analysis by assessing normality. Some of the variables did not meet the normality assumptions. Kline (2005) suggests that absolute values of skew greater than 3.0 indicate extreme skewness of the distribution while absolute values of kurtosis greater than 10 suggests a problem while values greater than 20 indicates a potentially more serious problems with kurtosis. From table 5.1, it can be seen that absolute values of skewness are less than 3 and that of kurtoses is about 3, far less than the 10 suggested by Kline. Pallant (2013) also confirm that due to the large sample size for this study, 205 (more than 200), this will not create problems. Hence, based on suggestions of Pallant and Kline, it can be argued that there are not much problematic levels of skewness and kurtosis and therefore the data can be said to be sufficiently univariate normally distributed to warrant further analysis.

5.1.2 Description of sample profile

Some important characteristics of sample's demography are outlined. The following statistics are based on the collected data for this study. The sample consists of 205 respondents, which includes 48% male respondents and 52% female respondents. Majority of the respondents' age ranges from 25-45 years old making about 62% of the sample, while the age ranges of less than 25 years old and over 45 years old accounted 38%. Majority of the student respondents have education level of undergraduate and master's level, making up over 69%. In respect of study programmes, 36% of the respondents are studying sciences, 36% studying business and management, and 27% studying courses in arts, laws and social sciences. All the details of statistics above are in Appendix 2.

5.1.3 Descriptive analysis of the study constructs

Descriptive statistics can be used to illustrate the sample used for a study. It is a numerical and graphical method which aims to summarize data (Gaur and Gaur, 2006). Gaur and Gaur show three methods to describe descriptive statistics: measurement of central tendency (mean, median and normality), measurement of variability, and measurement of skewness and kurtosis. Other

important attributes of descriptive statistics include the minimum, maximum, mean and the standard deviations of the variables.

Skewness values indicate the symmetry of distribution. It is important it ranges between -1 and +1 (Pallant, 2013). A negative skewed distribution have low values and tails to left, and a positive one has few large values and tails to right. Kurtosis values indicate the peakness of the distribution (Pallant, 2013). Positive value indicates a relatively peaked distribution and negative values show a flat distribution. If the distribution is perfectly normal, we will have a skewness and kurtosis values of 0, rather an uncommon occurrence in the social sciences (Pallant, 2013).

The result of the descriptive statistics of the variables from this study is presented in table 5.1. The minimum value is 1 and the maximum is 5. Normally, the maximum value should be 7. This means that none of the respondents answered "strongly agree" to any of the question items in the questionnaire. The mean value ranges from 2.92 to 4.23. The standard deviation ranges from 0.691 to 1.372. The descriptive had all of negative skewness values meaning a clustering of scores at the high end (right hand side of the graph). There is a lot of positive kurtosis values indicating that the distribution is rather peaked (clustered in the centre) with long tails. Some of the kurtosis values are negative, that is below 0, indicating that the distribution is relatively flat (too many cases in the extremes).

Table 5.1: Descriptive statistics, skewness and kurtosis of variables understudy

Construct Items	N	Minimum	Maximum	Mean	Std. Dev.	Skewness and Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Skewness	Kurtosis
PSQ1	205	1	5	4,02	,840	-1,240	2,668
PSQ2	205	1	5	3,91	,836	-,902	1,596
PSQ3	205	1	5	3,95	,742	-,858	1,941
PSQ4	205	2	5	4,07	,760	-,394	-,423
PSQ5	205	1	5	3,92	,785	-,714	1,147
PSQ6	205	1	5	3,87	,782	-,581	,893
PSQ7	205	1	5	3,85	,755	-,362	,339
PV1	205	1	5	3,97	,794	-,531	,310
PV2	205	1	5	3,85	,853	-,471	,173
PV3	205	1	5	3,61	,865	-,343	,353
PV4	205	1	5	3,89	,851	-,661	,970
SS1	205	1	5	4,00	1,150	-1,307	1,157
SS2	205	1	5	3,91	1,086	-1,240	1,267
SS3	205	1	5	3,99	,973	-1,294	2,094

SS4	205	1	5	3,80	1,007	-1,015	1,129
SS5	205	1	5	3,83	1,011	-1,129	1,307
FU1	205	2	5	3,88	,816	-,536	-,020
FU2	205	1	5	3,88	,916	-,615	,017
FU3	205	1	5	3,76	,867	-,747	,441
FU4	205	2	5	3,62	,892	-,177	-,684
FU5	205	1	5	3,50	1,087	-,282	-,680
FU6	205	1	5	3,50	1,083	-,544	-,387
FU7	205	1	5	3,33	1,065	-,573	-,471
SL1	205	3	5	4,23	,755	-,408	-1,143
SL2	205	2	5	4,10	,780	-,423	-,550
SL3	205	1	5	4,04	,779	-,571	,737
SL4	205	1	5	4,06	,691	-,438	,835
SL5	205	1	5	4,12	,900	-,763	,120
SL6	205	3	5	4,16	,789	-,285	-1,339
SL7	205	1	5	4,13	,819	-,780	,762
IU1	205	1	5	4,00	,883	-1,026	1,644
IU2	205	1	5	4,04	,822	-,555	,307
IU3	205	1	5	3,96	,901	-,694	,387
IU4	205	1	5	4,00	,894	-,905	1,261
IU5	205	1	5	4,10	,866	-,978	1,433
ISP1	205	1	5	3,71	,971	-,551	-,240
ISP2	205	1	5	4,00	,754	-1,108	2,888
ISP3	205	1	5	3,96	,747	-,651	1,384
ISP4	205	1	5	3,90	,871	-,653	,561
ISP5	205	2	5	4,05	,729	-,466	,083
ISP6	205	2	5	4,07	,786	-,497	-,272

5.2 Reliability and validity of measurements

When questionnaires are developed, it is important to ensure that the data obtained from them reflect reliable and valid information (Hayes, 2008). The subsection discusses the reliability and validity measurement of this study.

5.2.1 Reliability of measurement

Reliability is defined as the extent to which measurements are free from random-error variance (Hayes, 2008). Random errors decreases the reliability of the measurements. There are generally

three types of reliability: test retest reliability, equivalent form reliability and internal consistency (Anastasi, 1988). In this study, the internal consistency reliability with Cronbach's alpha estimate is used.

Internal consistency reliability is concerned with the degree to which the items in the survey are measuring the same thing. If the items are not measuring the same thing then the overall score will be meaningless. The Cronbach's alpha estimate indicates how highly the items in the questionnaires are interrelated. Cronbach's (1951) estimates of reliability is calculated using the variance of individual items and covariances between them. Cronbach's alpha coefficient must be above 0.7 (De Vellis, 2012). The reliability was estimated for all the items measuring each constructs and subsequently for the factors. Items with construct / factor scores less than .40 and cross scores were deleted. The construct should mostly consist of at least three question items in order to achieve reliability. All the construct in this study consists of at least three items. The result shows all reliability coefficient was above 0.7. Finally all the constructs and factors became reliable and therefore ready for further analysis. The overall Cronbach's alpha coefficient for the factors used for the Multiple Regression Analysis of this study obtained was 0.823, which shows a very good internal consistency reliability. The result in the table 5.2 indicates that the measurement items factors have achieved the reliability (see also appendix 3 for the constructs reliability).

Table 5.2: Reliability of factors

Factor	**Items**	**No. of Items**	**Reliability (Cronbach alpha)**
LOYALTY (SL)	SL 5,6,7	3	,781
SATISFACTION (SS)	SS 1,2,3,4,5	5	,899
FACILITY (FU)	FU 1,2,3,4,5	5	,812
IMAGESTUDYPROG (ISP)	ISP 3,4,5,6	4	,759
SERVQUAL (PSQ)	PSQ 1,2,3,4,5	5	,804
VALUE (PV)	PV 1,2,3	3	,738
IMAGEUNI (IU)	IU 1,2,3,4	4	,822

5.2.2 Validity analysis

Validity refers to the degree to which evidence supports the inferences made from scores derived from measures, or the degree to which scales measure what is is designed to measure (Hayes, 2008). It can be attained by aligning the content of the questionnaire with the research objective (Van Tonder and Ehlers, 2011). Some of following activities used by (Vuuren *et al.,* 2012) were adopted and performed to ensure the initial validity and reliability of this study:

- A thorough review of literature to obtain already reliable and valid questionnaire items.
- The questionnaire was therefore adapted to suit the context and objective of the study.
- Self-administered (face-to-face) questionnaire was designed aligning them directly with the research objectives
- The needed adjustments were made to the questionnaire, based on feedback from the pilot studies.
- A large sample size was used to increase the accuracy of the results.

Subsequently after the data had been collected, further analysis of validity was done. Agle and Kelley (2001) classified validity as*: content validity; face validity; criterion related validity; convergent validity; discriminate validity and constructs validity*. In this study, further convergent and discriminant validity were performed.

5.2.2.1 Convergent validity

Hair *et al.,* (2010) refer to convergent validity as the extent to which indicators of a specific construct converges or share a high proportion of variance in common. To assess the convergent validity of the model, loading and cross loading from the factor analyses is used. In order to establish convergent validity as recommended by Hair *et al.,* (2010), the indicators of a specific construct must converge or share a high proportion of variance in common. As shown by the table 5.3, loadings for each construct converges or share a high proportions of variance in common, making the cross loading for each construct less than main loadings of each construct. As shown in

table 5.3, the indicators of each specific construct converges clearly and therefore convergent validity is established.

Table 5.3: Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
SS1	**,805**		,187		,065	,245	
SS2	**,816**	-,133	,072	,136	,111	,100	
SS3	**,837**	,106	,165			,104	,056
SS4	**,872**	,169				-,105	,159
SS5	**,815**	,080		,162	,085	,085	,119
FU1	,070	**,757**	,118	,090	,046	,144	,133
FU2	,083	**,795**	,081	,115	-,079	,155	
FU3	,047	**,809**		-,153	,074	,069	-,111
FU4		**,754**	-,128		,108	-,233	
FU5		**,612**	,102	,349	,169	-,065	,213
PSQ1			**,740**	,084	,145	,199	,066
PSQ2	,116		**,742**	,161		-,045	,166
PSQ3	,056	-,041	**,730**	-,077		-,109	,124
PSQ4	,121	,063	**,766**	,057	,088	,151	
PSQ5		,090	**,689**		,121	,175	-,065
IU1	-,042	,147		**,802**	,083		,118
IU2	,161	,164	,066	**,810**		,050	
IU3	,086	-,070		**,857**	,057	,153	-,060
IU4	,109		,047	**,660**	,193	,197	-,067
ISP3	,145	,055	,042	,174	**,673**	,068	,155
ISP4	-,084	,042			**,794**	,110	,141
ISP5	,076		,168		**,797**	,048	-,102
ISP6	,117	,122	,079	,166	**,695**	,117	-,200
SL5	,144	-,118	,119	,162	,165	**,766**	
SL6	,084	,110	,122	,069	,112	**,814**	,163
SL7	,121	,104	,070	,111	,068	**,747**	,175
PV1	,091	,176	,139	,067	,050	,284	**,664**
PV2	,076	,057	,080	-,120		,065	**,861**
PV3	,118	-,060	,057	,075			**,766**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

5.2.2.2 *Discriminant validity*

Fornell and Larcker (1981) suggest that Discriminant validity is the degree to which a latent variable discriminates compare with the others latent variables. Agle and Kelley (2001) suggest that is the ability in which the measures are different, not correlating between them. Discriminant validity was assessed by using Average Variance Extracted (AVE) and Shared Variance Test (Fornell and Larcker, 1981).

As shown in table 5.4, the AVE is compared with shared variance amongst the constructs. For example the AVE for SATISFACTION is 0.687 and the AVE for SERVQUAL is 0.538, the correlation between them is 0.218, the squared correlation is 0.048. AVE for SATISFACTION > 0.048, AVE for SERVQUAL > 0.048, therefore the Discriminant validity was established between this two construct. In this way because AVE for each construct is found to be greater than shared variance (squared correlation). Hence Discriminant validity is achieved.

