MEASURING AND MODELLING SERVICE QUALITY IN ETHIOPIAN PUBLIC HIGHER EDUCATION

by

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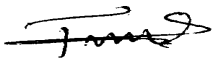
Dedication

This work is dedicated to students who felt desperate after being served below their expectations and were dissatisfied with the academic and support services at the first generation public universities in Ethiopia.

Declaration

I declare that MEASURING AND MODELLING SERVICE QUALITY IN ETHIOPIAN PUBLIC HIGHER EDUCATION is my own original work and that all the sources I have used or quoted have been duly acknowledged and referenced.



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Abstract

This study serves two major purposes. First, it explores and validates attributes, dimensions and constructs that can be used to measure service quality in Ethiopian public higher education (EPHE) context. Second, it examines the interplay among the major service quality constructs and student related variables in search of a comprehensive theoretical framework for HE service quality. The study started its investigation by formulating a set of research questions that explore attributes, dimensions and constructs essential to measure service quality (RQ1), test for the measurement model fit (RQ2), examine the relationships or associations among the four service constructs and characteristics of students (RQ3), test for the structural model fit (RQ4), determine the causal relations among the variables in the structural model (RQs4.1 - 4.7), and assess service quality performances of EPHE institutions (RQ5).

A mixed methods study with the qual-QUAN exploratory sequential design was employed to empirically answer the research questions. Fifteen interviewees took part in the qualitative phase. The interviews were analysed employing thematic analysis and narration of verbatim accounts. Three levels of themes that represent attributes, dimensions and constructs of service quality were identified and used to develop a questionnaire designed to measure service quality more objectively. The questionnaire was piloted at a pilot site involving 460 undergraduate students and its psychometric properties were determined. The main study was carried out in three universities selected from a target population of seven first generation public universities employing lottery sampling method. Concurrently, four programmes were chosen from a target population of 27 commonly offered programmes in the three sample universities employing systematic random sampling. Considering different batches and the four programmes as strata, 1412 undergraduate students were included in the main study using proportionate stratified random sampling technique. Descriptive and inferential statistics including factor analysis and structural equation modelling (SEM) were employed to address the research questions.

The results from the qualitative and quantitative phases show that service quality can be measured by four constructs, of which three are multi-dimensional and one is a single dimensional construct. The four factor measurement model fit analysis resulted in an acceptable fit indices (i.e., CMIN/DF

= 4.398, GFI = .915, CFI = .951, RMSEA = .049 and PCLOSE =.743) after some re-specifications and confirmed the structural validity of the instrument. Mixed results were obtained with regard to the correlations/associations between student characteristics and service quality constructs. After some re-specification, a structural model for the four service quality constructs and nine student related variables were identified with an acceptable fit indices (CMIN/DF=3.856, GFI=.901, CFI =.934 and RMSEA=.045, p=1.000). The path analyses also revealed that loyalty is a latent construct with 62% of its varaince predicted by the joint effects of percieved service quality, satisfaction and perceived gain. Each of these predicator latent constructs are also explained by some other control varaibles and latent constructs that have a predictive power ranging from 12% to 60%. Students perceived the current status of service quality in EPHE institutions as daunting in all constructs of service quality except perceived gain. Finally, conclusions pertinent to the measurement instrument and understanding of HE service queality are drawn, and recommendations that have theoretical and practical implications are forwarded.

Key terms: Higher eduction, service quality, perceived service quality, satisfaction, perceived gain, loyaty, student characteristics, undergraduate students, Ethiopia.

List of Abbreviations and Acronyms

ADRC:	Academic Development and Resource Centre
AMOS:	Analysis of Moment Structures
ANOVA:	Analysis of Variance
BPR:	Business Process Reengineering
CFA:	Confirmatory Factor Analysis
CFI:	Comparative Fit Index
CR:	Critical Ratio
DF:	Degree of Freedom
EduQUAL:	Education Quality
EFA:	Exploratory Factor Analysis
EPHE:	Ethiopian Public Higher Education
EPHEI:	Ethiopian Public Higher Education Institution
ESDP:	Education Sector Development
FDRE:	Federal Democratic Republic of Ethiopia
GIF:	Goodness of Fit
GO:	Government Organisation
GPA:	Grade Point Average
GRE:	Graduate Record Examination
HE:	Higher Education
HERQA:	Higher Education Relevance and Quality Assurance Agency
HESC:	Higher Education Strategic Centre
MI:	Modification Indices
MoE:	Ministry of Education
NGO:	Non-Government Organisation
NPRC:	National Pedagogical Resource Centre
PDCA:	Plan, Do, Check and Act
PHE:	Public Higher Education
PLS:	Partial Least Square

PSERVQAL:	Perceived Service quality
QAS:	Quality of Administrative Services.
QTS:	Quality of Teaching Service
RMSEA:	Root Mean–Square Error of Approximation
RQ:	Research Question
SEM:	Structural Equation Modelling
SERPREF:	Service Performance
SERVQUAL:	Service Quality
SPSS:	Statistical Package for Social Sciences
UK:	United Kingdom
UN:	United Nations
UNESCO:	United Nations Educational, Scientific and Cultural Organisation
UNISA:	University of South Africa
VIF:	Variance Inflation Factor
WOM:	Word of Mouth

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CHAPTER ONE

ORIENTATION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

> As higher education provision is a service and students are expected to [partly or fully] fund their educational expenses, it would seem appropriate that universities make a shift from being product-led, i.e. relying on the product to sell, towards a more "customer-led" approach (Sultan & Wong, 2013, p. 71).

Quality in higher education has become a top global agenda. For instance, the 2009 World Conference on Higher Education strongly urges member states to take quality as one of the priority areas and "put in place and strengthen appropriate quality assurance systems and regulatory frameworks with the involvement of all stakeholders" (UNESCO, 2009, p. 8). Still, the concern for quality education stands out as a leading global development agenda for the world. The UN summit to adopt the post-2015 development agenda, in its article 23, clearly stipulates that the member states in the world are committed to provide quality education at all levels of education (United Nations, 2015). The reasons for paying such attention to quality may be attributed to various challenges that governments and higher learning institutions are facing today. Some of the challenges include firm competitive pressure, limited resources, increased accountability, increased demand for access to higher education, and their increased social and economic role for national development (Koslowski, 2006; UNESCO, 2009; Vroeijenstijn, 1995).

In response to these challenges and requirements, governments have taken different actions ranging from undertaking reforms to developing quality assurance systems (Materu, 2007). Higher education institutions, in turn, are engaged in self-assessments, peer reviews, assessment of student satisfaction and development, and the establishment of internal quality enhancement systems (Vroeijenstijn, 1995).

This growing global emphasis towards achieving quality and the internal realities has led to rapid expansion of higher education and a corresponding increase in students' enrolment. For instance, since 2000 the number of public universities increased from eight in 2000 to 33 in 2013/14 and the enrolment of undergraduate students in these public universities has reached 338,336 in 2013/14 (MoE, 2008; MOE, 2015). Such a massive increase in the number of institutions and student enrolment has put the Ethiopian government and its higher education sector under pressure to initiate rigorous quality improvement measures (World Bank, 2003).

As part of its higher education reform programme, the Ethiopian Government has undertaken different measures to improve quality. The introduction of the 2003 and 2009 Higher Education (HE) bills are among the measures (FDRE, 2003, 2009). These bills allow for provisions that encourage higher learning institutions to work autonomously and establish internal quality enhancement systems in order to improve the quality of their programmes continuously. In the 2009 bill, in particular, article 22, sub-article 2, stipulates the areas that internal quality enhancement systems should focus on when it states:

> The internal system of quality enhancement of every institution shall provide for clear and comprehensive measures of quality covering professional development of academic staff, course contents, teaching-learning processes, student evaluation, assessment and grading systems, which shall also include student evaluation of course contents together with the methods and systems of delivery, assessment, examinations and grading. (FDRE, 2009, p. 4988)

Sub-article 3 of article 22 in the 2009 bill also specifies the range of activities that the quality enhancement systems should include when it states: “the quality enhancement system shall be applied to all processes of importance to the quality of study programmes, beginning with the information provided to potential applicants and ending with student evaluation upon completion of the course.” (FDRE, 2009, p. 4989).

In addition to this, the government has expressed its commitment to improve quality by giving greater emphasis to the issue in its third, fourth and fifth Education Sector Development

Programmes (ESDP III through ESDP V) that covers the period from 2005 on. The government further established Higher Education Relevance and Quality Assurance Agency (HERQA), Higher Education Strategic Centre (HESC), and the National and Institutional Pedagogical/Academic Development and Resource Centres (NPRC/ADRCs) that work on improving and assuring quality in HE.

Despite the efforts made to enhance and maintain quality, the HERQA's quality audit report and few pieces of research conducted in public universities (Ayalew, Dawit, Tesfaye, & Yalew, 2009; HERQA, 2008; Sisay, 2006; Tefera, 2006) show that higher education quality is still at risk and needs improvement.

The quality improvement process, however, requires the university management, teaching and support staff to engage in the dynamic quality improvement cycle involving the steps to plan, do, check and act (PDCA) (Hansen, 1994; Hoy, Bayne-Jardine, & Wood, 2000). These steps usually help the management and the staff to answer three basic questions: "(1) What are we trying to achieve? (2) How well are we doing? and (3) How could we do it better?" (Hodgkinson & Kelly, 2007, p. 79). The checking element of the quality improvement process addresses the "how well are we doing" question and refers to the quality measurement issue which is the concern of this research.

Measuring quality effectively is pivotal because both the planning and improvement steps are highly dependent on the information obtained from quality assessment. Capitalizing on the significant role that quality measurement plays in quality improvement, Koslowski (2006, p. 286) states that "academic leaders . . . should consider the context of quality and assessment as more than an account of things past or present, but as a guide to planning, leading, and ultimately assessing future calls for reform." Similarly, Behara, Fisher, and Lemmink (2002) further emphasise that the first essential step in improving service quality is its effective measurement and analysis. These views exclaim that measuring quality is a crucial step in the quality improvement and management process, and the effectiveness of quality improvement recommendations and actions are largely dependent on the effectiveness of the quality measurements employed.

Literature in the area reveals the existence of different quality measurement approaches derive from the different conceptions of quality. The major ones include: (1) the procedural/audit approach (HERQA, 2007; Morley, 2003; Vroeijenstijn, 1995); (2) the customers' satisfaction approach (Angell, Heffernan, & Megicks, 2008; Brochado, 2009; J. Douglas, A. Douglas, & Barners, 2006; Lagrosen, Seyyed-Hashemi, & Leitner, 2004; Sallis, 2002); and (3) the value-added approach (Kotze & du Plessis, 2003; Kuh, n.d.; Tam, 2002, 2004, 2006).

An examination of the audit report and those few research studies conducted on quality in Ethiopian Higher Education (EPHE) shows that both these studies seem to have applied the audit approach. This approach largely views quality from the producers' angle and considers education as a product affected by the input and process factors. It is an inside-out approach where quality is measured by the criteria that the institution believes should be met.

Different scholars, however, criticize the audit approach for at least three limitations: (1) It follows a product approach to quality which is incompatible with the features of education systems (Sallis, 2002); (2) it encourages conformity rather than innovation; and (3) it is vulnerable to fraud and may not correctly describe the status of the institution (Morley, 2003). Sallis also comments that setting systems and procedures consistent with the purpose of the institution are essential and necessary but are not sufficient to ensure customer loyalty. He further claims that "the things that bring customers back [to the institution] time and time again and hold their allegiance are often centred on personal services and customer care [not on the systems and procedures deployed]." (p. 14)

In addition to the above limitations of the audit approach, the input, process and output variables used to measure quality in both the audit and the research studies have not been tested for their appropriateness to the context of EPHE, nor to their relationship with mostly agreed upon indicators of quality, namely satisfaction, perceived gains and loyalty. Moreover, the instruments used to measure quality do not include most of the intangible aspects of education quality which play a significant role in the satisfaction and loyalty of customers.

Because of the kind of limitations inherent in the audit approach, Sallis (2002) advises managers and researchers to consider education as a service rather than a product. Service quality is a

perspective that regards the role of customers as an important aspect of the production and consumption of service. For scholars like Sallis (2002), the service quality indicators are as strong as hard and objective performance indicators and can be used in the measurement of quality in higher education. Supporting this idea, Oldfield and Baron (as quoted in Joseph, Yakhou, & Stone, 2005) contend that:

> . . . institutions should address the issues of quality, not only through the traditional routes of accreditation and course review, student feedback questionnaires on quality of course delivery and teaching but also through evaluating what students themselves consider to be elements in service quality (p. 69).

There are also a number of other facts that justify the need to shift to customers' approach in the study and management of quality in EPHE. To mention a few: (1) the rights that students have to select the programme and the university they would like to join; (2) the growing number of public and private higher education institutions that offer similar programmes of equivalent standards; (3) the introduction of internet technology that widens access to local and international distance universities; (4) the introduction of the cost-sharing scheme that requires students to pay part of their tuition fee; and (5) the introduction of Business Process Reengineering (BPR) in all universities that demand EPHE be responsive, competitive and work towards customers' satisfaction.

All these realities justify the assertion that students have a significant share in making decisions about the programmes and universities they would like to join and therefore implies universities be customer-oriented and compete for attracting and retaining students. Hence, each institution has to be engaged in continuously measuring its service quality so as to keep on improving its services and stay in the competitive market.

In spite of the importance attached to service quality measurement, there is no such model designed to measure service quality in EPHE so far. The researcher found the issue to be an important missing link in the quality improvement process that is worth researching. The researcher

believes that developing a service quality measurement and structural model suitable to the context of the EPHE system can make both practical and theoretical contributions.

1.2 BACKGROUND*:* CONCEPTUAL AND THEORETICAL FRAMEWORK FOR THE STUDY

1.2.1 Service quality

It is hardly possible to reach a consensus on the definition of service quality. Brysland and Curry (2001, p. 391) reviewed the perspectives of different authors and defined service quality as "[the provision of] something intangible in a way that pleases the consumer and that preferably gives some value to [him/her]". Johnson and Winchell (as cited in G. Smith, A. Smith and Clarke, 2007, p. 335) also define quality as "the totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs". Recognizing the presence of different customers, Edvardsson (1998, p. 144) explains service quality as "the service that should correspond to the customers' expectations and satisfy their needs and requirements."

Service quality entails the consideration of two important aspects - the nature or characteristics of the service and the customers for whom the service is rendered. In the higher education context, services are categorised as academic and non-academic and they have complex features that make them different from products. In this regard, Sallis (2002, pp. 19-20) outlined the following features that distinguish it from product quality:

- Services are rendered in the presence of both the provider and receiver, and the interaction between the two not only determines the quality of the services but also provides the main means of judging whether customers are satisfied with it.
- Services are consumed at the moment of delivery and hence the control of their quality by inspection or audit is always too late.
- Services face the problem of intangibility. It is often difficult to describe to potential customers exactly what is being offered or to describe what the customers want from the service. Services are largely about the process and its impact on the outcome rather than the product or outcome itself.

- It is very difficult to measure the successful output and productivity in services. The only meaningful performance indicators are those of customer satisfaction, perceived gains, and loyalty.

Reviewing the works of different researchers, Yeo (2008) also identifies "heterogeneity" as another characteristic of service quality in addition to those discussed above. He notes that each customer's expectation of service quality is different and this makes the standardization of services difficult as the expectation varies from situation to situation.

Having described the above features of higher education, Yeo (2008) and Sallis (2002) further analyse that higher education carries out educational processes in the form of lesson delivery, advising, counselling, project or research supervision, tuition, assessment and guidance and other support functions which can be regarded as a type of service.

The second aspect of service quality refers to the customer. According to Sallis (2002), the customers of higher education are very diverse groups that include: primary customers (the students), secondary customers (parents, governors, and employers), tertiary customers (labour market/government/society) and internal customers (teachers and support staff). As has been noted earlier, the expectations of these different customers are usually heterogeneous and most often conflicting. This makes the study of service quality complicated. For this reason, most researchers tend to focus only on students and internal customers. In this study, however, we will focus only on students mainly because they are the primary consumers of the service.

From the definitions and aspects treated above we can understand that meeting customers' expectations, satisfying customers, ensuring value-added outcomes and making the customers loyal to the institution are important indicators of service quality. In this research, service quality stands for the provision of services (both tangible and intangible) that not only meet actual or implied needs and expectations but also satisfy the customers, add value and thereby ensure customer loyalty.

1.2.2 Theoretical framework for the study of service quality

Theoretical frameworks portray the interaction pattern of service quality variables to determine customers' perceived quality, satisfaction, perceived gains and loyalty. For the purpose of clarity, first, the researcher examines frameworks developed to study perceived quality and later extends the discussion to other quality related variables and their relationship to perceived quality.

Different frameworks have been developed by researchers in the study of perceived quality in both the business and service industries (Parasuraman, Zeithaml & Berry, 1994; Cronin and Taylor; Firdaus, all cited in Brochado, 2009). For the purpose of this study, the researcher selected the "SERVQUAL" framework because it is the most widely applied framework. This framework (see Figure 1.1) follows the disconfirmation paradigm and measures service quality in terms of the difference between customer expectations and performance perceptions on a number of attributes representing mainly five dimensions - tangibles, reliability, responsiveness, assurance and empathy. The framework also considers students' characteristics that may affect their expectations. Many researchers applied the framework directly or with some modifications in business (Kumar, Kee, & Manshor, 2009) and in higher education contexts (Angell et al., 2008; Zafiropoulos & Vrana, 2008).

Despite its undoubted popularity in the service quality literature, SERVQUAL has not remained immune from criticism. After analysing the works of different scholars, Angell et al. (2008) identified two limitations of the framework: (1) That the framework's 'expectations' measure is irrelevant and confusing, and (2) the dimensions utilized by the framework lack generality. The framework also overlooks the effect of student characteristics on performance perception. The first limitation has led to the emergence of a performance-only paradigm of service quality measurement framework that cuts out the expectation part of the SERVQUAL framework and changed it to a modified framework called SERPREF (Cronin & Taylor, as cited in Borchado, 2009).

The second limitation led to the emergence of scholars who claim that service quality can be achieved in various ways with determinants arising from the perceptions of customers. These scholars (Gbadamosi & De Jager, 2008; Owlia & Aspinwall, 1996; Pereda, Airey, & Bennett, 2007) argue that service quality should not be limited only to those five dimensions because it is so

subjective that individual customers in different institutions can have different perceptions in different situations and times. As a result, they use qualitative and quantitative strategies to convert subjective responses into measurable attributes of service quality and determine the specific factors that explain service quality in the context of higher education.

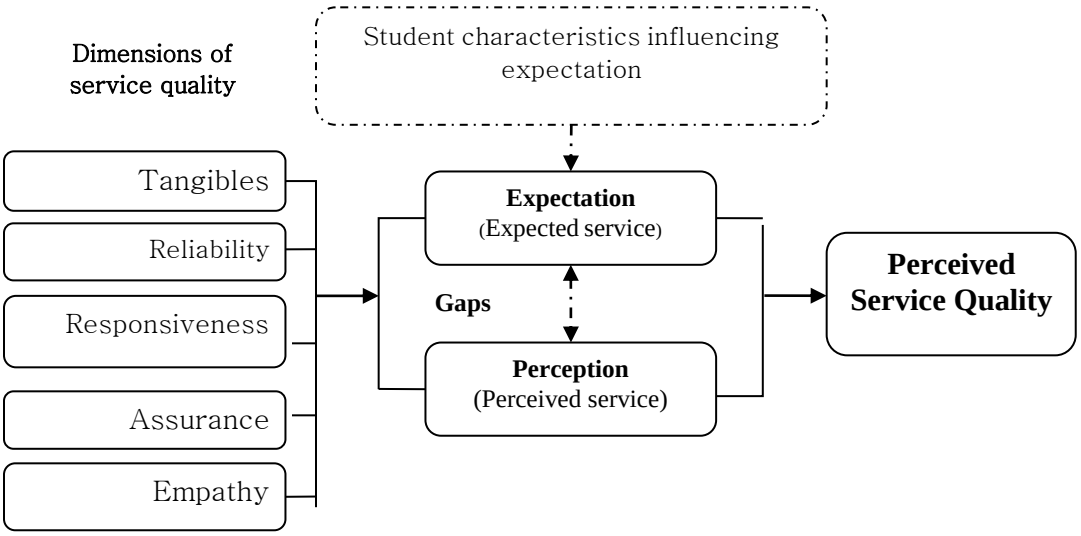

Figure 1.1. Service quality measurement framework using SERVQUAL perspective (adapted from Kumar et al. 2009, p. 214)

Most of the factors identified following this notion are relatively different from those used in the SERVQAL and SERPREF frameworks. After identifying the service quality attributes and factors, however, they applied the performance-only framework to assess the service quality. The works of Gbadamosi and De Jager (2008); Owlia and Aspinwall (1996); and Pereda, Airey, and Bennett (2007) are cases in point.

After examining how the disconfirmation and performance-only frameworks are used in the study of service quality, Angell et al. (2008) conclude that both are suitable for measuring service quality across a wide variety of industries and disciplines. They also caution that researchers should make an informed judgment while selecting a framework as there is little consensus on specifying a universally suitable framework. In order to overcome the observed limitations of the SERVQUAL framework, the researcher has decided to include more dimensions to make it more comprehensive, cut out the expectation component and to consider the effect of student characteristics on perception instead of expectation.

The disagreement among researchers extends to the relationship between perceived service quality and other variables like satisfaction, perceived gains, and loyalty that are in most cases used to validate the determinants of service quality.

With regard to the relationship between perceived quality and satisfaction, the literature shows the existence of different views. For instance, Popli (2005) equates perceived service quality with satisfaction while others (Douglas, McClelland, & Davies, 2008; Marzo-Navarro, Pedraja-Iglesias, & Rivera-Torres, 2005) consider it as different. Those who assume service quality as different from satisfaction maintain two opposing positions again; some consider consumer satisfaction as an antecedent of perceived quality while others take the reverse position.

According to Cronin and Taylor (as cited in Douglas et al., 2008), specifying the position that the selected service quality measurement framework should follow is essential because it makes clear whether the objective of the institutions is to deliver satisfied customers who will then develop a perception of high service quality or to work for high service quality as a way of increasing customer satisfaction. In view of that, the framework selected for this study adheres to the position that regards perceived service quality as a precursor to satisfaction mainly for two reasons. (1) Because it directly aligns with the purpose of higher education institutions (Woodhouse, 2003) and (2) it is supported by a substantial amount of empirical evidence (Douglas et al., 2008; Marzo-Navarro et al., 2005).

Douglas et al. (2008) also assert the antecedent-consequent relationship between service quality and loyalty stating that: “Keeping customers satisfied, or preferably, completely satisfied, leads to customer loyalty.” (p. 21). Kumer et al. (2009, p. 212) also confirm that "[the] provision of high-quality service will result in higher customer satisfaction and enhance customer loyalty."

Other researchers, who advocate a value-added approach to service quality, regard students as "co-producers" of service and focus on their holistic gains resulting from exposure to different university experiences (Kotze & du Plessis, 2003; Kuh, n.d.; Tam, 2006). Reviewing literature in the area, Kotze and du Plessis developed a framework that clearly shows the impact of students' participation in socialization activities on their learning outcome, satisfaction, and loyalty. In other

words, the value-added approach to service quality portrays that the quality of university activities (services) determines the overall gains of students which in turn affects their satisfaction and loyalty.