Similarly, as shown in table 5.5, the AVE is compared with shared variance amongst the constructs. For example the AVE for LOYALTY is 0.602 and the AVE for SERVQUAL is 0.538, the correlation between them is 0.313, the squared correlation is 0.097. AVE for LOYALTY > 0.097, AVE for SERVQUAL > 0.097, therefore the Discriminant validity was established between this two construct. In this way because AVE for each construct is found to be greater than shared variance (squared correlation). Hence Discriminant validity is achieved.

Table 5.4: Discriminant validity: Squared inter construct correlation (R^2) and Average Variance Extracted (AVE), dependent variable is SATISFACTION

Factor		**1**	**2**	**3**	**4**	**5**	**6**
SATISFACTION	**(1)**	1	0.048	0.065	0.015	0.018	0.035
SERVQUAL	**(2)**		1	0.085	0.007	0.039	0.045
VALUE	**(3)**			1	0.041	0.008	0.006
FACILITY	**(4)**				1	0.023	0.114
IMAGESTUDYPROG	**(5)**					1	0.037
IMAGEUNI	**(6)**						1
AVE		**0.687**	**0.538**	**0.590**	**0.560**	**0.550**	**0.617**
Mean		**3.906**	**4.002**	**3.83**	**3.444**	**4.008**	**4.019**
Std. Deviation		**0.884**	**0.665**	**0.62**	**0.903**	**0.644**	**0.674**

Table 5.5: Discriminant validity: Squared inter construct correlation (R^2) and Average Variance Extracted (AVE), dependent variable is LOYALTY

Factor		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
LOYALTY	**(1)**	1	0.097	0.114	0.093	0.085	0.048	0.045	0.027
SERVQUAL	**(2)**		1	0.085	0.044	0.047	0.001	0.000	0.423
VALUE	**(3)**			1	0.006	0.064	0.005	0.000	0.212
IMAGEUNI	**(4)**				1	0.034	0.017	0.005	0.903
SATISFACTION	**(5)**					1	0.005	0.006	0.030
Age	**(6)**						1	0.021	0.064
Gender	**(7)**							1	0.050
Length of study	**(8)**								1
AVE		**0.602**	**0.538**	**0.590**	**0.617**	**0.687**	**-**	**-**	**-**
Mean		**4.157**	**4.002**	**3.83**	**4.02**	**3.906**	**2.01**	**1.52**	**3.29**
Std. Deviation		**0.62**	**0.665**	**0.62**	**0.674**	**0.884**	**0.863**	**0.501**	**0.729**

5.3 Exploratory Factor Analysis

Factor analysis is an interdependence (identification of structure) technique with the primary purpose of defining the underlying structure among the variables in the analysis. Factor analysis is used in multivariate technique where the variables become correlated and the researcher need ways in which to manage these variables / grouping highly correlated variables together, labelling or naming the groups, and perhaps even creating a new composite measure that can represent each group of variables (Pallant, 2013). There are two types of factor analysis, Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA).

CFA is a way of testing how well variables measured represent a number of constructs (Hair *et al*., 2010). EFA explores the data and provides the researcher with information about how many factors are needed to best represent the data (Hair *et al*., 2010).With EFA, all measured variables are related to every factor by a factor loading estimate. The distinct feature of EFA is that factors are derived from statistical results, not from theory. This means that the researcher runs the SPSS software and lets the underlying pattern of the data determine the factors (Hair *et al*., 2010).

Exploratory factor analysis using SPSS Version 22 was run with all the 41 items. The initial factors with all the 41indicators were 12 with some cross loading. The anti-image metrix (the diagonal values with the standardized person correlation values) should all be more than 0.5. However, evaluation of the anti-image metrix had some values less than 05 and were therefore removed. Also from the communalities table, all the extraction values should be above 0.6, although values more than 0.5 are accepted. Communality values less than 0.5 were also removed. The model was ran and finally seven factors were obtained with 29 indicators having all the anti-image metrix values above 0.5 and all communalities values are above 0.5 (see appendix 4c)

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value needs to be more than 0.7 but less than 0.9 (Tabachnick and Fidell, 2013), and the Bartlett`s Test of Sphericity value should be significant (i.e the Sig. value should be 0.05 or less) (Tabachnick and Fidell, 2013). As shown by the result of appendix 4b, KMO is 0.749, more than the required 0.7 and the Bartlett`s Test of Sphericity value is significant at 0.000, therefore factor analysis is appropriate. Appendixe 4d, shows the Total Variance Explained. From the appendix 4d, only the first seven of the components recorded eigenvalues above 1, see initial eigenvalue column. These seven components explain a total of 66.5% of the variance (see cumulative % column). Extraction method (Principal Components Analysis) and rotation method (Varimax with Kaizer Normalization) used showed seven factors (see table 5.6 and appendix 4e). Component Correlation Matrix shows weak correlations (are not so many above 0.3).

The factors that emerge are named as follows: Factor 1, SATISFACTION is made of 5 variables; factor 2, FACILITY is made of 5 variables; factor 3, SERVQUAL is made of 5 variables; factor 4, IMAGEUNI is made of 4 variables; factor 5, IMAGESTUDYPROG is made up of 4 variables; factor 6, LOYALTY is made of 3 variables and factor 7, VALUE is made of 3 variables. Cronbach's alpha for the whole variables should be above 0.7 and this one is 0.792, suggesting very good internal consistency reliability for the variables used.

Table 5.6: Indicators with factor loadings

Indicator	Factor loadings
I am satisfied to be a student of University of Ghana (SS 1)	.805
I am satisfied with University of Ghana in general (SS 2)	.816
I think that University of Ghana is very close to the ideal University I imagined (SS 3)	.837
My expectations of University of Ghana are fulfilled (SS 4)	.872
My expectations of the study programmes are fulfilled (SS 5)	.815
I am satisfied with the reading rooms (FU 1)	.757
I am satisfied with the library (FU 2)	.795
I am satisfied with the lecture rooms (FU 3)	.809
I am satisfied with the location of the lecture rooms (FU 4)	.754
I am satisfied with the level of cleaning on campus (FU 5)	.612
I like the overall quality of offered in my study programme (PSQ 1)	.740
I like the overall quality of the facilities in the University (PSQ 2)	.742
I like the overall quality of the study materials being used (PSQ 3)	.730
I like the overall professional qualities of the lecturers (PSQ 4)	.766
I like the quality of the feedback from the lecturers (PSQ 5)	.689
I think University of Ghana is the preferred choice of most students compared to other universities in Ghana (IU 1)	.802
I perceive the image of the University of Ghana as good (IU 2)	.810
My friends perceive the image of the University of Ghana as good (IU 3)	.857
I think the employees of the of Ghana perceive its image as good (IU 4)	.660
I perceive the study programme I am currently pursuing has a good image for the job market (ISP 3)	.673

My friends think the study programme I am currently studying has a good image (ISP 4)	.794
I think the general public has good perception about the study programmes offered by the University of Ghana (ISP 5)	.797
I think the course subjects I am currently studying are good for personal development (ISP 6)	.695
I will recommend University of Ghana to others (SL 5)	.766
I will recommend my study programme to others (SL 6)	.814
I will attend new courses at the University of Ghana after graduating (SL 7)	.747
I have had maximum benefit from studying at the University of Ghana, considering the time and resources spent (PV 1)	.664
The overall quality I have experienced regarding human relations exceeds my expectation (PV 2)	.861
The overall quality I have experienced regarding non-human relations exceeds my expectation (PV 3)	.766

CHAPTER 6: DATA ANALYSIS AND EMPIRICAL FINDINGS

6.0 Introduction

In previous chapter, we presented descriptive statistics, data examination and also discussed the reliability and validity of the measures. In this chapter we apply the standard multiple regression, which is an Ordinal Least Square (OLS) estimation technique to present our empirical findings of this research.

6.1 Multiple Regression Model Estimations

An Ordinal Least Square (OLS) regression models was estimated using SPSS statistical software. Two regression models are estimated for this study. Regression model 1 shows a relationship between dependent variable, Student satisfaction (SATISFACTION); and the independent variables perceive service quality (SERVQUAL); perceive value (VAUE); facility of the university (FACILITY); image of the study programmes (IMAGESTUDYPROG) and image of the university (IMAGEUNI).

Regression model 2 shows the relationship among the dependent variable, Student loyalty (LOYALTY); the independent variables perceive service quality (SERVQUAL); perceive value (VAUE); image of the university (IMAGEUNI); student satisfaction (SATISFACTION); and control variables; Age; Gender and Length of studying at the university. In model this model, SATISFACTION which was a dependent variable in equation 1, becomes an independent variable in equation 2. The two models are given by the equations:

$$\textbf{SATISFACTION} = b_o + b_1\text{SERVQUAL} + b_2\text{VALUE} + b_3\text{FACILITY} + b_4\text{IMAGESTUDYPROG}$$
$$b_5\text{IMAGEUNI} + \acute{\varepsilon}$$

$$\textbf{LOYALTY} = b_o + b_1\text{SERVQUAL} + b_2\text{VALUE} + b_3\text{IMAGEUNI} + b_4\text{SATISFACTION} + b_5\text{Age}$$
$$+ b_6\text{Gender} + b_7\text{Length of studying at the university} + \acute{\varepsilon}$$

Where:

b_o	Constant
Dependent variables:	
LOYALTY	Student loyalty
SATISFACTION	Student satisfaction
Independent variables:	
SATISFACTION	Student satisfaction
FACILITY	Facility of the university
IMAGESTUDYPROG	Image of the study programmes
SERVQUAL	Perceive service quality
VALUE	Perceive value
IMAGESUNI	Image of the university
ε	Error term
Control variables:	
Age	Age of the respondents
Gender	Gender of the respondents
Length of study	How long the respondent has been studying at the university

6.2 Multiple Regression Analysis

Two standard multiple regressions were made by following the steps indicated by Pallant (2013). In each of the standard multiple regression, all the independent (or predictor) variables are entered into the equation simultaneously (Pallant 2013). The interpretation of the output from standard multiple regression is also made by following the steps from Pallant (2013). Results from the linear multiple regression analysis technique is shown in the following Table 6.3. The Tables also includes values of Tolerance and the Variance inflation factor (VIF) which were used to examine multi-collinearity. The result indicates there is no high inter-correlations between the independent variables. Because all of the tolerance value of variables are greater than .10. Appendix 5c, 5k, 5d, 5l, 5e, 5m, 5f, 5g, 5h, 5n, 5o and 5p presents the SPSS output model summary, ANOVA, Coefficients, SATISFACTION and LOYALTY Histogram, normal P-P plot and Scatterplot of student satisfaction and loyalty.

Multicollinearity is assessed in SPSS by using Collinearity Diagnostics. The results are put in the Table Coefficients in two values Tolerance and VIF. (See tables 6.1-4 and appendices 5b and 5j).Tolerance indicator show how much from the variability of the specified independent is not explained by the other independent variables. Because the values in both regressions are bigger than 0.10 means that multiple correlation with other variable is low and VIF which is the inverse of the Tolerance values have values above 0.10 in both cases, means the multicollinearity assumption is not violated in both regressions.