Edvardsson (1998, p. 142), however, contradicts the above position. He claims that the "customer's total perception of the outcome [value added] . . . forms the perception of quality and determines whether he[/she] is satisfied or not." From the two positions, we can understand that there is a potentially bidirectional relationship between service quality and perceived gain as well as between perceived gain and satisfaction. To be consistent with the position discussed elsewhere, this study takes the position that assumes service quality as a precursor of perceived gain and perceived gain as an antecedent to satisfaction and loyalty.

In sum, based on the discussions made so far in relation to the different frameworks of service quality as well as the relationships among perceived service quality and other related variables, the researcher synthesized a modified but more comprehensive SERVQUAL conceptual framework for this study (see Figure 1.2). The framework explains service quality as a function of factors that affect not only perceived service quality, but also overall satisfaction, perceived gains, and loyalty.

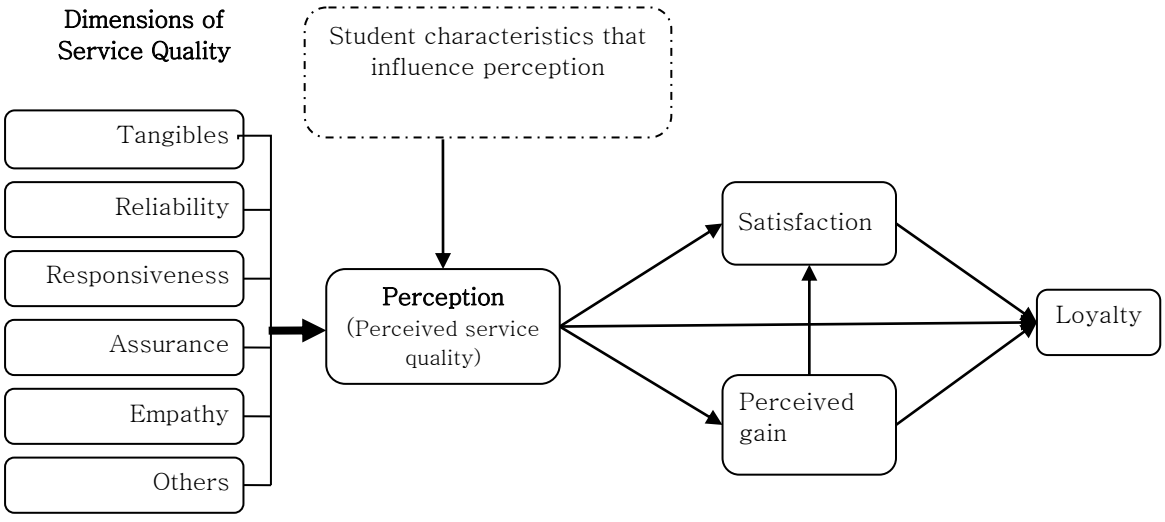

Figure 1.2. A proposed conceptual framework for measuring service quality

1.3 STATEMENT OF THE PROBLEM

From the discussions made so far, the researcher identified the following major gaps that this research intends to address. These include:

- The different quality measurement efforts made in most part of the world and in Ethiopian HE institutions have overlooked the service nature of education.
- The instruments used to measure quality in HE context, particularly in Ethiopia, assume education as a product, not a service and as a result they failed to measure important constructs of service quality like perceived service quality, satisfaction, perceived gains and loyalty.
- Although there were specific claims about the attributes used to measure service quality constructs and the relationship among the constructs, they lack both consistency and comprehensiveness. That means, there was no a comprehensive model developed and tested so far to explain service quality in higher education context in general and in Ethiopia in particular.
- There were no studies carried out to determine the service quality in EPHE institutions taking the views of the primary customers (students) into account.
- There were unsettled disputes among authorities and researchers about the aspects of students' characteristics that have relationship or association with their perception to service quality variables in the context of PHE.
- The absence of a comprehensive and empirically tested service quality model in EPHIs has left the status of service quality in EPHE unknown.

Based on the above gaps, the following major research question was formulated for investigation**:**

How can service quality be measured and modelled in Higher Education (HE) in general and in Ethiopian Public Higher Education (EPHE) in particular?

For systematic and logical handling of the major research question, the following five main and eight minor or specific questions were formulated:

- RQ1: What are the dimensions of students' perceived service quality, satisfaction, perceived gain and loyalty in the higher education (HE) context?
- RQ2: How well does a four-factor measurement model with a simple structure (each variable loading on one latent factor) fit the data?
    - RQ2.1: Is the measurement model invariant to two or more groups of students?
- RQ3: Do students' background and other characteristics have significant relation to or association with perceived service quality, satisfaction, perceived gain, and loyalty?

These questions are treated theoretically in chapter two and are partly answered empirically in the qualitative part of chapter five.

- RQ4: How well does the proposed structural model fit to the data and how much of the dependent variables in the structural model, both latent and observed, is accounted for by the independent variables?
    - RQ4.1: Does perceived service quality have a direct effect on satisfaction, perceived gain and loyalty?
    - RQ4.2: Does perceived service quality have an effect on loyalty mediated by satisfaction and perceived gain?
    - RQ4.3: Does satisfaction have a direct effect on loyalty?
    - RQ4.4: Does perceived gain have a direct effect on satisfaction and loyalty?
    - RQ4.5: Does perceived gain have an effect on loyalty mediated by satisfaction?
    - RQ4.6: Do demographic and non-demographic student characteristics have an effect (direct and indirect) on perceived service quality, satisfaction, perceived gain, and loyalty?
    - RQ4.7: Do two or more groups differ in their regression coefficients of the paths in the structural model?

These questions are theoretically addressed in chapter three and are empirically answered in the quantitative part of chapter five.

- RQ5: To what extent do EPHIs provide quality services to students?

This last question is empirically answered in the quantitative apart of chapter five.

1.4 AIM OF THE STUDY

The aim of this research was to develop a service quality measurement instrument and a service quality model which could be used in the context of HE in general and EPHE in particular.

With regard to the development of a service quality measurement instrument, the research strives to attain the following objectives, first by means of a literature study (in chapter two) and then using empirical evidence (in the qualitative part of chapter five). Primarily, it explores the dimensions and/or attributes of constructs (perceived service quality, satisfaction, perceived gains, and loyalty) used to measure service quality and the characteristics of students that may affect their perception of service quality (RQ1). Secondly, the study specifies the measurement model that can fit the data or EPHE context followed by a test of invariance among groups (RQ2 and RQ2.1). The attainment of these two objectives generally results in the development of a service quality measurement instrument to each dimension and construct in the proposed conceptual framework (see Figure 1.3).

Following the development of the service quality measurement, the study proceeds to the development of a structural model for service quality in the HE context based on literature (in chapter three) and empirical evidence (in the quantitative part of chapter five) (see Figure 1.4). To realize this, the study sets the following four objectives: First, it examines the relationship between dimensions of perceived service quality and other constructs – satisfaction, perceived gains and loyalty – in search of dimensions which have a strong relationship with these three constructs in addition to perceived service quality. This would help to identify constructs that conform to the conceptual framework chosen for this study – services that not only meet the expectations but also satisfy, add value and make students loyal.

Then, the study examines the effects of students' characteristics on their perception of service quality to recognize the potential influences or cautions, if any, which must be taken into account when measuring service quality (RQ3). On the basis of the relationships observed the researcher tests the structural model fit to the data or re-specifies it until it fits to the data (RQ4). After the specification of the structural model, the researcher examines the causal relationship between the

independent and dependent variables in the model (RQ4.1-RQ4.6) and whether there are group differences in the observed causal relationships between variables (RQ4.7). Finally, the study determines the current status of service quality in the Ethiopian Public Universities (RQ5).

1.5 SIGNIFICANCE OF THE STUDY

The successful attainment of the stated study objectives makes the study have the following practical and theoretical significances.

Practically the study contributes to:

- Introduce a contextualized alternative quality measurement model that can support the quality improvement efforts of public higher education institutions in Ethiopia.
- Bring the importance of service quality to the attention of practitioners and policy makers so that they can consider it in the quality improvement and assurance process.
- Surface the services that need the due attention of the management and staff in the Ethiopian Public Universities.

Theoretically, it contributes to:

- Enhance the SERVQAL to include additional dimensions and quality related variables in the pursuit of strong determinants for service quality.
- Extend the scope of the SERVQAL model to be applicable in the context of developing countries and different programmes.
- Develop a more comprehensive model that explains service quality in the context of HE better.

Specifically, policy makers such as HERQA, MoE, and top management of public universities as well as university level quality assurance and improvement units, program and operation level managers of public universities, and front line service providers could benefit from the practical contributions of the study. It can help them to introduce the notion of service quality in the sector or respective institutions, improve systems of quality assurance process, improve operations of academic and support services, and develop a service oriented mind-set and culture. Students also benefit from the quality of services they will receive following the improvements made in the

respective institutions. On the other hand, researchers and academia would benefit from the theoretical contributions of this research in that it could help them study and analyse HE service quality employing a more comprehensive and empirically tested model.

1.6 RESEARCH DESIGN AND METHODOLOGY

1.6.1 Research design

In this section, a brief account of the territory of the world view in which the study is situated, the research approach which was chosen and the specific research design employed to undertake the study are provided.

1.6.1.1 Research paradigm

Research is carried out with the purpose of solving problems, influencing policy or addressing knowledge gaps. Such an undertaking, particularly the search for knowledge, needs to clearly position itself in the realm of thinking about the nature of knowledge, i.e. epistemology and how it can be obtained, i.e., ontology (Creswell, 2012). In this regard, there are different world views - paradigms - suggested by scholars in the area. Most often suggested paradigms are post-positivism, constructivism, and pragmatism (Creswell, 2012; Mertens, 2005; Morgan, 2013). Post-positivism and constructivist schools of thoughts are known for their polarized positions about the nature of knowledge and methods of obtaining it. On one end of the pole, we find the post-positivists and they believe that reality or knowledge exists objectively independent of the researcher and they also claim that there are objective ways of obtaining the knowledge, i.e., quantitative methods (Creswell, 2012; Morgan, 2013). Constructivists are located on the other end of the pole. They argue that reality or knowledge is created in the minds of the observers and it cannot be thought as something that exists independent of the researcher. They also argue that subjective realities can only be obtained through qualitative methods that involve negotiation of meanings (Creswell, 2012; Mertens, 2005; Morgan, 2013).

Refuting the extreme positions the traditional schools have, pragmatists prefer to take the middle ground. They strongly argue that dichotomizing knowledge or reality as exclusively objective and

subjective as well as conceptualizing the world as independent of the researcher and as something created in the researcher's thought is unrealistic (Creswell, 2012; Morgan, 2013). Rather, the subjective and objective realities coexist (Johnson & Onwuegbuzie, 2004) and the transaction between the two plays a significant role in the understanding of the world or reality (Morgan, 2013). In the view of Morgan (2013), reality is established through the dynamic transaction between subjective beliefs/values and objective actions/experiences. Hence, the belief-action transaction seems more explanatory of the knowledge generation process and to the understanding of the world compared to the schools that categorize the epistemological and ontological issues in the two older camps. In this regard, Morgan (2013, p. 5) states that "knowledge is not about an abstract relationship between the knower and the known; instead, there is an active process of inquiry that creates a continual back-and-forth movement between beliefs and actions."

As stated earlier this research is designed to capture the subjective perspectives of students about the quality of services rendered to them and develop an instrument that can measure service quality more objectively. The study also extends it purpose to the development of a service quality model that works in the context of EPHE. It entails engaging itself in the knowledge generation process that involves the transaction between the subjective beliefs or perceptions of students and objective realities obtained from shared meanings, previous experiences, and theoretical and empirical evidence. In view of this, Babbie (2007) asserts that through the negotiation of meanings people can find a common ground in their subjective experiences and that common experience represents the objective reality. Adhering to the suggestions of Goldkuhl (2012) and the pragmatists' world view, this research was engaged in changing the implicit subjective knowledge (perceived service quality attributes and dimensions obtained from the interview) into an explicit, shared or objective knowledge (shared attributes, dimensions, measurement and structural models of service quality) through negotiation of meanings and/or empirical tests.

Hence, the researcher positions himself in the pragmatism paradigm for it suits his belief system as well as the nature of the problem at hand. Moreover, the researcher would like to take advantage of the flexibility pragmatism offers by employing data collection methods useful to answer the research questions. Such benefits of the pragmatism paradigm have been acknowledged by

researchers and authorities in the area (Creswell, 2009, 2012; Denscombe, 2008; Feilzer, 2010; Morgan, 2007, 2013; Reeves & Ongwuegbuzie, 2004). For details see chapter four.

1.6.1.2 Research approach and design

In this study, a mixed method research approach, particularly exploratory (qual-QUAN) sequential design was employed. As service quality is too subjective, time and context dependent, and since the concept has not yet established itself in the context of Ethiopian Public Universities, identifying its attributes and dimensions from the viewpoints and experiences of students has been considered essential. This entailed primarily a qualitative study involving interviews so that subjective and context-specific responses could be explored, analysed and interpreted to determine context-specific attributes and dimensions of service quality. This phase partly answers the first research question and ends with the development of a contextualized instrument - a questionnaire - used to measure service quality more objectively in the context of EPHE. Creswell (2012, p. 543) substantiates the appropriateness of the selected design for such a kind of study when he states:

> A popular application of this [exploratory] design is to explore a phenomenon, identify themes, design an instrument, and subsequently test it. Researchers use this design when existing instruments, variables, and measures may not be known or available for the population under study.

The quantitative approach was followed and it surveyed the perception of students using the questionnaire and from a relatively larger sample of undergraduate students. The quantitative study first established the reliability and validity of the instrument and then proceeded to answer the remaining research questions. Combining qualitative and quantitative methodologies and thereby taking advantage of the strengths of the two approaches has long been recommended by different authorities (Creswell & Clark, 2007) and researchers in the area (Angell et al., 2008; Gbadamosi & De Jager, 2008; Pereda et al., 2007), and has thus been found to be helpful in the present study. The selected research approach and design not only connects the qualitative and the quantitative phases of the study but also adheres to the pragmatic worldview that advocates

the belief-action transaction as an important knowledge production process and understanding the reality. Thus, the study has a proper philosophical ground.

1.6.2 Research methods

This section presents methodological issues including population and sampling, instrumentation, data analysis and interpretation, validity and reliability and ethical considerations.

1.6.2.1 Population and sampling

By 2015, there were 33 public universities in the country. Of these, 13 had been running some programmes since 2006 but had not finalized their process of the establishment by the time the research was conducted. Another 11 were established very recently and most of them are undertaking the construction works and the provision of programmes simultaneously. Consequently, these 24 public universities were excluded from the study as it was too early to deal with quality issues in these universities. The remaining nine universities have served for more than a decade and were well established compared to the excluded ones. HERQA had conducted a quality audit in these well-established universities in 2007, with the exception of one university - Addis Ababa University. So, the study included those audited public universities as the target population, mainly because these universities had similar orientation and experience in education quality assessment and management.

Out of the eight audited public universities, the one where the researcher works – Bahir Dar University – was selected as a convenient site to carry out the qualitative study and pilot test the questionnaire. Thus, it was excluded from the target population and the target population of institutions was reduced to seven. The sampling procedure for selecting the individual participants/respondents for the qualitative and quantitative phases was different and is presented in the subsequent paragraphs.

For the qualitative phase, a total of 15 undergraduate students from Bahir Dar University were included employing a combination of “stratified purposeful sampling” and “criterion sampling” techniques (Hatch, 2002, pp. 97-98). On one hand, four programmes - Economics, Electrical

Engineering, Medicine and Psychology - were identified for the quantitative phase, and the respective years of study and gender were taken as strata for purposeful sampling. On the other hand, experience as students' representative (class or student union representatives) and better academic performance were considered as criteria for inclusion. These criteria were purposefully set because such participants were believed to have better exposure to different academic and administrative services as well as the courage to properly describe the services rendered to students compared to other students. Thus, 15 students composed of four programmes, different years of study, gender group, good academic performance and/or with experience as students' representatives were included to get rich data about the subjective attributes and dimensions of service quality through the combination of stratified purposeful sampling and criterion sampling techniques. See the composition of the participants in chapter five.

For the quantitative phase, the sample respondents for the pilot test were selected from the university reserved for this purpose, whereas the respondents for the final study were taken from three institutions sampled from the target population of seven public universities offering undergraduate programmes. To ensure the validity and reliability of the instrument, the pilot test, and the final study had to be carried out in similar programmes. Thus, the selection of the three institutions for the final study and identification of similar programmes in the three institutions and the pilot site had to be done before deciding on the sample population for the pilot and the final study.

Accordingly, three (43%) public universities out of the seven target population of PHE institutions were selected using the simple random sampling technique – lottery method. According to different authorities in the area, the lottery method provides equal chance of selection for each population member and it can be done through pulling a rolled name of a university from the three paper cases/boxes each having rolls of names of the seven universities (Cohen, Manion & Morrison, 2007; Lewin, 2005; Lodico, Spaulding & Voegtle, 2010). The selected public universities were coded as University 1, University 2 and University 3 for ethical reasons.

Following the selection of the three universities, 27 out of 199 programmes were identified as being offered in common in the three universities and the pilot site. These programmes were taken as the

realistic population of programmes for the study. For manageability reasons four out of the 27 programmes were included in the study using the systematic random sampling technique (Singh, 2007). These programmes turned out to be: Economics, Electrical Engineering, Medicine and Psychology.

For the pilot test, a total of 550 (24%) respondents were selected from the four programmes of Bahir Dar University employing the proportionate stratified random sampling technique (Singh, 2007; Cohen et al., 2007; Lodico et al., 2010). The base for this decision on the sample size was the item-respondent proportion requirement suggested by authorities to carry out factor analysis. In this regard, Osborne and Costello (2004) recommend at least five participants per each item of factorable variables. Since the largest number of items under a construct was 110, it makes the sample size for the pilot to be 550. The actual number of participants, however, declined to 460 (83.6%) for reasons of non-response, carelessness and responses with more than 5% missing values.

For the final study, a similar procedure was followed except for the changes in the number of participants for an item. This time the number of participants per item was raised to 20 instead of 5 since the population size was large and a relatively large sample size is recommended to ensure adequate statistical power and attain reasonable stability in results when carrying out a confirmatory factor analysis (Kline, 2005; Raykov & Marcoulides, 2006). On the contrary, the number of factorable items was reduced to 92 as a result of the pilot test and that dictated the sample size to be 1840, accounting for 17.5% of the target population. Alike, the pilot test proportionate stratified sampling technique was employed to select the individual sample members from different years of study of the four programmes in the three universities. Similar reasons were attributed to the decline of the actual respondents to 1412 (76.7%) in the final study. The details are presented in chapter five.

1.6.2.2 Instrumentation and data collection techniques

The main data collection instrument employed was a structured questionnaire. However, interviews were first used to identify some attributes and dimensions of service quality specific to the context

of Ethiopian Higher Education based on students' views and experiences. The interview schedule had questions designed to get rich data about the attributes and dimensions students attach to the four constructs of service quality. There were also some questions designed to get data about the characteristics of participants. The attributes, dimensions and student characteristics identified through interviews were included in the questionnaire.

The questionnaire was developed by the researcher using the inputs from interviews and literature and it was comprised of three components. The first section deals with student characteristics that may affect their expectations and perceptions of service quality. The second section focuses on measuring perceived service quality in terms of students' perceptions of the identified dimensions. The third section of the questionnaire contains items that measure the students' perceived satisfaction, perceived gains, and loyalty behaviours. Details about the psychometric characteristics of the questionnaire are presented in chapters four and five. Both the interview schedule and the questionnaire were first prepared in English and then translated into the national language - Amharic - following the recommended procedures of translation.

1.6.2.3 Data analysis and interpretation

The qualitative data obtained from interviews were analysed manually through thematic categorization. Themes were developed based on the dimensions in the conceptual framework. As suggested by Yeo (2008), word recurrence, repeated phrases, and examples of behaviours of service providers were closely observed in the treatment of interview data. Applying the notion of saturated response attributes identified at least twice were included in the potential list of service quality features (Krathwohl, 1998; Miles & Huberman, 1994).

A three level of code structure was used to analyse the data. Following the suggestion of Creswell (2012, p. 251) the identified attributes or behaviours in the two major services (academic and support) were taken as 'minor themes' and they were classified under certain dimensions or 'major themes'. The major themes were further collapsed into four service quality constructs that could be taken as a third level or grand themes. The analysis and interpretation were carried out by constantly comparing the qualitative data to those attributes and dimensions of service quality

synthesized from literature, i.e., using the conceptual framework as a lens. The identified service attributes and dimensions from the interview together with inputs from the literature were used to set a measurement instrument - questionnaire - to service quality. The result at this stage partly answers RQ1 that deals with the identification of service quality dimensions in the context of PHE.

Once the questionnaire has been set based on the attributes obtained from existing literature and the interviews, it was pilot tested for reliability and validity. This marked the beginning of a quantitative phase of the study. To ensure the internal consistency (reliability) of the measures of each dimension or subscale, Cronbach's alpha coefficient was computed**.** In addition, partial factor analysis was used as a data reduction tool and as a technique to establish construct validity for the measure of service quality.

After collecting data from the sample population using the questionnaire, different statistical tools were applied to analyse the data. For instance, descriptive statistics was used to determine the status of dependent and independent variables, such as service quality dimensions, student characteristics, perceived service quality, and satisfaction; perceived gains, and loyalty. Confirmatory and exploratory factor analyses were employed to determine or re-specify the measurement and structural model fit using AMOS version 18. This was intended to ensure the measurement and structural validity of the proposed service quality framework or explore a re-specified one (Byrne, 2010) to answer RQ2 and RQ4.

Structural Equation Modelling (SEM) that embodies regression analysis in it was carried out using AMOS to establish the causal relationship between the dependent and independent variables in the specified structural model (Byrne, 2010; Ullman, 2013). This answers RQ 4.1 through to RQ4.6. Test of invariance of the measurement model (RQ2.1) and paths in the structural model (RQ4.7) between different groups was analysed using "Stat tools" found in statwiki website (http://statwiki.kolobkreations.com/index.php?title=Main_Page) that mainly use the permutation test.

Correlation and regression analysis were employed to test assumptions necessary for structural question modelling as well as to study the relationships among the student characteristics and service quality constructs (RQ3). One way ANOVA was employed to see whether variations in

programmes and institutions were associated with variations in the provision of service quality (part of RQ3). Finally, one sample t-test was employed to examine the status of service quality in EPHE (RQ5).

1.6.2.4 Validity, reliability and generalizability of the research

As a mixed method design combines both qualitative and quantitative approaches, the issue of validity, reliability, and generalizability of the research can be addressed within the respective approaches (Creswell, 2009).