6.2.1 Assessment of regression model 1: Dependent variable: SATISFACTION

An overall assessment of the model, based on "p-value" from ANOVA (See the Appendix 5d) is significant at p< .001 (P = 0.000, which is very good), ($R^2 = .110,\ R^2adj = .088,\ F = 4.924$), means that 8.8% of the variance SATISFACTION is explained by the independent variables and the rest is represented by non-included variables. R square (R^2), the correlation coefficient also called the *coefficient of determination* indicates the percentage of total variation of SATISFACTION explained by the regression model consisting of the seven factors. $R^2 = .110$ indicates that the regression model explains 11.0% of the variance in the student satisfaction (SATISFACTION). This is quite a respectable result according to Pallant (2013) when it is compared to some of the results reported in journals. The final estimated model becomes:

SATISFACTION = 1.128 + 0.159(SERVQUAL) + 0.284(VALUE) + 0.021(FACILITY) +
0.078(IMAGESTUDYPROG) + 0167(IMAGEUNI)

The result, based on the significant p – value from ANOVA output, presented in in table 6.2 and appendix 5d, show three antecedents of student satisfaction out of the five are significant. Perceive service quality (SERVQUAL) at t = 1.655, ($R^2 = .110,\ R^2adj = .088,\ F = 4.924$), can be considered as significant at 0.05 one-tail, perceive value (VALUE) at t = 2.797, ($R^2 = .110,\ R^2adj = .088,\ F = 4.924$), can be considered as significant at 0.01 two-tail, image of the university (IMAGEUNI) at t = 1.743, ($R^2 = .110,\ R^2adj = .088,\ F = 4.924$), is considered as significant at 0.05 one-tail.

The other two antecedents of student satisfaction are not-significant. These are facilities of the university (FACILITIES) at t = 0.291, ($R^2 = .110,\ R^2adj = .088,\ F = 4.924$), is considered as non-significant at 0.05 and image of the study programme (IMAGESTUDYPROG) at t = 0.809, ($R^2 = .110,\ R^2adj = .088,\ F = 4.924$), is also considered as non-significant at 0.05 one-tail.

Table 6.1: Regression analysis: Dependent variable for student satisfaction (SATISFACTION)

Linear multiple regression model	**Independent variables**	**Unstandardized Coefficients (Standardized Beta)**	**t-value**	**Tolerance (VIF)**
Model	**Constant b_0**	**0.128**	**1.910**	
	SERVQUAL b_1	**0.159 (0.120)**	**1.655***	**0.857(1.167)**
	VALUE b_2	**0.248 (0.199)**	**2.797****	**0.881(1.136)**
	FACILITY b_3	**0.021 (0.021)**	**0.291**	**0.847(1.181)**
R^2=.110	**IMAGESTUDYPROG b_4**	**0.078 (0.056)**	**0.809**	**0.929(1.077)**
	IMAGEUNI b_5	**0.167 (0.127)**	**1.743***	**0.837(1.197)**

* P<0.05 t – values greater than 1.65 are significant at 0.05 one – tail

** p<0.01 t – values greater than 2.78 are significant at 0.01 two – tail

*** p<0.001 t – values greater than 3.50 are significant at 0.001 two – tail

6.2.2 Correlation Matrix of student satisfaction

The result shows that perceive service quality (SERVQUAL), perceive value (VALUE), image of the university (IMAGEUNI), facilities of the university (FACILITY) and image of the study programme (IMAGESTUDYPROG) are all significantly related to student satisfaction (SATISFACTION) regarding interaction effect (see table 6.2 and Appendix 5b)

Table 6.2: Correlation Matrix

Factor		1	2	3	4	5	6
SATISFACTION	**(1)**	1	0.218**	0.254***	0.123*	0.136*	0.187**
SERVQUAL	**(2)**		1	0.292***	0.081	0.198**	0.212**
VALUE	**(3)**			1	0.202**	0.092	0.08
FACILITY	**(4)**				1	0.150*	0.338***
IMAGESTUDYPROG	**(5)**					1	0.193**
IMAGEUNI	**(6)**						1
Mean		**3.906**	**4.002**	**3.83**	**3.444**	**4.008**	**4.019**
Std. Deviation		**0.884**	**0.665**	**0.62**	**0.903**	**0.644**	**0.674**

*** Correlation is significant at the 0.001 level (2-tailed)

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

* Correlation is significant at the 0.05 level (1-tailed)

6.2.3 Assessment of regression model 2: Dependent variable: LOYALTY

An overall assessment of the model, based on "p-value" from ANOVA (See the Appendix 7b) is significant at p< .001 (P = 0.000, which is very good), (R^2 = *.305, R^2 adj = .281, F = 13.363*), means that 28.1% of the variance LOYALTY is explained by the independent variables and the rest is represented by non-included variables. R square (R^2), the correlation coefficient also called the *coefficient of determination* indicates the percentage of total variation of LOYALTY explained by the regression model consisting of the seven factors. R^2 = .305 indicates that the regression model explains 30.5% of the variance in the student loyalty (LOYALTY). This is a respectable result according to Pallant (2013) when it is compared to some of the results reported in journals. The final estimated model using standardized coefficient beta becomes:

LOYALTY= 0.801 + 0.164(SERVQUAL) + 0.230(VALUE) + 0.172(IMAGEUNI) + 0.101(SATISFACTION) + 0.082(Age) + 0.176(Gender) + 0.093(Length of study)

The result, based on the significant p – value from ANOVA output, presented in table 6.3 and Appendix 5l shows all the four antecedents of student loyalty and all the three control variables are significant. Perceive service quality (SERVQUAL) at t = 2.740, (R^2 = *.305, R^2 adj = .281, F =*

13.363), can be considered as significant at 0.05 one-tail, perceive value (VALUE) at t = 3.610, (*R^2 = .305, R^2 adj = .281, F = 13.363*), can be considered as significant at 0.001 two-tail, image of the university (IMAGEUNI) at t = 3.001, (*R^2 = .305, R^2 adj = .281, F = 13.363*), is considered as significant at 0.01 two-tail and student satisfaction (SATISFACTION) at t = 2.278, (*R^2 = .305, R^2 adj = .281, F = 13.363*), can be considered as significant at 0.05 one-tail.

Age of the respondents (Age) at t = 1.826, (*R^2 = .305, R^2 adj = .281, F = 13.363*), can be considered as significant at 0.05 one-tail, Gender of the respondents (Gender) at t = 2.309, (*R^2 = .305, R^2 adj = .281, F = 13.363*), can be considered as significant at 0.05 two-tail and finally how long the respondent has been studying at the university (Length of study) at t = 1.736, (*R^2 = .305, R^2 adj = .281, F = 13.363*), can be considered as significant at 0.05 one-tail.

Table 6.3: Regression analysis: Dependent variable for student loyalty (LOYALTY)

Linear multiple regression model	**Independent variables**	**Unstandardized Coefficients (Standardized Beta)**	**t-value**	**Tolerance (VIF)**
	Constant b_0	**0.801**	**2.109**	
	SERVQUAL b_1	**0.164 (0.175)**	**2.740***	**0.860(1.162)**
Model	**VALUE b_2**	**0.230 (0.230)**	**3.610*****	**0.872(1.147)**
	IMAGEUNI b_3	**0.172 (0.187)**	**3.001****	**0.913(1.096)**
R^2=.305	**SATISFACTION b_4**	**0.101 (0.144)**	**2.278***	**0.887(1.127)**
	Age b_5	**0.082 (0.114)**	**1.826***	**0.909(1.100)**
	Gender b_6	**0.176 (0.142)**	**2.309[e]**	**0.934(1.071)**
	Length of study b_7	**0.093 (0.109)**	**1.736***	**0.887(1.128)**

* P<0.05 t – values greater than 1.65 are significant at 0.05 one – tail

e P<0.05 t – values greater than 1.96 are significant at 0.05 two – tail

** p<0.01 t – values greater than 2.78 are significant at 0.01 two – tail

*** p<0.001 t – values greater than 3.50 are significant at 0.001 two – tail

6.2.4 Correlation Matrix of student loyalty

The result shows that perceive service quality (SERVQUAL), perceive value (VALUE), image of the university (IMAGEUNI) and student satisfaction (SATISFACTION) are significantly related to student loyalty (LOYALTY) regarding interaction effect (see table 6.4 and appendix 5j).

Table 6.4: Correlation Matrix

Factor		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
LOYALTY	**(1)**	1	0.313***	0.338***	0.305***	0.293***	0.221**	0.216**	0.163**
SERVQUAL	**(2)**		1	0.292**	0.212**	0.218**	0.037	0.022	-0.65
VALUE	**(3)**			1	0.08	0.254***	0.076	0.012	-0.46
IMAGEUNI	**(4)**				1	0.187**	0.134	0.076	0.95
SATISFACTION	**(5)**					1	0.071*	0.082	-0.17
Age	**(6)**						1	0.147**	0.252***
Gender	**(7)**							1	0.224**
Length of study	**(8)**								1
Mean		**4.157**	**4.002**	**3.83**	**4.02**	**3.906**	**2.01**	**1.52**	**3.29**
Std. Deviation		**0.62**	**0.665**	**0.62**	**0.674**	**0.884**	**0.863**	**0.501**	**0.729**

*** Correlation is significant at the 0.001 level (2-tailed)

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

* Correlation is significant at the 0.05 level (1-tailed)

6.3 Hypotheses testing

Nine hypotheses were presented. These hypotheses were tested by using the Multiple Regression Analysis in SPSS. The nine hypotheses presented below.

Hypotheses H1

Looking at Regression analysis Table 6.3 and Appendix Coefficients output 5m we see that b_1SERVQUAL= 0.164, t = 2.740, $p<0.05$ one – tail, presents a positive association, is supported by the statistical regression and is significant.

Hypotheses H2

Looking at Regression analysis Table 6.1 and Appendix Coefficients output 5e we see that b_1SERVQUAL= 0.159, t = 1.655, p<0.05 one – tail, presents a positive association, is supported by the statistical regression and is significant.

Hypotheses H3

Looking at Regression analysis Table 6.3 and Appendix Coefficients output 5m we see that b_2VALUE = 0.230, t = 3.610, p<0.001 two – tail, presents a positive association, is supported by the statistical regression and is significant.

Hypotheses H4

Looking at Regression analysis Table 6.1 and Appendix Coefficients output 5e we see that b_2VALUE = 0.248, t = 2.797, p<0.01 two – tail, presents a positive association, is supported by the statistical regression and is significant.

Hypotheses H5

Looking at Regression analysis Table 6.1 and Appendix Coefficients output 5e we see that b_3FACILITY = 0.021, t = 0.291, p>0.05 one – tail, presents a not positive association, not supported by the statistical regression and is non-significant.

Hypotheses H6

Looking at Regression analysis Table 6.1 and Appendix Coefficients output 5e we see that b_4IMAGESTUDYPROG = 0.078, t = 0.809, p>0.05 one – tail, presents a not positive association, not supported by the statistical regression and is non-significant.

Hypotheses H7

Looking at Regression analysis Table 6.1 and Appendix Coefficients output 5e we see that b_5IMAGESUNI = 0.167, t = 1.743, p<0.05 one-tail, presents a positive association, and is supported by the statistical regression.

Hypotheses H8

Looking at Regression analysis Table 6.3 and Appendix Coefficients output 5m we see that b_3IMAGESUNI = 0.172, t = 3.001, p<0.01 two-tail, presents a positive association, and is supported by the statistical regression.

Hypotheses H9

Looking at Regression analysis Table 6.3 and Appendix Coefficients output 5m we see that b_4SATISFACTION = 0.101, t = 2.278, p<0.05 one – tail, presents a positive association, is supported by the statistical regression and is significant.

6.4 Assessing outliers, normality, homoscedasticity and independence of residuals

Looking at the Table Normal P-P Plot of student satisfaction (SATISFACTION) we see that not all the points lie in a reasonably straight diagonal line from the bottom left to the top right, which suggest there may be some deviation from normality. (See Appendix 5g) A look at the Scatter plot of standardised residuals we see that not almost all the score concentrate in the centre. Also Scatter plot is presented in Appendix 5h and this does not sure a major deviation. Outliers also have the standardised residuals within the -3, 3 and 3, 3. Outliers can be checked by inspecting the Mahalanobis distance and this shows minor outliers with no significant effect. All these tests suggest that assumptions concerning residuals being normally distributed, linearity, normality, no significant outliers and no problem with multicollinearity have been met. Hence results of the multiple regression of the student satisfaction can be interpreted accordingly.