1.6.2.4.1 Validity, reliability and transferability of the qualitative research

In a qualitative study, validity refers to the accuracy of the study (Cohen, Manion & Morrison, 2007) and can be addressed through different strategies. For instance, Creswell (2009) suggests the following most frequently used "validation strategies": (1) building trust with participants and checking for misinformation that stems from distortions introduced by the researcher or informant, (2) triangulating among different data sources, methods or samples, (3) taking the entire written narrative or summary of the results back to participants to check its accuracy and record their reaction to the report, and (4) writing with detailed and thick description. Similarly, McMillan and Schumacher (1997) outlined four strategies, i.e. prolonged field work, verbatim accounts, low-inference descriptors and negative case research, as essential strategies to ensure validity. They also identified some more strategies like multiple researchers, mechanically recorded data, participant researcher, member checking, and participant review which can be added as appropriate.

Accordingly, in the qualitative phase of this research, the researcher started by building rapport with interview participants (through clarifying the purpose of the research, communicating the confidentiality of their responses and listening to their concerns) and by clarifying the meaning of service quality and its nature. This was done to build trust and a sense of security among the participants and reduce possible misunderstandings and distortions during data collection. During the conducting of the interviews the researcher recorded a detailed and thick description of the setting, participants and their responses with the help of a digital audio recorder so as to enhance

the validity and transferability of the results. Based on the recommendations of McMillan and Schumacher (1997), the researcher also used verbatim accounts and low-inference descriptors to minimize potential misinterpretations of data during the analysis. Finally, the results from interviews and questionnaire were triangulated.

Reliability in qualitative studies refers to dependability or consistency of approaches across different researchers (Gibbs cited in Creswell, 2009), and assumes the possibility of replication (Cohen et al., 2007). Transparency and relevancy of the methodological process are among the recommended strategies to ensure validity (Jensen, 2008). Yin (2003) also advises to document the procedures followed and as many of the steps of the procedures as possible. Gibbs (cited in Creswell, 2009) also suggests the following reliability procedures: (1) checking and correcting possible mistakes made during transcription, (2) ensuring the consistency of definitions of codes during the process of coding by writing memos about the codes and their definitions, and (3) cross-checking codes developed by the researcher and another person (research assistant) for intercoder agreement. This study followed the first two suggestions of Gibbs and Jensen's and Yin's advice to ensure the reliability of the qualitative results.

Qualitative researchers use transferability as an alternative way of addressing the issue of generalizability or external validity (Denscombe, 2007). Transferability is conceptualized in terms of ". . . the degree of similarity between the research site and other sites as judged by the reader." (Lodico, Spaulding & Voegtle, 2006, p. 275). In other words, transferability focuses more on the extent to which "the findings could be transferred to the other instances" rather than "their existence in other instances" (Denscombe, 2007, p. 299). This can be achieved by (1) including participants from the relevant members of the group under study through "purposeful sampling", (2) providing "thick description of the context, participants, and research design" (Jensen, 2008, p. 885). Two of Jensen's strategies were used to increase the transferability of the study. The discussion made so far in the methodology section can be testimonials for the consideration of the outlined strategies of transferability in this study.

1.6.2.4.2 Validity, reliability and generalizability of the quantitative research

According to Cohen et al. (2007), validity in a quantitative study might be improved through careful sampling, appropriate instrumentation and appropriate statistical treatments of the data. This implies that validity is a concern that requires due attention during the research design, instrument development and administration, and data analysis, interpretation and reporting. Validity, however, is mostly associated with the quality of the instrument (Cohen et al., 2007). Specifically, it refers to "a demonstration that a particular instrument . . . measures what it purports to measure" (Cohen et al., 2007, p. 133). Thus, the discussion of validity is delimited to the accuracy and precision of the data obtained from the survey instrument – questionnaire.

As suggested by different authorities, measures like (1) pilot testing the instrument involving a representative sample of the population (Cohen et al., 2007; Lodico et al., 2010), (2) checking whether the content of the instrument is consistent with the relevant literature on the topic or through consultation with experts in the field (Singh, 2007), (3) computing the convergence and discriminant validity of the instrument using factor analysis (Cohen et al., 2007; Lodico et al., 2006), and (4) examining the fitness of the measurement model to the data using SEM (Byrne, 2010) were considered to ensure the face, content, convergent and discriminant, and construct validity of the instrument. See details in chapters four and five.

Reliability is another aspect that the quantitative study is expected to address. It refers to the "consistency of scores [responses], that is, an instrument's ability to produce 'approximately' the same score …across different raters" (Lodico et al., 2010, p. 93). In other words, reliability examines whether the instrument is consistently measuring the same trait or attribute across all items on the instrument or subscale (Lodico et al., 2010, p. 93). Although there are different types of reliability issues the concern here is the internal consistency of the instrument and it was established using Cronbach's coefficient alpha (Lodico et al., 2006).

Objectivity, i.e., ensuring findings to be free from the researcher's bias and generalizability - the possibility of applying findings beyond the sample population and the study setting - are the two important objectives of any quantitative study. Despite their variation in purpose, both share similar

considerations for a quantitative study to achieve objectivity and generalizability. Scholars in the area suggest that objectivity and generalizability in quantitative studies can be achieved through the use of (1) objective measurements like multi-item scales (Singh, 2007), (2) advanced inferential statistical methods to analyse and interpret the data (Babbie's, 2007; Dunne, Pryor and Yates, 2005), and by (3) selecting representative participants from the population using random sampling techniques (Donmoyer, 2008; Lodico et al., 2010). All the above suggestions were duly utilised in this quantitative phase of the research to ensure objectivity and generalizability of the data and findings.

1.6.2.5 Ethical considerations

Protecting the rights, welfare, and dignity of research participants is a mandatory ethical issue in educational research undertakings (Creswell, 2012; Cohen et al., 2007; Hutchinson, 2004). Researchers are expected to address ethical issues at all stages of the research process such as selection of a research problem, data collection, data analysis and reporting findings (Creswell, 2009; Cohen et al., 2007; Hutchinson, 2004) and when the researcher selects sample participants from a population (Padgett, 2008). The ethical issues most commonly emphasised in educational research include (1) granting confidentiality, anonymity or privacy, (2) being respectful to the research site and the participants, (3) refraining from deceptive practices, (4) assessment of risks, (5) granting data access and ownership, and (6) obtaining permission and informed consent (Creswell, 2012; Cohen et al., 2007; Hutchinson, 2004; McMillan and Schumacher, 1997). These requirements were carefully addressed at both the qualitative and quantitative phases of the research. Accordingly, the researcher obtained separate ethical clearances from the College of Education at UNISA for the two phases. The details about the specific measures taken to meet the stated ethical requirements are provided in chapter four.

1.7 CHAPTER DIVISION

The study is organized into six chapters. Chapter one presents the orientation and background of the study as well as the problem and its approach in brief. Chapter two contains the literature review on the dimensions and attributes of perceived service quality, satisfaction, perceived gains and loyalty constructs in the HE context. It also reviews the characteristics of students that may

affect service quality perception. Generally, the chapter provides literature-based evidence to RQ1, RQ2 and RQ3 and thereby sets the measurement model of the variables included in the proposed conceptual framework (see Figure 1.3 below).

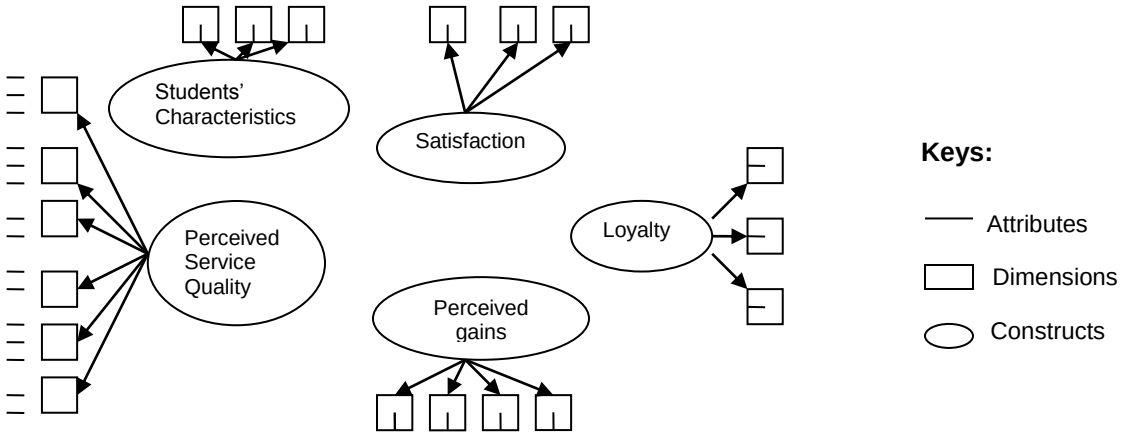

Figure 1.3. Measurement model for variables of service quality in HE

Chapter three presents the literature review on the linear and causal relationship among the dimensions and constructs shown in Figure 1.4 below to develop the structural model of service quality theoretically in the HE context. That means it explains the relationships among service quality dimensions, satisfaction, perceived gains and loyalty; the effect of student characteristics on their perception of service quality; and the effects of service quality dimensions on loyalty directly and indirectly through satisfaction and perceived gains. Finally, the chapter reviews the service quality of different programmes and institutions to know possible variations in service quality and explain the implications of these variations on the applicability of a service quality model. The review in chapter three generally provides theoretical evidence to RQs 4 and 5. The chapter also revisits the theoretical evidence for RQ3 presented in chapter two once again to include students' characteristics in the hypothesized structural model.

Chapter four presents details of the research design and methodology of the study and chapter five deals with the presentation and analysis of the data and is presented in two phases. The first phase focuses mainly on the qualitative aspect of the study dealing with the first research question and the development of service quality measurement for the EPHE context. This phase provides partial empirical evidence for RQs1. The second phase is the quantitative part and strives to

answer RQ1 fully as well as the remaining four research questions empirically and in the context of EPHE. The chapter also discusses the findings of the research by integrating them with the presentation and interpretation of data.

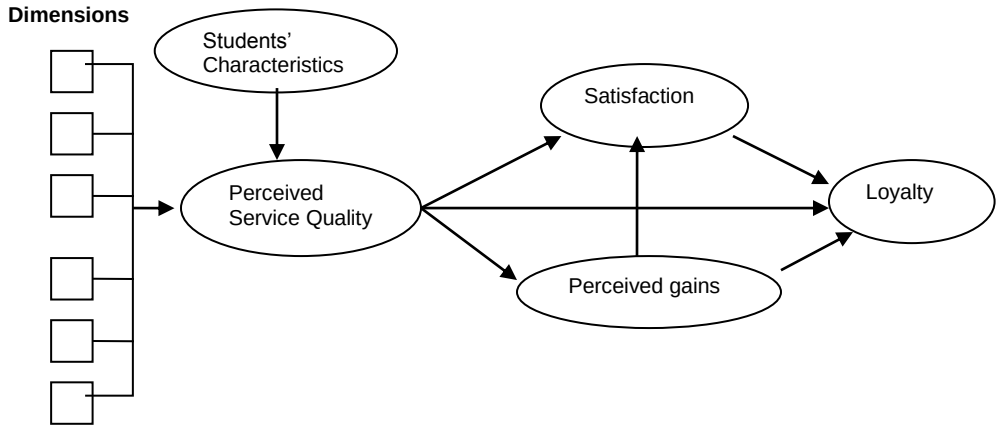

Figure 1.4. Structural model of service quality in HE

The first part discusses the dimensions for service quality constructs (RQ1) on the basis of theoretical evidence from chapter two and empirical evidence from the qualitative phase of chapter five. The second part discusses the measurement model (RQ2 and RQ2.1) taking into account theoretical evidence from chapter two and empirical evidence from the results of the pilot test and the final data. The results in this section are triangulated with the result from the qualitative data to fully answer RQ1 and RQ2. The third section discusses the relationship between the student characteristics and constructs of service quality (RQ3) on the basis of theoretical evidence from chapter two and empirical evidence from the quantitative phase of chapter Five. Part four discusses the structural model of service quality synthesizing theoretical evidence from chapter three and empirical results from phase two of chapter five (RQs 4.1- 4.7). Finally, the chapter discusses the observed status in the provision of service quality in EPHE institutions (RQ5). Lastly, the summary, conclusion, and recommendations are presented in chapter six. Figure 5 represents the plan for addressing the RQs in the different chapters pictorially as follows.

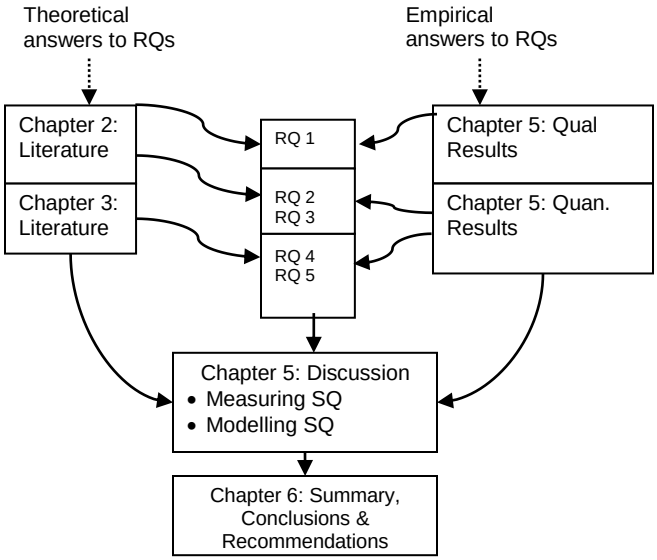

Figure 1.5. The research plan to address the RQs in different chapters

1.8 DEFINITION OF KEY CONCEPTS

Expectation is "the service level that customers [students] believe they should get from the service provider" (Parasuraman, Zeithaml, and Berry, 1994, p. 204).

Loyalty refers to the intent to study at a higher level in the same institution, the frequency, and intensity a student used academic and ancillary services and willingness to recommend the institution to others (Douglas et al., 2008).

Modelling refers to the process of determining the causal relationships among the variables and representing the relationships pictorially to enable a clear conceptualization of the theory under study (Byrne, 2010).

Perception is the judgment of students about the service after or during delivery.

Perceived gains refer to students' estimated or reported amount of changes in their vocational/professional preparation, general education, cognitive and intellectual outcomes and in personal and social development as a result of their exposure to higher education (Tam, 2006).

Perceived service quality is the level of students' judgment about the service after or during delivery against certain dimensions of perceived service quality.

A public university is a university whose budget is allocated by the Federal or State Government (FDRE, 2009).

Satisfaction with a service is defined as "affective response" (Marzo-Navarro et al., 2005) or a sense of fulfilment that students exhibit as a result of receiving quality service (Nasser, Khoury & Abouchedid, 2008).

Service quality is "a general attitude relating to the overall …superiority of the service" (Li & Kaye, 1998, p. 106) that results in satisfaction, value added outcomes and loyalty.

Service quality dimensions are major themes composed of certain similar attributes that represent an aspect of perceived service quality, satisfaction, perceived gains or loyalty.

Service quality constructs are grand themes that embrace a certain group of major themes having some common features. They are latent level descriptors of the major themes or behaviours in service quality.

Student characteristics refer to student related background and non-background variables that may affect the service perception of students.

1.9 CONCLUSION

Chapter one highlights that quality in higher education in general and in Ethiopia, in particular, is a crucial concern that demands continuous improvement. Improvement, however, should be preceded by effective measurement. The most frequently used quality measurement approach in most parts of the world and in Ethiopia is the audit approach. This approach is, however, largely criticized for a number of shortcomings. This reality has influenced many scholars to shift to the customer perspective which regards education as a service rather than a product. The scholars consequently developed different service quality measurement models.

Despite the greater acceptance of the shift to a customer perspective on quality and its worthwhile contribution to the quality improvement process, there is little or no attention given to measure service quality from the customers' perspective in the public higher education institutions in Ethiopia. This study, therefore, focuses on addressing this missing element by applying a modified but more comprehensive SERVQAL framework to service quality. This framework assumes that service quality refers to the provision of academic and non-academic services (both tangible and intangible) that not only meet actual or implied needs and expectations but also satisfy the customers, add value and thereby ensure loyalty. Student-related factors that may affect the expectation and perception of students are also important variables considered in the understanding of service quality.

Generally, the research strives to investigate the constructs that explain students' perception of service quality in EPHE and the linear and causal relationships among perceived service quality, satisfaction, perceived gains and loyalty of the students. The effect of students' characteristics in the causal relationships is also part of the investigation. The study is expected to be practically useful to quality issues in Ethiopia, and may also contribute to the theories related to service quality in education. It has also the capacity to influence the policy of the quality assurance process in EPHE.

The design of the study has two stages. In the first stage, a service quality measurement relevant to the context of EPHE was developed. Qualitative techniques were used at this stage of the research to explore attributes and dimensions specific to the context of EPHE. The second stage focused on quantitative work that attempted to answer the stated research questions and develop the models.

In the next chapter readings on the constructs, dimensions and attributes of service quality, satisfaction, perceived gains and loyalty are presented with the purpose of developing a measurement model for each construct. The review also extended to the characteristics of students that could affect their perception of service quality and to the major dimensions that best explain perceived service quality.

CHAPTER TWO

THE CONSTRUCTS OF HIGHER EDUCATION SERVICE QUALITY

2.1 INTRODUCTION

Service quality, as presented in chapter one, refers not only to the perception/judgment of customers about the service providers' performance (both tangible and intangible) against certain criteria/dimensions but also to satisfying the customers and adding value to ensure customer loyalty. Consistent with this definition of service quality, a conceptual framework is proposed in chapter one that portrays the important constructs involved in understanding and measuring service quality. These constructs include: (1) perceived service quality, (2) satisfaction, (3) perceived gains, and (4) loyalty.

Since one of the purposes of the study is to develop a service quality measurement instrument in the HE context in general and in the EPHE context in particular, this chapter determines the dimensions and/or attributes (measurement model) of each service quality construct as well as the characteristics of students that have some sort of relationship with service quality constructs theoretically based on a literature study. In other words, the chapter provides theoretical answers to RQ1, RQ2 and RQ3 that deal with the dimensions and attributes of the four service quality constructs, the measurement model for service quality in HE context and students' characteristics that affect their perceptions of the service quality constructs respectively.

To this end, the chapter presents the review of services in higher education setting (section 2.2), the service production process (section 2.3), and the dimensions and attributes of each service quality construct (sections 2.4 through to section 2.7). Student characteristics, as an important factor that affects students' perception of quality, is also treated in section 2.8 of this chapter in terms of its dimensions and attributes as well as its effect on perceived service quality and its extensions. In sum, the discussion in this chapter determines the measurement model of the constructs used to define service quality in HE and the factors affecting students' perception to the constructs in the model from a general point of view, although the study is based on the Ethiopian HE context.

2.2 SERVICES RENDERED TO STUDENTS IN HIGHER EDUCATION

Literature in the area reveals that the types of services rendered in HE vary from institution to institution depending on the nature of the programmes offered, theoretical or philosophical underpinnings that govern the programmes of the institutions as well as the modes of programme delivery. Despite the variations, however, there seems to be a consensus among authorities in broadly classifying services into academic/education and non-academic categories (Sallis, 2002; Douglas et al., 2006; Douglas et al., 2008; Sultan & Wong, 2010). The non-academic services are alternatively named as administrative, support, auxiliary, ancillary or general services. In this study the researcher preferred the terms 'academic service' and 'support service' to represent the two broad categories of services in HE.

Higher education institutions provide both academic and support services based on the basic premise that ". . . higher education should devote their effort to the optimum development of the student as a whole person" (Gardner, 1949, p. 53). The provision of these services not only develops the student as a whole person but also contributes to students' perception of service quality and retention (Lotkowski, Robbins, & Noeth, 2004). Supporting this view, Yeo (2008) suggests that support services and facilities play an equal, if not more important, role to academic ones in the development of students and in the improvement of overall service quality in higher education. Hence, every quality management effort in higher education should consider the two core services (Sultan & Wong, 2010).

Recognizing the significant roles that both academic and support services play in developing the student and improving service quality, researchers identified specific service elements under each category and used them to measure perceived service quality and related constructs. For instance, Popli's (2005, p. 19) quantitative study on students' delight reports ". . . learning and teaching, the learning support facilities, the learning environment, other support facilities and external aspects of being a student" as elements of HE service. Douglas et al. (2006) and Douglas et al. (2008) also treated teaching and learning, assessment and support provided by the university as elements of service in HE to measure students' satisfaction. Applying an exploratory design, Angell et al. (2008) identified four factors of service quality in postgraduate education, i.e., academic, leisure, industry

link and cost. Of these factors, the first three are referring to the two core services. Tam (2002) also studied the effects of HE on university students and identified several factors that have contributed to the perceived holistic gains. The factors include: the involvement of students in teaching and learning, entertainment, student union, sport and recreation, campus residence and socialization services.

From the works of the above researchers we can understand that teaching, learning, assessment and industry link are the elements treated from the academic category and the others belong to the support services. The elements in each category, however, are not that exhaustive. Emphasising the importance of examining service elements of each type in detail, Hills, Loman and McGregor (2003) suggest that taking all aspects of students' higher education services into account is essential to effectively monitor quality in universities. Accordingly, different authorities and researchers go beyond teaching, learning and assessment and study academic advising (Crockett, 1978; Frost, 1991; Hines, 1981; Tuttle, 2000), and research supervision (Amzat, Yusuf, & Kayode, 2010; Ismail, Abiddin & Hassan, 2011) as important elements of academic service. Sultan and Wong (2010) also include services related to teaching, research and community services under this category.

With regard to support services, the work of Nasser, Khoury and Abouchedid (2008) identified 18 services. Similarly, Arena, Arnaboldi, and Azzonea (2010) have considered 14 support services in their study of students' perceptions of central administrative services. A more comprehensive outline of services that contains 32 functional areas of student affairs is given by Dungy (2003). Except academic advising, all of the services outlined by Dungy belong to the support service category. Sultan and Wong (2010) also included all activities related to enrolment and amenities under this category.

The apparent variation among the researchers and authorities with regard to the content of service elements in each category implies the need to set the scope of service elements under each category in the context of the HE under study. Accordingly, based on the suggestions of the literature reviewed above and the context of HE in Ethiopia, the researcher decided to include the following specific services under each category. The academic service refers to what the teachers

render to students both in classroom and out-of-classroom environs and mainly comprises of (1) teaching, learning, and assessment (Angell et al., 2008; Douglas et al., 2006; Douglas et al., 2008; Popli, 2005; Tam, 2002), (2) academic advising or consultation (Crockett, 1978; Frost, 1991; Hines, 1981; Raskin, 1979; Rogers, 2002; Tuttle, 2000), (3) research supervision (Amzat et al., 2010; Ismail et al., 2011), and (4) community or industry link services (Angell et al.; Dungy, 2003; Sultan & Wong, 2010).

The support service consists of different services that contribute to the physical, social and personal development of students and supplement the academic service as well. It mainly comprises of (1) admission/registration services, (2) residential services, (3) campus life/personal development services, (4) general student services, (5) resources and facilities provision services.

The admission/registration services include the registration, student orientation and placement services. The admission/registration service mainly informs prospective students about the institution and its programmes, and recruits, screens and accepts applicants. This is followed by the new student orientation and placement programme. This programme welcomes new students to the campus and introduces them to the history, traditions and specific field of studies in each programme, academic requirements (regulations), and student life (social regulations) of the institution. The orientation programme helps students to adjust to the HE academic and social environment and paves the way for their holistic development as well as enables them to make informed decisions about their choice of field of study (Dungy, 2003; Lloyd-Jones & Smith, 1963; Rogers, 2002). Following the placement, students will be registered for courses. The registrar also serves in managing students' cards (ID card and meal card), academic calendar, student records, graduation and certification (issue diploma, official certificates…) as well as facilitates students' transfer (Arena et al., 2010; Boroch, et al., 2010; Dungy, 2003).