Finally, looking at the Table Normal P-P Plot of student loyalty (LOYALTY) which is the ultimate dependent variable in the model, we see that all the points lie in a reasonably straight diagonal line from the bottom left to the top right, which suggest no major deviation from normality. (See Appendix 5o) A look at the Scatter plot of standardised residuals we see that almost all the score concentrate in the centre. Also Scatter plot is presented in Appendix 5p. Also outliers also have the standardised residuals within the -3, 3 and 3, 3. Outliers can be checked by inspecting the Mahalanobis distance. All these tests suggest that assumptions concerning residuals being

normally distributed, linearity, normality, no significant outliers and no problem with multicollinearity have been met. Hence results of the multiple regression can be interpreted accordingly.

CHAPTER 7: DISCUSSION AND CONCLUSION

7.0 Introduction

The discussion and conclusion of this study is presented in this chapter. The chapter begins with a summary of the findings, the discussion and conclusions, and followed by the implications and suggestions for further research. The chapter ends with the limitations of the study and suggestions for future studies.

7.1 Summary of findings

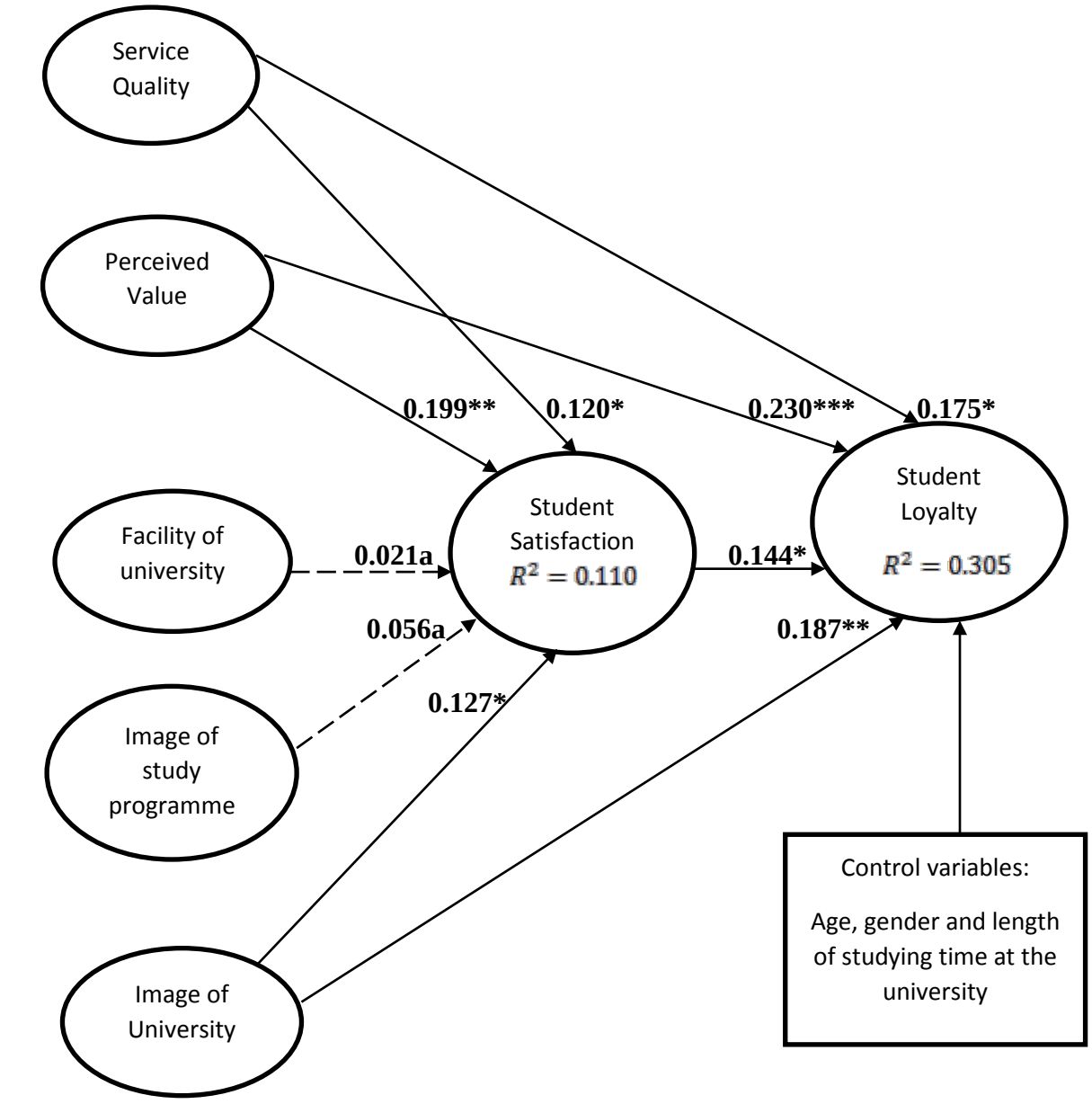
The purpose of this research is to analyze the antecedents of student satisfaction and loyalty to HEIs in Ghana, using the University of Ghana (UG) as an empirical setting. The empirical result supports seven out of the nine hypotheses. All the control variables; age, gender and length of study were also supported. In respect to the control variables, the findings indicate that the students are more loyal to the university as they grow, females are more loyal to the university than their male counterparts and, the longer the students study at the university, the more loyal they become. The table 7.1 shows the summary of the findings. Figure 7.1 shows the results of the final model showing what the relationships between the antecedents of student satisfaction and loyalty are.

Table 7.1: A summary of the hypotheses

Hypotheses	Association between variables	Hypothesize effect	Findings
H1:	Perceive service quality is positively associated with student loyalty.	+*	Supported
H2:	Perceive service quality is positively associated with student satisfaction.	+*	Supported
H3:	Perceive value is positively associated with student loyalty.	+***	Supported
H4:	Perceive value is positively associated with student satisfaction.	+**	Supported
H5:	Facility of the university is positively associated with student satisfaction.	+[a]	Not supported
H6:	Image of the study programme is positively associated with student satisfaction.	+[a]	Not supported
H7:	Image of the university is positively associated with student satisfaction.	+*	Supported
H8:	Image of the university is positively associated with student loyalty.	+**	Supported
H9:	Student satisfaction is positively associated with student loyalty.	+*	Supported

* P<0.05 (1-tail) ** p<0.01 (2-tail) *** p<0.001 (2-tail) [a] p>0.05 (2-tail)

Figure 7.1: Final results of research model



* P<0.05 (1-tail) ** p<0.01 (2-tail) *** p<0.001 (2-tail) [a] p>0.05 (2-tail)

7.2 Discussions of results

The discussion of the results attempts to answer the four research questions of the study.

7.2.1 What are the relationships between the student satisfaction and its antecedents?

Perceived service quality is hypothesized (H2) to be positively related to student satisfaction. The findings of this study supports that there a positive relationship between the perceive service quality of the University of Ghana and their student satisfaction to the university. This means that the extent to which students perceive the quality of services rendered by the university positively influence their level of satisfaction. This finding is consistent with other research. For example, a study by Jiewanto *et al*., (2012) showed that service quality has a positive impact on students' satisfaction and also the results of Browne *et al*., (1998), Guolla (1999), Marzo-Navarro *et al*., (2005b) and Wiers-Jenssen *et al*., (2002) showed that a positive perception of service quality can lead to student satisfaction.

Perceive value is hypothesized (H4) to be positively related to student satisfaction. The findings of this study supports that there a positive relationship between the value the students perceive and their level of satisfaction of the university. This means that the higher the students perceive value, the more satisfied they will be to the University of Ghana. This finding is consistent with other empirical studies conducted by Yang and Peterson, (2004), Walter *et al*., (2002), Helgesen and Nesset (2007b), among others.

Facilities of the university of Ghana is hypothesized (H5) to be positively related to student satisfaction. Even though, a study by Helgesen and Nesset (2007) show that facility loaded significantly on student satisfaction, the findings of this study could not confirm that there a positive relationship between the facilities of the university and their student satisfaction.

Image of the study programme of the university of Ghana is hypothesized (H6) to be positively related to student satisfaction. However, the findings of this study could not confirm that there is a positive relationship between the image of the study programme of the University of Ghana and their student satisfaction. This means that our earlier notion in Chapter 2, that image of the study

programme could have a direct positive influence on student satisfaction is not empirically supported by this research.

Image of the university of Ghana is hypothesized (H7) to be positively related to student satisfaction. The findings of this study supports that there a positive relationship between the image of the university of Ghana and their level of satisfaction to the university. This means that the higher the image of the University of Ghana, the more satisfied the students will be to the University of Ghana. The finding of this research is consistent with other empirical studies conducted within the HEI sector by Dib and Alnazer (2013) and Termizer and Turkyilmaz, (2012).

7.2.2 Which of the antecedents most influence the student satisfaction?

As shown in the final model of table 7.1 and figure 7.1, three out of the five antecedent factors of student satisfaction were statistically significant. The antecedents with the most influence on student satisfaction is perceive value recording the highest standardized beta value (beta = 0.199). The second most influential antecedents is the image of the university, recording a standardized beta value (beta = 0.127). The third most influential antecedents is perceive service quality of the university, recording a standardized beta value (beta = 0.120).

However, image of the study programme (standardized beta = 0.056) and facility of the university (standardized beta = 0.021) were statistically not significant and therefore do not have any statistical influence on student satisfaction.

7.2.3 What are the relationships between the student loyalty and its antecedents?

Student loyalty could be said to have several antecedents. In this study, four antecedents: perceive service quality, perceive value, image of the university and student satisfactions are hypothesized to have a positive relationship with student loyalty. As shown by table 7.1, all the fours antecedents are positively related to student loyalty.

Perceived service quality is hypothesized (H1) to be positively related to student loyalty. The findings of this study confirm that there a positive relationship between the perceive service quality of the University of Ghana and their student loyalty to the university. This means that how students perceive the quality of services rendered by the university positively influence their loyalty to the university. This finding is consistent with studies by Browne *et al*., (1998), Guolla (1999), Marzo-Navarro *et al*., (2005b) and Wiers-Jenssen *et al*., (2002).

Perceive value is hypothesized (H3) to be positively related to student loyalty. The findings of this study confirms that there a positive relationship between the perceive value of the students and their loyalty to the university. This means that the higher the students perceive value, the more loyal they will be to the University of Ghana. This finding is consistent with other empirical studies. For example, empirical studies by Zeithaml (1998) and Dodds *et al*., (1991) show that customer perceived value directly and positively affect customer loyalty.

Image of the university of Ghana is hypothesized (H8) to be positively related to student loyalty. The findings of this study confirms that there a positive relationship between the image of the university of Ghana and their loyalty to the university. This means that the higher the image of the University of Ghana, the more loyal students will be to the University of Ghana. Empirical study in Higher Education Institution shows the same results. A study by Temizer and Turkyilmaz (2012) published by Elsevier Ltd in *Procedia Social and Behavioral Sciences* shows that image of the university is positively related to the student loyalty.

Student satisfaction is hypothesized (H9) to be positively related to student loyalty. The findings of this study confirms that there a positive relationship between the satisfaction of the students of the University of Ghana and their loyalty to the university. This means that the higher the student satisfaction, the more loyal they will be to the University of Ghana. The results of this study is in accordance with several empirical research in service marketing. For example, Abd-El-Salem et al., (2013) study in the banking sector showed that customer satisfaction and customer loyalty are positively related. In the Higher Education, an empirical study by Dib and Alnazer (2013) published in the *International Journal of Economy, Management and Social Sciences,* showed that students' satisfaction is positively related to students' loyalty. Another study by Temizer and

Turkyilmaz (2012) published by Elsevier Ltd in *Procedia Social and Behavioral Sciences* shows that image of the university is positively related to the student loyalty.