Residential services include the housing, campus safety and dining and food services. The housing service is in charge of providing a healthy, clean, safe, and educationally supportive living environment that complements the academic mission of the institution. Responsibilities may include room assignments, facilities management, sanitation control and related services (Lloyd-Jones & Smith, 1963; Leonard, 1956; Dungy, 2003). Campus safety works towards ensuring the

wellbeing and safety of students and their properties by applying appropriate safety and security systems. To achieve this it develops, disseminates, interprets, and enforces campus rules and regulations (Dungy, 2003; Leonard, 1956). The dining and food service provides services ranging from full-service in cafeterias to alternative food canteens that involve commercial establishments inside or outside the campus (Dungy, 2003).

Campus life/personal development services are aimed at promoting the personal and social development of students and include sport and recreation services, and other student activities mainly organised in clubs. The sport and recreation service promotes good health and wellness, teaches physical skills, and ensures positive social interaction among students. Facilities and services provided to students for this purpose may include a gymnasium, swimming pools, aerobics, and a variety of courts for activities such as football, basketball, handball, racquetball, and tennis (Dungy, 2003). The student activities involve students individually and in groups/clubs in cultural programmes, leadership programmes, campus entertainment, talent shows and off-campus trips. This service creates opportunities for students to address educational, cultural, social and personal goals by engaging them in the life of the campus outside the classroom (Dungy, 2003; Leonard, 1956).

General student services include health service, guidance and counselling, disability support, female students' support, student governance and administration. The health service provides medical assistance to students who are ill or injured through on-campus facilities or through partnerships with off-campus hospitals (Boroch et al., 2010; Dungy, 2003; Lloyd-Jones & Smith, 1963). The guidance and counselling service deals with psychological and emotional issues that may affect students' academic success and personal development (Arena et al., 2010; Boroch et al., 2010; Dungy, 2003; Lloyd-Jones & Smith, 1963; Yeo, 2009).

The disability support services provide academic services such as note takers and interpreters; work to improve physical access on campus for students with mobility challenges; advise students about their rights and responsibilities; and provide outreach and consultation to other campus offices and academic units. The service often assumes the role of advocate for students with disabilities; in this role, it works on behalf of students and the institution to ensure that the legal

obligations are met and that students are given appropriate support and accommodation by the campus community. It also educates members of the campus community about the needs and experiences of students with disabilities (Dungy, 2003). The female students' support and empowerment service focuses on issues such as equity, leadership and assertiveness, money management, safety, health, life skills, strategies to overcome peer pressure and relationship violence. The women's centre also promotes equity on campus and works to make the university climate more accepting and encouraging for women (Dungy, 2003).

The student governance and administration service mainly involves students through their representatives to participate in both academic and administrative decisions (Dungy, 2003). It also organises and leads different student clubs or activities and provides services like coffee shop, food canteen, computer centre, travel service and other amenities that support the community and the lives of students.

Resources and facilities provision service provides learning resources necessary for the academic activities, finance and other facilities. The learning resources provision service provides electronic and/or print resources in the libraries and book stores. This service may also include secretarial, internet, printing and binding services, which may be owned by the university or private firms. An internet café service for students' social and academic activities is also an element of this service. In relation to this, Yeo (2009) suggests that the availability of such facilities to students is one of the important quality expectations of students. The financial aid service provides financial support to needy students by working closely with government organisations (GOs) and non-government organisations (NGOs) (Boroch et al., 2010; Dickeson, 2010; Dungy, 2003; Lloyd-Jones & Smith, 1963). The provision of facilities like telephone, laundry, beauty salon/barber, supermarket, transport, bank, and the like belong to this service category.

The above discussions on the two major services in higher education purport that the quality of educational service is not limited to the experience that takes place within the academic wing only. Yeo (2009) notes that the wider spaces of learning and social interaction involving such facilities as laboratories, libraries, computers, clubs, sports and healthcare centres as well as cafeterias and dormitories largely contribute to the total service quality of an institution. Yeo further elaborates that

providing good support service is not merely creating a space and assisting in a task; it includes helping students go beyond the experiment, encourage them to live in the task and inspire them to be who they want to be.

2.3 THE PRODUCTION PROCESS OF SERVICES

"How is a service produced?" is an important question that should be answered following the discussion of the different types of services.

For any service to occur in the context of higher education it requires the interaction of three components, what Sasser et al. cited in Douglas et al. (2006) call "service bundle". The first is the physical goods, facilities or environment essential to the delivery of the service as well as some administrative routines required to utilize the physical goods and facilities. Edvardsson (1998) considers this component as the prerequisite to services. Classrooms, laboratories, libraries, offices, computer centres, campus facilities, physical space together with the material resources in each are examples of the physical component of services. According to Pollack (2008), this physical aspect of the service component is usually named as "tangibles" and serves as a quality dimension by which the customers evaluate the facilities or equipment that the service is provided in/with to judge the quality of a service.

The second component is the service core, what Edvardsson (1998) and Douglas et al. (2006) call the "sensual" or "explicit" service which consists of both the technical and functional services rendered by the service provider during the production of a service. These may refer to two important aspects (1) the type of service or product offered, and (2) the ways the services or products are delivered. Type of service, for example, may refer to the teaching, learning and assessment activities undertaken in the classroom; academic advising and research supervision services offered in the office; information searched or other activities accomplished in the computer centres; resources available in the library; the activities/experiments done in the labs; the processing and offering of results, certificates and diplomas issued by the registrar; the counselling and guidance activities conducted in the guidance and counselling office, etc. The way the services or products are offered mainly refers to the behaviours exhibited or activities done by the service providers to the customers in the course of producing the services. It refers to the service

deliverer's regular job or what the service personnel does in response to the student's request. In general, the service core component refers to both the service outcomes and the behaviours that the service provider exhibits during the production of the services.

The abovementioned feature of the core component implies that the service core causes the service provider and the receivers to interact in order to produce the service. According to Pollack (2008), the measurement of the quality of service core involves the customer's evaluation of interaction quality and service outcome quality. For Pollack the service outcome quality refers to the customer's assessment of the core service or product which is the prime motivating factor for obtaining the services (e.g. the relevance of the knowledge, skill and disposition acquired; the scholarly comments and directions received from the research advisor; the up-to-datedness and relevance of resources in the library; the quality of medical treatment received from the health centre; etc). Pollack also refers to interaction quality in terms of the customer's assessments of the service delivery process, which is typically rendered via a physical interface between the service provider and the customer, or via technical equipment. It includes the consumer's evaluation of the service provider's competence, courtesy, reliability, etc. (Douglas et al., 2006).

The third component concerns the psychological aspect or the treatment that the customers receive from the service provider during the service production process which Douglas et al. (2006) call the "implicit" service. According to Douglas et al. it is the service that affects the customer psychologically through the cognitive and behavioural reactions of the service provider during interaction. That is, as the service production process involves the interaction of both the service giver and receiver and it entails proper treatment of the customer for the service to be perceived as quality. For instance, during the delivery of lessons in the classroom the interaction between the teacher and students is inevitable. The way teachers involve and treat students influence the level and pattern of interaction between the two and the quality of the service as well. The friendliness, approachability, and empathetic treatments shown by the service provider to the students during the provision of service are some examples of this aspect of the service process (Douglas et al., 2006).

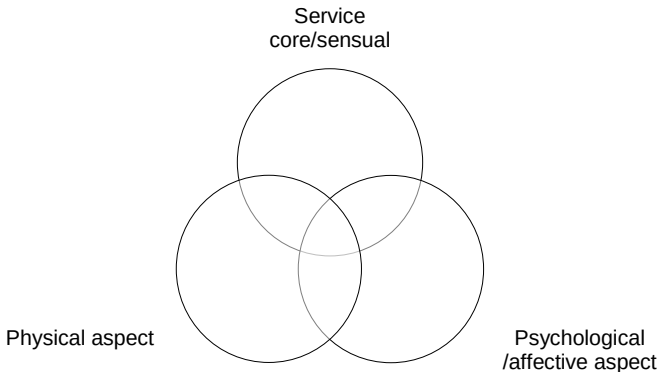

Figure 2.1. The elements involved in the production of services

Theoretically, as depicted in the Figure 2.1 above, the three aspects are interrelated and service quality is maintained when the customer perceives that the physical aspect of the service environment facilitates the delivery of the service core, the service core is delivered as expected and there are acceptable customer treatments (Sasser et al. cited in Douglas et al., 2006; Edvardsson, 1998).

Recognizing services as a bundle of the three aspects, Edvardsson (1998) conceptualized services from three sides based on the customers' perspective: as a customer outcome, as a customer process and as the prerequisite for service. He went on to explain that what comes out of the three aspects (physical, core and psychological), as perceived by the customer, is a "customer outcome" and it is still regarded as the service that the customer received. In the words of Edvardsson (1998, p. 142), "it is the customer's total perception of the outcome which is the service". He also notes that the customer as a service recipient and judge forms the perception of quality and determines whether s/he is satisfied or not.

As discussed above the service as customer outcome is the result of a process that mainly involves the interaction between the service provider and the customer. This process refers to what Evardsson (1998) conceptualized as the "customer process" and mainly addresses the sensual and psychological aspects of the service that entails the interaction between the service provider and the customer (co-producer) in the service production process. This reality implies that the role

and the participation of the customer can affect the quality of the result - customer outcome (Evardsson; Hill, 1995, Sultan & Wong, 2010).

The third side of the service addresses the prerequisite for the service. By prerequisites for the service, Evardsson (1998) means the physical facilities and resources, the administrative routines and procedures which the service provider and the customers must understand and use to produce the service. Similar to what has been suggested earlier about the three components, Edvardsson concluded that the customer's total perception of a certain service relies on his/her perception of the outcome, the process and the prerequisites in the form of resources which have been built up to provide the service.

2.4 PERCEIVED SERVICE QUALITY AND ITS DIMENSIONS

In the previous section, the discussion focuses on the three components that form the services and three sides from which the services may be perceived by the customer for complete understanding and judgment of the services' quality. However, it does not fully describe the specific criteria or factors customers may use to form the perception of service quality. This section is, therefore, devoted to deal with the specific factors and attributes of perceived service quality.

The factors of perceived service quality have different names in the literature of service quality though the meaning remains similar. After reviewing the works of different researchers, Edvardsson (1998) notes that the concept 'quality factors' is synonymous with what some researchers call dimensions, determinants, quality criteria or quality categories. In this research, the term 'dimension' is used to avoid confusion with other factors included in the study.

Many studies have identified different dimensions which enable customers to form the perception of service quality. From the studies of general service quality we find the well-known work of Berry, Parasuraman and Zeithaml (1985). They identified ten dimensions, namely: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding the customer and tangibles. The authors have later revisited their framework and have condensed the ten dimensions into five more comprehensive ones usually called SERVQUAL's RATER

(Reliability, Assurance, Tangibles, Empathy and Responsiveness) dimensions (Berry, Parasuraman & Zeithaml, 1991).