7.2.2 Which of the antecedents most influence the student loyalty?

As shown in the final model of figure 7.1, all the four measure of the antecedents of student loyalty were statistically significant. The antecedents with the most influence on student loyalty is perceive value recording the highest standardized beta value (beta = 0.230). The second most influential antecedents is the image of the university, recording a standardized beta value (beta = 0.187). The third most influential antecedents is perceive service quality of the university, recording a standardized beta value (beta = 0.175). The fourth most influential antecedents is the level of students satisfaction, recording a standardized beta value (beta = 0.144).

7.3 Implications of the study

This study has both academic and managerial implications. The findings of the study indicate that perceive value, image of the University of Ghana and perceive service quality influence the level of satisfaction. Of these three antecedents, perceive value is the most influential antecedent, next is the image of the University and the third is perceive service quality. However, facility or the university and image of the study programmes offered by the university is shown not have any statistical influence on student satisfaction.

Also, the results of the study show that all the four antecedents of student loyalty: perceive value, image of the university, perceive service quality and student satisfaction all positively influence student loyalty. Of these four antecedents of student loyalty, perceive value is the most influential antecedent, next is the images of the University, followed by perceive service quality and the fourth is the student satisfaction.

Very little research has been done in this area in the developing world, particularly in Ghana (Gyamfi *et al*., 2012). To the best of the knowledge of the author, aside the study conducted by Gyamfi *et al*., (2012), there appears to have been no other published study that has empirically

explored the antecedents of student satisfaction and loyalty to HEIs in Ghana. Therefore, in respect to the academic implications, this empirical study contributes to the service marketing research and attempts to fill part of the knowledge gap.

In respect to the managerial implications, the findings of this research gives HEI administrators, policymakers, instructors and the general public insight as to what may drive the students satisfaction and loyalty in HEIs in Ghana. The results show that HEI administrators, policymakers and managers of the University of Ghana should focus most in the value delivered to the students since it is the most antecedent of both student satisfaction and loyalty. This means that the students are much concerned about the maximum benefit they will derive from studying at the university considering the time and other resources spent. They are also concerned about the overall quality they experience regarding both human and non-human relations. The authorities should therefore enhance the experiences such that they constantly exceed the expectations of the students so as to ensure their satisfaction and consequently loyalty.

The image of the university is the next most important antecedent of both student satisfaction and loyalty. University of Ghana being the oldest and most prestigious HEI in Ghana, students prefer to enroll in the University due to its high image (reputation). The authorities of the University must constantly ensure that the image of the University is maintained and if possible improved in order to keep the existing students and attract more new students. All efforts should be made to enhance the image (reputation) of the university in the minds of the students, the staff of the University and the general public. These will make the University, the most preferred choice compared to the other universities in Ghana.

The quality of the service provided by the university should also be enhanced as it positively leads to both student satisfaction and loyalty. The overall quality of service provided in the area of courses taught, materials used, professionalism of lecturers and administrative staff, feedback from lectures, etc. should be enhanced such that the overall quality of services rendered to the students meet and if possible exceed the students' demand on quality.

Student satisfaction as expected positively influences the student loyalty. This means that continue to enhancement to the level of satisfaction of the student, they will in turn recommend the

university and its study programmes to others, the students will likely attend new courses at the university after graduating, keep close contact with the university, among others.

In conclusion, the findings of this study has academically contributed to the body of knowledge and managerially given insights to policy makers with the HEIs in Ghana and managers of the University of Ghana that the best policy maybe to focus on improving first the value perceived by the students, then the image of the university and then service quality. These policies will lead to the increase in the level of their students' satisfaction and all these three together with satisfaction will ultimately lead to their student loyalty. Thus, based on the findings, management and leadership of the HEIs in general and the University of Ghana in particular can make informed strategic decisions in order to continue to operate profitably and successfully.

7.4 Limitations of the study

This study is subject to several limitations. First, there are tremendous controversies over the definitions and measurements of the constructs in this study. Although established measures from other studies were adapted and verified, other measurement versions may yield different results. The second limitation lies in the sample, only 205 students' respondents drawn mainly from the main Legon campus. The third limitation is that this model is quite simple. It looks at only five antecedents of student satisfaction and loyalty. It does not analyse the mediating and moderating effect of the various antecedents on student satisfaction and loyalty. Although, the finding of this study is reliable and validated, based on the above mentioned limitations among others, caution is necessary not to generalize the findings.

7.5 Further research

Given that this study is limited to only one University within the HEIs in Ghana, the findings of this study would need to be validated by further research. Future research should apply other measurement instruments and scales in other HEIs in Ghana and if possible other HEIs in developing countries in other to test if the results obtained from this study are general and

consistent across different samples. Further research with more student respondents from all the campuses of the University of Ghana and also from other HEIs in Ghana could be done to further know the interrelationship between student satisfaction and loyalty, and their antecedents. Finally, further research could include more antecedents of student satisfaction and loyalty and further analyse the mediating and moderating effects of these antecedents.

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Appendix 1: Research questionnaire

RESEARCH PROJECT ON MEASURING PERCEPTIONS OF STUDENTS SATISFACTION AND LOYALTY TO UNIVERSITY OF GHANA

SURVEY ON FACTORS THAT INFLUENCE STUDENTS SATISFACTION AND LOYALTY TO HIGHER EDUCATION INSTITUTIONS – EMPERICAL STUDY FROM THE UNIVERSITY OF GHANA

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Dear Respondent,

This survey on students' satisfaction and loyalty within the Higher Education Institutions in Ghana is to find out key factors that influence students' satisfaction and loyalty, using University of Ghana (UG) as a case study.

Higher education is very important to the development of every nation including Ghana. With increasing costs of education across the globe, the level of scrutiny by students of the quality of services delivered by educational institutions has also increased. Higher Education Institutions must therefore ensure that their students are very satisfied in order to ensure their loyalty.

The result of this research project will help in better understanding of the key factors that need to be looked at in the formulation of policies and programmes that will enhance the service quality delivered by the Higher Education Institutions in Ghana which will lead to the students' satisfaction and loyalty. The result will also contribute to the academic literature. Findings of this research project will be made available in the form of an executive summary when requested.

Please use the given values where 1 represent strongly disagree up to 7 which represent strongly agree for responding to all questions. Kindly circle the value which best describe your answer to any particular question. These answers should best describe your perception of any theme that runs through the questionnaire. The last part of the questionnaire on Demography requires ticking the answers to the various questions.

Information collected in this questionnaire is strictly confidential and no individual respondent will be identified. The responses to each question will be aggregated to aid in the final analysis of the information provided in this questionnaire and it is therefore not possible to trace information given in the survey to individual respondents.

Thank you very much for taking time out of your busy schedules to participate in this research. Your participation is very much appreciated.

Isaac Kwasi Egyir

Ålesund University College

Faculty of International Business

A. Please circle the number that represents your views regarding the following statements.

	Strongly disagree						Strongly agree
1. I like the overall quality of courses offered in my study programme.	1	2	3	4	5	6	7
2. I like the overall quality of the facilities in the University.	1	2	3	4	5	6	7
3. I like the overall quality of the study materials being used.	1	2	3	4	5	6	7
4. I like the overall professional qualities of the lecturers.	1	2	3	4	5	6	7
5. I like the quality of the feedback from the lecturers.	1	2	3	4	5	6	7
6. I like the overall quality of services rendered by the administrative staff.	1	2	3	4	5	6	7
7. The overall quality of services rendered by the administrative staff meet my demand on quality.	1	2	3	4	5	6	7

B. Please circle the number that represents your views regarding the following statements.

	Strongly disagree						Strongly agree
1. I have had maximum benefit from studying at the University of Ghana, considering the time and resources spent.	1	2	3	4	5	6	7
2. The overall quality I have experienced regarding human relations exceeds my expectation.	1	2	3	4	5	6	7
3. The overall quality I have experienced regarding non-human relations exceeds my expectation.	1	2	3	4	5	6	7
4. I think my studies will give me good possibility of managing my future job or career.	1	2	3	4	5	6	7

C. Please circle the number that represents your views regarding the following statements.

	Strongly disagree						Strongly agree
1. I am satisfied to be a student of University of Ghana.	1	2	3	4	5	6	7
2. I am satisfied with University of Ghana in general.	1	2	3	4	5	6	7
3. I think that University of Ghana is very close to the ideal University I imagined.	1	2	3	4	5	6	7
4. My expectations of University of Ghana are fulfilled.	1	2	3	4	5	6	7
5. My expectations of the study programmes are fulfilled.	1	2	3	4	5	6	7

D. Please circle the number that represents your views regarding the following statements.

	Strongly disagree						Strongly agree
1. I am satisfied with the reading rooms.	1	2	3	4	5	6	7
2. I am satisfied with the library.	1	2	3	4	5	6	7
3. I am satisfied with the lecture rooms.	1	2	3	4	5	6	7
4. I am satisfied with the location of the lecture rooms.	1	2	3	4	5	6	7
5. I am satisfied with the level of cleaning on campus.	1	2	3	4	5	6	7
6. I am satisfied with IT services on campus.	1	2	3	4	5	6	7
7. I am satisfied with the student accommodation on campus.	1	2	3	4	5	6	7

E. Please circle the number that represents your views regarding the following statements.

	Strongly disagree						Strongly agree
1. I will recommend University of Ghana to others.	1	2	3	4	5	6	7
2. I will recommend my study programme to others.	1	2	3	4	5	6	7
3. I will attend new courses at the University of Ghana after graduating.	1	2	3	4	5	6	7
4. I will pursue further education at the University of Ghana after graduating.	1	2	3	4	5	6	7
5. If I were to start studying today and had free choice as regards university, I will choose the University of Ghana.	1	2	3	4	5	6	7
6. I will maintain close contact with the Faculty / University of Ghana after graduating.	1	2	3	4	5	6	7
7. I will join the University of Ghana Alumni Association when I graduate.	1	2	3	4	5	6	7

F. Please circle the number that represents your views regarding the following statements.

	Strongly disagree						Strongly agree
1. I think University of Ghana is the preferred choice of most students compared to other universities in Ghana.	1	2	3	4	5	6	7
2. I perceive the image of the University of Ghana as good.	1	2	3	4	5	6	7
3. My friends perceive the image of the University of Ghana as good.	1	2	3	4	5	6	7
4. I think the employees of the University of Ghana perceive its image as good.	1	2	3	4	5	6	7
5. I think the general public has good perception about the image of the University of Ghana	1	2	3	4	5	6	7

G. Please circle the number that represents your views regarding the following statements.

	Strongly disagree						Strongly agree
1. The study programme I am currently pursuing is focused on students' needs.	1	2	3	4	5	6	7
2. The study programme I am currently pursuing is job oriented.	1	2	3	4	5	6	7
3. I perceive the study programme I am currently pursuing has a good image for the job market.	1	2	3	4	5	6	7
4. My friends think the study programme I am currently studying has a good image.	1	2	3	4	5	6	7
5. I think the general public has good perception about the study programmes offered by the University of Ghana.	1	2	3	4	5	6	7
6. I think the course subjects I am currently studying are good for personal development.	1	2	3	4	5	6	7

H. Please tick whichever applies to you.

1. Gender
- ○ Male
- ○ Female

2. Age
- ○ Below 25
- ○ 25-35
- ○ 35-45
- ○ 45 years old and above

3 .Faculty
- ○ Sciences
- ○ Business/ management
- ○ Art/ law/ social sciences
- ○ Others

4. Programme
- ○ Diploma
- ○ Degree
- ○ Master
- ○ Doctorate

5. Length of studying time at UG
- ○ Below 6 months
- ○ 6 months to 1 year
- ○ 1-3 years
- ○ 3-5 years
- ○ 5 years and above

Appendix 2: Respondents Analysis

2a. Gender of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	98	47,8	47,8	47,8
	Female	107	52,2	52,2	100,0
	Total	205	100,0	100,0	

2b. Age of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 25	64	31,2	31,2	31,2
	25-35	86	42,0	42,0	73,2
	35-45	44	21,5	21,5	94,6
	45 years old and above	11	5,4	5,4	100,0
	Total	205	100,0	100,0	

2c. Faculty of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sciences	74	36,1	36,1	36,1
	Business/management	74	36,1	36,1	72,2
	Arts/law/social studies	55	26,8	26,8	99,0
	Others	2	1,0	1,0	100,0
	Total	205	100,0	100,0	

2d. Programme of study of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma	31	15,1	15,1	15,1
	Degree	75	36,6	36,6	51,7
	Master	66	32,2	32,2	83,9
	Doctorate	33	16,1	16,1	100,0
	Total	205	100,0	100,0	

2e. Length of studying time at the UG

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 6 months	8	3,9	3,9	3,9
	6 months to 1 year	1	,5	,5	4,4
	1-3 years	127	62,0	62,0	66,3
	3-5 years	61	29,8	29,8	96,1
	5 years and above	8	3,9	3,9	100,0
	Total	205	100,0	100,0	

Appendix 3: Reliability Analyses of constructs

3a. Reliability Analysis of student loyalty (SL)

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,779	,779	7

Item Statistics

	Mean	Std. Deviation	N
SL1	4,23	,755	205
SL2	4,10	,780	205
SL3	4,04	,779	205
SL4	4,06	,691	205
SL5	4,12	,900	205
SL6	4,16	,789	205
SL7	4,13	,819	205

Inter-Item Correlation Matrix

	SL1	SL2	SL3	SL4	SL5	SL6	SL7
SL1	1,000	,603	,160	,181	,357	,351	,238
SL2	,603	1,000	,236	,262	,312	,286	,234
SL3	,160	,236	1,000	,561	,217	,182	,177
SL4	,181	,262	,561	1,000	,462	,334	,230
SL5	,357	,312	,217	,462	1,000	,568	,499

SL6	,351	,286	,182	,334	,568	1,000	,576
SL7	,238	,234	,177	,230	,499	,576	1,000

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
SL1	24,60	10,291	,472	,413	,758
SL2	24,73	10,170	,476	,397	,757
SL3	24,79	10,709	,359	,334	,779
SL4	24,77	10,396	,510	,449	,751
SL5	24,71	8,992	,620	,470	,726
SL6	24,67	9,615	,594	,462	,733
SL7	24,70	9,918	,496	,384	,753

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
28,82	13,145	3,626	7

3b. Reliability Analysis of student satisfaction (SS)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,899	,901	5

Item Statistics

	Mean	Std. Deviation	N
SS1	4,00	1,150	205
SS2	3,91	1,086	205
SS3	3,99	,973	205
SS4	3,80	1,007	205
SS5	3,83	1,011	205

Inter-Item Correlation Matrix

	SS1	SS2	SS3	SS4	SS5
SS1	1,000	,773	,648	,550	,578
SS2	,773	1,000	,602	,594	,554
SS3	,648	,602	1,000	,718	,656
SS4	,550	,594	,718	1,000	,781
SS5	,578	,554	,656	,781	1,000

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
SS1	15,53	12,231	,746	,662	,880
SS2	15,62	12,658	,740	,639	,880
SS3	15,55	13,190	,767	,613	,875
SS4	15,73	12,972	,768	,699	,874
SS5	15,70	13,094	,744	,646	,879

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
19,53	19,554	4,422	5

3c. Reliability Analysis of facility of the university (FU)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,824	,828	7

Item Statistics

	Mean	Std. Deviation	N
FU1	3,88	,816	205
FU2	3,88	,916	205
FU3	3,76	,867	205
FU4	3,62	,892	205
FU5	3,50	1,087	205
FU6	3,50	1,083	205
FU7	3,33	1,065	205

Inter-Item Correlation Matrix

	FU1	FU2	FU3	FU4	FU5	FU6	FU7
FU1	1,000	,643	,499	,407	,444	,341	,165
FU2	,643	1,000	,520	,461	,428	,381	,151
FU3	,499	,520	1,000	,573	,345	,290	,230
FU4	,407	,461	,573	1,000	,429	,300	,304
FU5	,444	,428	,345	,429	1,000	,661	,415
FU6	,341	,381	,290	,300	,661	1,000	,573
FU7	,165	,151	,230	,304	,415	,573	1,000

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
FU1	21,60	17,693	,574	,476	,801
FU2	21,59	17,018	,588	,509	,798
FU3	21,71	17,510	,557	,438	,803
FU4	21,85	17,282	,569	,422	,801
FU5	21,98	15,475	,659	,522	,784
FU6	21,97	15,764	,624	,565	,791
FU7	22,14	17,299	,436	,369	,825

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
25,47	22,300	4,722	7

3d. Reliability Analysis of the image of the study programme (ISP)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,735	,750	6

Item Statistics

	Mean	Std. Deviation	N
ISP1	3,71	,971	205
ISP2	4,00	,754	205
ISP3	3,96	,747	205
ISP4	3,90	,871	205
ISP5	4,05	,729	205
ISP6	4,07	,786	205

Inter-Item Correlation Matrix

	ISP1	ISP2	ISP3	ISP4	ISP5	ISP6
ISP1	1,000	,315	,275	,115	,161	,073
ISP2	,315	1,000	,557	,291	,357	,199
ISP3	,275	,557	1,000	,438	,364	,431
ISP4	,115	,291	,438	1,000	,541	,355
ISP5	,161	,357	,364	,541	1,000	,532
ISP6	,073	,199	,431	,355	,532	1,000

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
ISP1	19,99	7,926	,255	,119	,772
ISP2	19,69	7,596	,505	,377	,689
ISP3	19,73	7,207	,623	,471	,657
ISP4	19,80	7,183	,497	,362	,690
ISP5	19,64	7,418	,583	,462	,669
ISP6	19,62	7,698	,447	,369	,704

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
23,69	10,263	3,204	6

3e: Reliability analysis of perceive service quality (PSQ)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,794	,793	7

Item Statistics

	Mean	Std. Deviation	N
PSQ1	4,02	,840	205
PSQ2	3,91	,836	205
PSQ3	3,95	,742	205
PSQ4	4,07	,760	205
PSQ5	3,92	,785	205
PSQ6	3,87	,782	205
PSQ7	3,85	,755	205

Inter-Item Correlation Matrix

	PSQ1	PSQ2	PSQ3	PSQ4	PSQ5	PSQ6	PSQ7
PSQ1	1,000	,561	,395	,504	,412	,287	,036
PSQ2	,561	1,000	,443	,442	,385	,366	,227
PSQ3	,395	,443	1,000	,493	,363	,267	,239
PSQ4	,504	,442	,493	1,000	,520	,205	,224
PSQ5	,412	,385	,363	,520	1,000	,390	,252
PSQ6	,287	,366	,267	,205	,390	1,000	,416
PSQ7	,036	,227	,239	,224	,252	,416	1,000

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
PSQ1	23,57	9,952	,545	,444	,763
PSQ2	23,68	9,680	,609	,420	,750

PSQ3	23,64	10,397	,543	,327	,764
PSQ4	23,52	10,084	,597	,454	,754
PSQ5	23,67	10,064	,576	,372	,757
PSQ6	23,72	10,557	,468	,319	,777
PSQ7	23,74	11,330	,324	,245	,802

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
27,59	13,547	3,681	7

3f. Reliability Analysis of perceive value (PV)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,720	,722	4

Item Statistics

	Mean	Std. Deviation	N
PV1	3,97	,794	205
PV2	3,85	,853	205
PV3	3,61	,865	205
PV4	3,89	,851	205

Inter-Item Correlation Matrix

	PV1	PV2	PV3	PV4
PV1	1,000	,550	,344	,393
PV2	,550	1,000	,557	,187
PV3	,344	,557	1,000	,329
PV4	,393	,187	,329	1,000

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
PV1	11,35	3,778	,566	,391	,627
PV2	11,47	3,593	,569	,471	,622
PV3	11,71	3,630	,540	,364	,640
PV4	11,42	4,147	,372	,220	,738

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
15,32	6,159	2,482	4

3g. Reliability Analysis of the image of the university (IU)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,830	,831	5

Item Statistics

	Mean	Std. Deviation	N
IU1	4,00	,883	205
IU2	4,04	,822	205
IU3	3,96	,901	205
IU4	4,00	,894	205
IU5	4,10	,866	205

Inter-Item Correlation Matrix

	IU1	IU2	IU3	IU4	IU5
IU1	1,000	,629	,542	,391	,398
IU2	,629	1,000	,638	,414	,415
IU3	,542	,638	1,000	,614	,407
IU4	,391	,414	,614	1,000	,501
IU5	,398	,415	,407	,501	1,000

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
IU1	16,10	7,579	,617	,443	,799
IU2	16,05	7,629	,673	,530	,785
IU3	16,13	7,115	,714	,567	,771
IU4	16,10	7,569	,608	,454	,802
IU5	15,99	8,000	,533	,316	,822

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
20,09	11,359	3,370	5

Appendix 4: Factor Analysis output from SPSS

4a. Descriptive statistics of factors

	Mean	Std. Deviation	Analysis N	Missing N
SS1	4,00	1,150	205	0
SS2	3,91	1,086	205	0
SS3	3,99	,973	205	0
SS4	3,80	1,007	205	0
SS5	3,83	1,011	205	0
FU1	3,88	,816	205	0
FU2	3,88	,916	205	0
FU3	3,76	,867	205	0
FU4	3,62	,892	205	0
FU5	3,50	1,087	205	0
PSQ1	4,02	,840	205	0
PSQ2	3,91	,836	205	0
PSQ3	3,95	,742	205	0
PSQ4	4,07	,760	205	0
PSQ5	3,92	,785	205	0
IU1	4,00	,883	205	0
IU2	4,04	,822	205	0
IU3	3,96	,901	205	0
IU4	4,00	,894	205	0
ISP3	3,96	,747	205	0
ISP4	3,90	,871	205	0
ISP5	4,05	,729	205	0
ISP6	4,07	,786	205	0
SL5	4,12	,900	205	0
SL6	4,16	,789	205	0
SL7	4,13	,819	205	0
PV1	3,97	,794	205	0
PV2	3,85	,853	205	0
PV3	3,61	,865	205	0

4b. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,749
Bartlett's Test of Sphericity	Approx. Chi-Square	2827,059
	df	406
	Sig.	,000

4c. Communalities of factors

	Initial	Extraction
SS1	1,000	,749
SS2	1,000	,730
SS3	1,000	,754
SS4	1,000	,826
SS5	1,000	,725
FU1	1,000	,640
FU2	1,000	,689
FU3	1,000	,703
FU4	1,000	,653
FU5	1,000	,585
PSQ1	1,000	,621
PSQ2	1,000	,620
PSQ3	1,000	,571
PSQ4	1,000	,639
PSQ5	1,000	,535
IU1	1,000	,689
IU2	1,000	,717
IU3	1,000	,778
IU4	1,000	,530
ISP3	1,000	,537
ISP4	1,000	,672
ISP5	1,000	,682
ISP6	1,000	,600
SL5	1,000	,690
SL6	1,000	,741
SL7	1,000	,635
PV1	1,000	,588

PV2	1,000	,776
PV3	1,000	,614

Extraction Method: Principal Component Analysis.

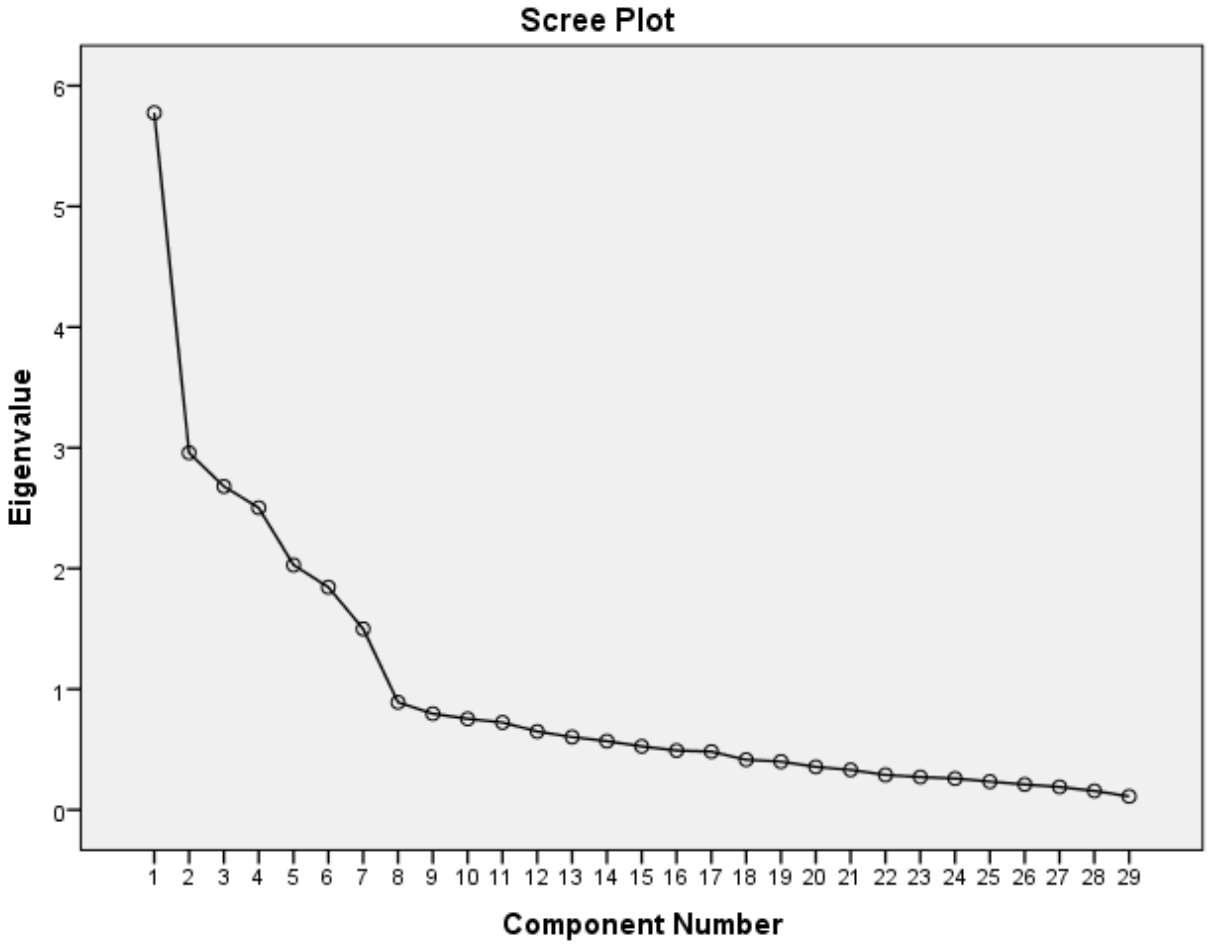
4d. Total Variance Explained

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,776	19,916	19,916	5,776	19,916	19,916	3,649	12,584	12,584
2	2,959	10,202	30,118	2,959	10,202	30,118	3,029	10,445	23,029
3	2,680	9,240	39,358	2,680	9,240	39,358	2,919	10,067	33,096
4	2,503	8,630	47,987	2,503	8,630	47,987	2,851	9,831	42,927
5	2,029	6,995	54,983	2,029	6,995	54,983	2,420	8,345	51,272
6	1,845	6,362	61,344	1,845	6,362	61,344	2,305	7,947	59,219
7	1,499	5,169	66,513	1,499	5,169	66,513	2,115	7,294	66,513
8	,891	3,071	69,585						
9	,796	2,746	72,331						
10	,754	2,598	74,929						
11	,724	2,496	77,425						
12	,649	2,239	79,665						
13	,603	2,078	81,743						
14	,569	1,964	83,706						
15	,526	1,813	85,519						
16	,491	1,695	87,214						
17	,483	1,665	88,879						
18	,415	1,430	90,310						
19	,400	1,379	91,688						
20	,356	1,227	92,916						
21	,331	1,141	94,057						
22	,289	,996	95,052						
23	,272	,938	95,991						
24	,259	,894	96,885						
25	,234	,807	97,692						
26	,211	,726	98,419						
27	,190	,655	99,074						
28	,157	,542	99,616						
29	,111	,384	100,000						

Extraction Method: Principal Component Analysis.

4e. Scree plot showing number of factors



Appendix 5: Linear Multiple Regression Analysis output from SPSS

5a. Descriptive statistics, dependent variable is student satisfaction (SATISFACTION)

Descriptive Statistics

	Mean	Std. Deviation	N
SATIFACTION	3,9063	,88440	205
SERVQUAL	4,0016	,66462	205
VALUE	3,8293	,62042	205
FACILITY	3,4439	,90250	205
IMAGESTUDYPROG	4,0081	,64036	205
IMAGEUNI	4,0185	,67406	205

5b. Pearson correlation, dependent variable is student satisfaction (SATISFACTION)

Correlations

		SATIFACTION	SERVQUAL	VALUE	FACILITY	IMAGESTUDY PROG	IMAGEUNI
Pearson Correlation	SATIFACTION	1,000	,218	,254	,123	,126	,187
	SERVQUAL	,218	1,000	,292	,081	,198	,212
	VALUE	,254	,292	1,000	,202	,092	,080
	FACILITY	,123	,081	,202	1,000	,150	,338
	IMAGESTUDYPROG	,126	,198	,092	,150	1,000	,193
	IMAGEUNI	,187	,212	,080	,338	,193	1,000
Sig. (1-tailed)	SATIFACTION	.	,001	,000	,040	,036	,004
	SERVQUAL	,001	.	,000	,123	,002	,001
	VALUE	,000	,000	.	,002	,095	,126
	FACILITY	,040	,123	,002	.	,016	,000
	IMAGESTUDYPROG	,036	,002	,095	,016	.	,003
	IMAGEUNI	,004	,001	,126	,000	,003	.
N	SATIFACTION	205	205	205	205	205	205
	SERVQUAL	205	205	205	205	205	205
	VALUE	205	205	205	205	205	205
	FACILITY	205	205	205	205	205	205
	IMAGESTUDYPROG	205	205	205	205	205	205
	IMAGEUNI	205	205	205	205	205	205

5c. Model summary, dependent variable is student satisfaction (SATISFACTION)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,332[a]	,110	,088	,84471	,110	4,924	5	199	,000

a. Predictors: (Constant), IMAGEUNI, VALUE, IMAGESTUDYPROG, SERVQUAL, FACILITY

b. Dependent Variable: SATIFACTION

5d. ANOVA, dependent variable is student satisfaction (SATISFACTION)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17,568	5	3,514	4,924	,000[b]
	Residual	141,993	199	,714		
	Total	159,562	204			

a. Dependent Variable: SATIFACTION

b. Predictors: (Constant), IMAGEUNI, VALUE, IMAGESTUDYPROG, SERVQUAL, FACILITY

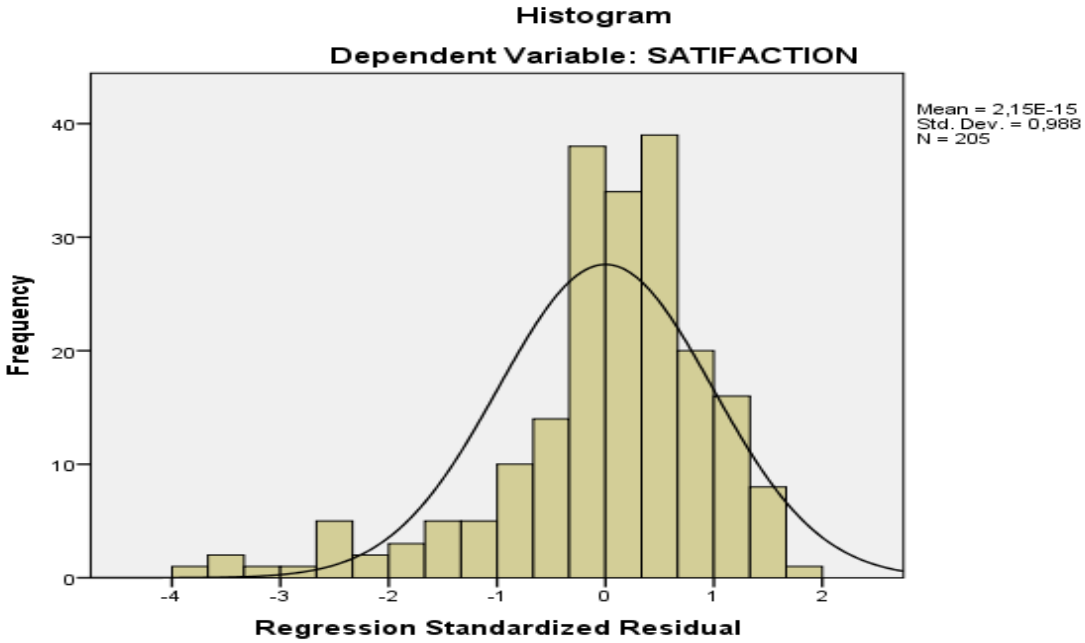
5e.Coefficients, dependent variable is student satisfaction (SATISFACTION)

Coefficients[a]

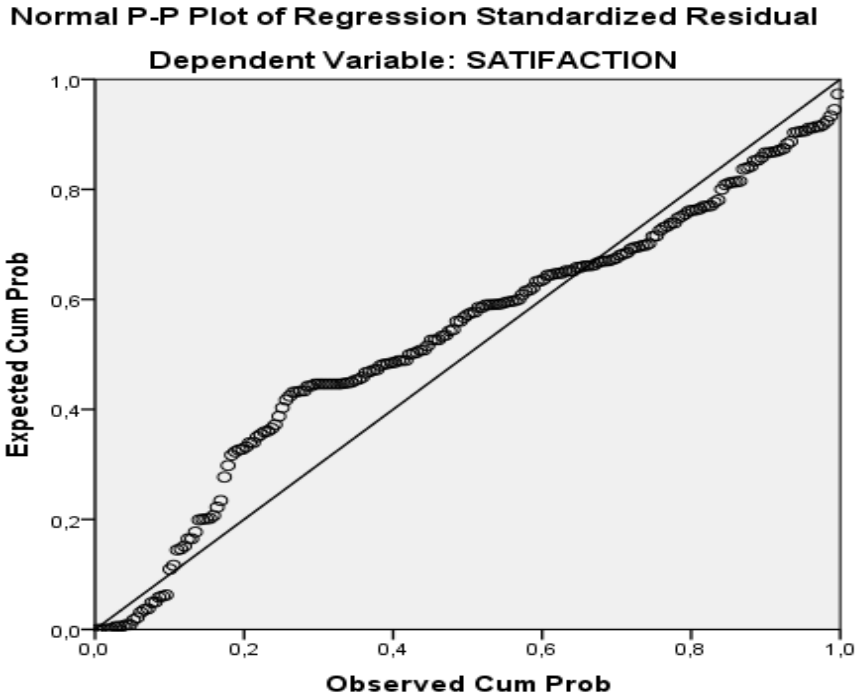
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1,128	,591		1,910	,058	-,037	2,292					
	SERVQUAL	,159	,096	,120	1,655	,100	-,030	,349	,218	,117	,111	,857	1,167
	VALUE	,284	,102	,199	2,797	,006	,084	,484	,254	,195	,187	,881	1,136
	FACILITY	,021	,071	,021	,291	,771	-,120	,161	,123	,021	,019	,847	1,181
	IMAGESTUDYPROG	,078	,096	,056	,809	,420	-,111	,267	,126	,057	,054	,929	1,077
	IMAGEUNI	,167	,096	,127	1,743	,083	-,022	,356	,187	,123	,117	,837	1,195

a. Dependent Variable: SATIFACTION

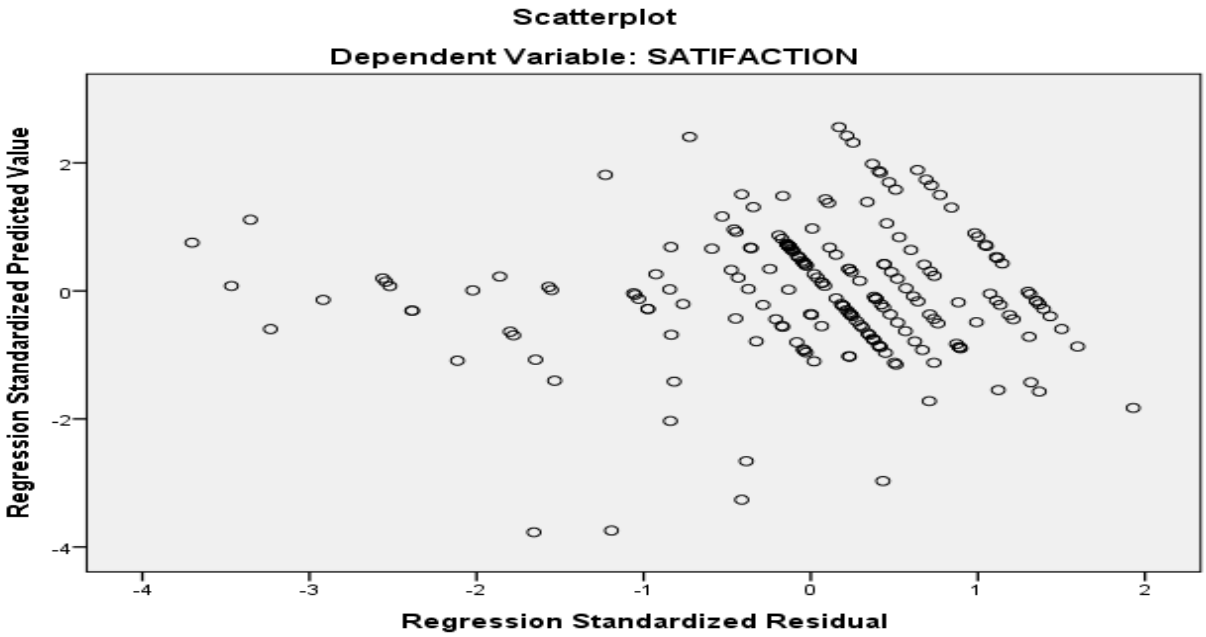
5f: Histogram, dependent variable is student satisfaction (SATISFACTION)



5g. Normal P-Plot of Regression standardized residual, SATISFACTION



5h. Scatter plot, dependent variable is SATISFACTION



5i. Descriptive statistics, dependent variable is student loyalty (LOYALTY)

	Mean	Std. Deviation	N
LOYALTY	4,1573	,62028	205
SERVQUAL	4,0016	,66462	205
VALUE	3,8293	,62042	205
IMAGEUNI	4,0185	,67406	205
SATIFACTION	3,9063	,88440	205
Age of respondents	2,01	,863	205
Gender	1,52	,501	205
Length of studying time at the UG	3,29	,729	205

5j. Pearson correlation, dependent variable is student loyalty (LOYALTY)

Correlations

		LOYALTY	SERVQUAL	VALUE	IMAGEUNI	SATIFACTION	Age of respondents	Gender	Length of studying time at the UG
Pearson Correlation	LOYALTY	1,000	,313	,338	,305	,293	,221	,216	,163
	SERVQUAL	,313	1,000	,292	,212	,218	,037	,022	-,065
	VALUE	,338	,292	1,000	,080	,254	,076	,012	-,046
	IMAGEUNI	,305	,212	,080	1,000	,187	,134	,076	,095
	SATIFACTION	,293	,218	,254	,187	1,000	,071	,082	-,017
	Age of respondents	,221	,037	,076	,134	,071	1,000	,147	,252
	Gender	,216	,022	,012	,076	,082	,147	1,000	,224
	Length of studying time at the UG	,163	-,065	-,046	,095	-,017	,252	,224	1,000
Sig. (1-tailed)	LOYALTY	.	,000	,000	,000	,000	,001	,001	,010
	SERVQUAL	,000	.	,000	,001	,001	,299	,377	,177
	VALUE	,000	,000	.	,126	,000	,138	,432	,256
	IMAGEUNI	,000	,001	,126	.	,004	,027	,140	,089
	SATIFACTION	,000	,001	,000	,004	.	,157	,121	,407
	Age of respondents	,001	,299	,138	,027	,157	.	,018	,000
	Gender	,001	,377	,432	,140	,121	,018	.	,001
	Length of studying time at the UG	,010	,177	,256	,089	,407	,000	,001	.
N	LOYALTY	205	205	205	205	205	205	205	205
	SERVQUAL	205	205	205	205	205	205	205	205
	VALUE	205	205	205	205	205	205	205	205
	IMAGEUNI	205	205	205	205	205	205	205	205
	SATIFACTION	205	205	205	205	205	205	205	205
	Age of respondents	205	205	205	205	205	205	205	205
	Gender	205	205	205	205	205	205	205	205
	Length of studying time at the UG	205	205	205	205	205	205	205	205

5k.Model summary, dependent variable is student loyalty (LOYALTY)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,552[a]	,305	,281	,52614	,305	12,363	7	197	,000

a. Predictors: (Constant), Length of studying time at the UG, SATIFACTION, IMAGEUNI, Gender, VALUE, Age of respondents, SERVQUAL

b. Dependent Variable: LOYALTY

5l. ANOVA, dependent variable is student loyalty (LOYALTY)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23,956	7	3,422	12,363	,000[b]
	Residual	54,533	197	,277		
	Total	78,489	204			

a. Dependent Variable: LOYALTY

b. Predictors: (Constant), Length of studying time at the UG, SATIFACTION, IMAGEUNI, Gender, VALUE, Age of respondents, SERVQUAL

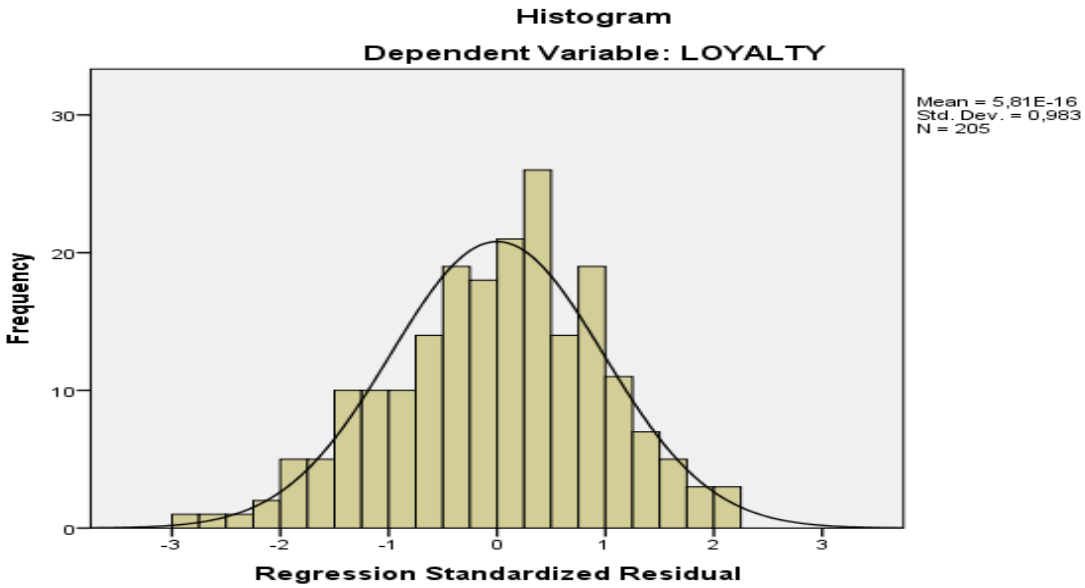
5m. Coefficient, dependent variable is student loyalty (LOYALTY)

Coefficients[a]

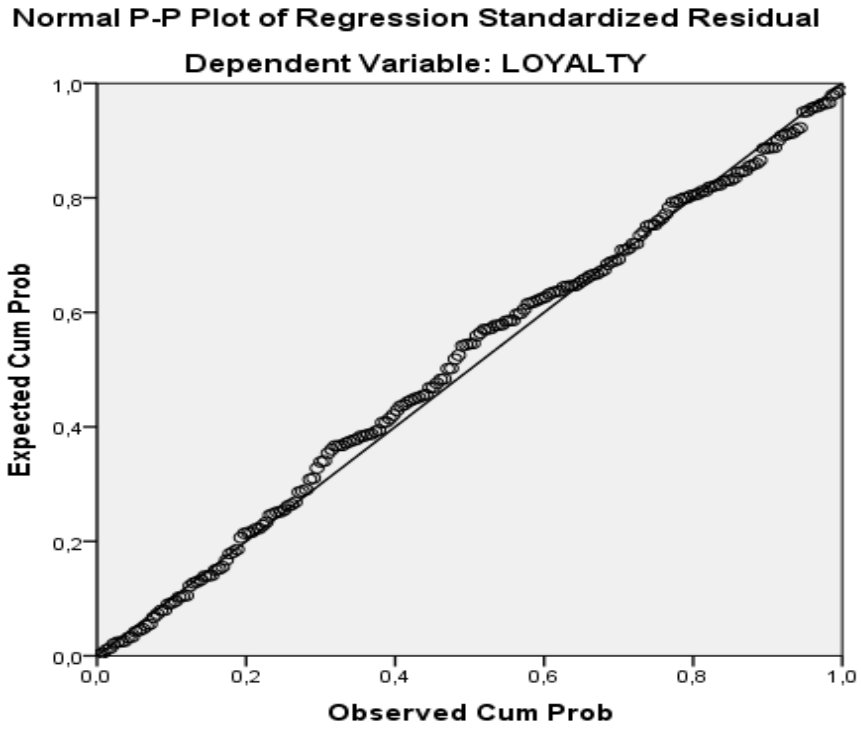
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	,801	,380		2,109	,036	,052	1,551					
	SERVQUAL	,164	,060	,175	2,740	,007	,046	,282	,313	,192	,163	,860	1,162
	VALUE	,230	,064	,230	3,610	,000	,104	,355	,338	,249	,214	,872	1,147
	IMAGEUNI	,172	,057	,187	3,001	,003	,059	,284	,305	,209	,178	,913	1,096
	SATIFACTION	,101	,044	,144	2,278	,024	,014	,188	,293	,160	,135	,887	1,127
	Age of respondents	,082	,045	,114	1,826	,069	-,007	,170	,221	,129	,108	,909	1,100
	Gender	,176	,076	,142	2,309	,022	,026	,326	,216	,162	,137	,934	1,071
	Length of studying time at the UG	,093	,054	,109	1,736	,084	-,013	,199	,163	,123	,103	,887	1,128

a. Dependent Variable: LOYALTY

5n. Histogram of student loyalty (LOYALTY)



5o.Normal P-Plot of Regression standardized residual, LOYALTY



5p. Scatter plot, dependent variable is LOYALTY