These five dimensions are popular and used in many researches (Imrie, Cadogan & McNaughton, 2002; Kumar et al., 2009; Li and Kaye, 1998). However, they failed to withstand contextual and cultural variations. For instance, the work of Kumar et al. (2009) conducted on bank services resulted in four contextualized dimensions that merged three of the five SERVQUAL dimensions (Responsiveness, Assurance and Empathy) into one and introduced a new dimension, named 'convenience'. Imrie et al. (2002) also conducted a study that tested whether the Berry et al.'s SERVQUAL five dimensions developed in American culture can work in a different (Taiwanese) cultural setting. The result confirmed that service quality dimensions are influenced by the cultural values of consumers. That means, the SERVQUAL five dimensions do not fully capture the criteria used by Taiwanese consumers – sincerity, courtesy and generosity.

Some researchers have developed different lists of service quality dimensions. For example, Edvardsson (1998) suggests recovery, simplicity/availability, ability and willingness, trust/dependability, and empathy as constructs of general service quality. Gronroos (cited in Lagrosen, Seyyed-Hashemi, & Leitne, 2004) also outlines seven dimensions: reliability and trustworthiness; accessibility and flexibility; service recovery; competence; reputation and credibility; attitudes and behaviour; and serviscape. The works discussed so far clearly show that there are similarities and differences among the suggestions of different researchers and the search for dimensions of general service quality has not yet settled. As stated earlier, the observed variation and inconsistency among the research findings could be attributed to contextual and cultural factors.

Different researchers have applied directly or adapted the Parasuraman et al.'s, (1988) five SERVQUAL dimensions to conceptualize and measure service quality in the higher education context (Lagrosen, Seyyed-Hashemi & Leitner, 2004; Li & Kaye, 1998; G. Smith, A. Smith, & Clarke, 2007; Yeo, 2008; Zafiropoulos & Vrana, 2008). The results, however, are not consistent. Li & Kaye, for example, suggest that the five dimensions of service quality are more or less equally important and institutions must commit themselves to achieving excellence in all aspects of service

provision to satisfy students' needs. Smith et al. also applied the five dimensions of SERVQUAL in the context of university IT service and found that assurance and empathy amalgam to a single factor while the rest stand as separate dimensions. They further concluded that the IT service quality dimensions in the university context are similar but not exactly the same as that of the SERVQUAL dimensions. Similarly, Zafiropoulos and Vrana applied the five dimensions of SERVUQAL in the context of Geek Higher Education and found assurance, empathy and tangibles as the core determinants of students' perception of service quality rather than the rest. These studies clearly verify that SERVQUAL could be partly suitable for some contexts.

Many others also identified different sets of service quality dimensions. For example, Pereda et al. (2007) applied an exploratory design and developed and tested dimensions of service quality in higher education as perceived by international students. Their findings uncovered four dimensions: institution's reputation/recognition; quality of instruction and interaction with faculty; sufficiency of resources; and aspects of physical quality. The researchers further noted that the institution's reputation is the most important determinant for the international students' perception of service quality.

Similarly, Angell et al. (2008) used exploratory factor analysis and identified four service dimensions that postgraduate students used to evaluate the quality of services in higher education. The factors are: academic, leisure, industry links and cost. Their findings further show that the 'academic' and 'industry-link' aspects of the service quality are the most critical factors to postgraduate students. Lagrosen et al. (2004) also followed a similar study design and identified eleven dimensions: corporate collaboration, information and responsiveness, courses offered, internal evaluations, computer facilities, collaboration and comparisons, library resources, campus facilities, teaching practice, external evaluations, and post study factors. Of the eleven dimensions, however, the first seven were found to be the most important determinants. The researchers also compared their findings with the general service quality dimensions and reported the existence of reasonable correspondence but also several differences between the general service quality dimensions and that of higher education. The differences, according to the researchers, highlight the importance of identifying quality dimensions for each activity. Unlike many other studies treated

in this section, this research seems to emphasise the indicators usually applied in the audit approach to quality assessment.

In their study of students' perceptions of quality in higher education, Hills et al. (2003) applied grounded theory and reported that students perceive service quality in terms of the lecturers' quality, student engagement with learning, social/emotional atmosphere, and availability of library and IT resources. Specially, the first two are found to be the most influential determinants in the provision of quality education.

Although they have followed a different - performance only - measurement framework, Sultan and Wong (2010) also conducted an empirical study on Japanese universities and identified eight dimensions of perceived service quality. These are: dependability, effectiveness, capability, efficiency, competencies, assurance, unusual situation management, design and integration of courses and syllabus for a programme focusing on the global requirements. Despite the difference in the framework used, the identified dimensions have many more similarities than differences to the previously discussed research findings. In their effort to formulate the perceived service quality framework, Owlia and Aspinwall (1996) identified the following six dimensions: tangibles, competence, attitude, content, delivery, reliability. Another study conducted by Lacovidou, Gibbs and Zopiatis (2009) identified seven dimensions highly valued by both the students and the teachers. Each dimension, however, addresses the following issues (p. 153):

- *Teaching and learning facilities*. Availability and access to library facilities, study rooms, laboratories, computers, printers, software and the Internet.
- *Student examination and assessment*. Rules and policies for examinations, uniformity of application of rules and policies by academic staff, uniformity and fairness in assessment, feedback on course work.
- *Teaching and learning process*. Knowledge gained by students, improvement in students' problem-solving skills, teaching skills of the academic staff members, punctuality of the staff, attitude and behaviour of academic staff towards their students.
- *Buildings and general facilities*. Appearance of the university campus, appearance of the classrooms, sports facilities available.

- *Programmes and courses of study*. Programmes and courses offered extent to which programmes and courses of study prepare students for employment, programme contribution to personal development of students, development and up-datedness of the programmes, overlap among courses.
- *Student support services*. Programme, registration and career advice, tutorials, counselling.
- *Competency of the lecturers and the students*. Industry experience and research output of the academic staff, student academic performance.

From the works of the different researchers discussed so far, it seems evident that the dimensions cover, although disproportionately, both categories of services (academic and support) and the three aspects of the service production process (physical, sensual and psychological). The studies, however, lack consistency not only in the number and type of dimensions identified but also in the meanings some dimensions carry. What seems commonly recognized is the multidimensionality of perceived service quality.

In order to determine the dimensions of perceived service quality for this study, the researcher tried to synthesize the works of the different researchers into 18 dimensions and describe each with its implication to the academic and support services in the HE context as shown in Table 2.1. From the 18 synthesized dimensions, tangibles refer to the physical component of the service. The psychological component is represented by access, courtesy, empathy, safety and security/comfort and the remaining 13 dimensions, except cost, are related to the service core/sensual component. Yet, there are some dimensions that can belong to two or more components. Access is an example of such dimensions. When access represents the physical presence of a resource or a person, it can belong to the physical component and an outcome aspect of the sensual component. When it refers to the ease of contact or approachability of personnel, it belongs to the psychological component of the service.

Table 2.1

Synthesis and Descriptions of Perceived Service Quality Dimensions and Implications to Academic and Support Services

	Dimensions	Descriptions	Implications to the academic services (TLA, ADV, RSUP, INL)	Implications to the support services
1.	Reliability [abfkmn]	Ability to perform the promised service consistently, dependably and accurately.	The instructors' ability to perform the academic services consistently, dependably and accurately.	The ability of the personnel to render the support services consistently, accurately and dependably.
2.	Responsiveness [abfik]	Willingness or readiness to help customers and providing service promptly	Willingness or readiness of academic staff to help students in all academic activities. The provision of academic service timely or promptly to students. Setting up appointments quickly and providing the service accordingly. Responding to the students' queries quickly.	Willingness or readiness of personnel in the support services to serve students timely and promptly. Setting up appointments quickly and providing the service accordingly. Responding to the students' requests quickly.
3.	Communication [ai]	Providing the customers with the appropriate and necessary information at the right time.	Providing the students with the appropriate and necessary academic information at the right time.	Providing the students with the appropriate and necessary information at the right time.
4.	Access [acdhm]	Approachability and ease of contact. .	Availability of or regular access to teaching staff. Easily accessible for appointments, i.e., no excessive waiting times for appointments either for group session or individual student. Regular availability in the office hours for discussion, advising or research supervision.	Availability of or regular access to support staff. Convenient hours of opening, personnel are easily accessible for appointment, no excessive waiting time to get the service, convenient location of the service offices/centres.
5.	Competence [acbdfhijkmn]	Possession of the range of required skills and knowledge to perform the service.	Instructors' subject matter, pedagogical, advising and research knowledge and skill required to perform the teaching, advising and research supervision services.	The service providers' knowledge and skill required to render the support services. The qualities or abilities of the relevant service providers to provide satisfactory services.

Douglas and McClelland (2008)[a,] Lagrosen et al. (2004)[b], Angell et al. (2008)[c], Pereda, Airey and Bennett (2007)[d], Kumar et al. (2009)[e], Zafi ropoulos and Vrana (2008)[f], Yeo (2008)[g], Hills et al. (2003)[h], Lagrosen et al. (2004)[i], Marzo-Navarro et al. (2005) [j], Smith, Smith, and Clarke (2007)[k,], Gbadamosi and De Jager (2008)[m], Sultan and Wong (2010)[n],

	Dimensions	Descriptions	Implications to the academic services (TLA, ADV, RSUP, INL)	Implications to the support services
6.	Courtesy/ Friendliness [af]	Politeness, respect, consideration, and friendliness, cheerful attitude of contact personnel	Politeness, respect, consideration and friendliness of instructors to students. Approachable manner, being polite and respectful when dealing with students. Warmth and personal approach with a cheerful attitude as appropriate. Good interpersonal skills and welcoming approach to academic and research advisees.	Politeness, respect, consideration, and friendliness of contact personnel Approachable and respectful manner deployed when dealing with the student. Warmth and personal approach with a cheerful attitude as appropriate. Good interpersonal skills and welcoming approach to the student.
7.	Credibility/ reputation/recognition/ image/ internationalization [adfim]	Trustworthiness, believability, honesty, having the customer's best interests at heart. Reputability /recognition of the programme or the degree in the labour market.	Treating all students equitably; being trustworthy, honest and putting the student first. Instructors' provisions of the services in such a way that make students believe or trust them. The value or worth and trust students have to instructors as a result of their instructional, advisory and research supervision services. The reputability or recognition of the degree obtained /programme attended from the university.	Trustworthiness, believability, honesty of the service personnel. Having the customer's best interests at heart in the provision of the support services.
8.	Safety and Security [am] comfort [ad]	Freedom from danger, risk, harassment or doubt. Psychological comfort students feel in the university environment.	Safe learning environment/campus. Granting respectful and safe private meetings with individual students where appropriate. Granting students to feel free to ask and challenge the ideas of the instructors. No harassing or embarrassing students. Instructors should not use their authority and exams to gain respect from students. Keeping personal issues confidentially during academic advising. Allowing students to defend for their ideas and maintain it as long as justified.	Ensuring confidentiality of transcript of results, complying with current legislative requirements on data protection. Ensuring orderly and disciplined campus life. The campus is a safe place to live and learn. The service providers prevent students from risks, physical and psychological damages/attacks, embarrassment, do not put the students in risk.
9.	Empathy/Understanding the customer [afk]	Consideration, concern, sympathy and patience shown to the customer. Understanding and providing individual attention. Recognizing the customer.	Understanding the student's need, providing individual attention when necessary, recognizing the students. Serving with a caring and trusting relationship. Understanding the student well enough.	The service personnel provide the service with a caring and trusting relationship. The support personnel understand students and their problems well and treat them accordingly.

	Dimensions	Descriptions	Implications to the academic services (TLA, ADV, RSUP, INL)	Implications to the support services
10.	Tangible [abcdefijkm]	Condition of facilities, equipment, and appearance of personnel, i.e., Availability, adequacy, accessibility, appropriateness, convenience, aesthetics (beauty or attractiveness, appearance, neatness, decor), comfort/convenience of tangibles (Physical facilities, tools and equipment, resources) used to provide the service. Appearance of the personnel providing the service.	Availability, adequacy, convenience of physical facilities, tools, equipments and resources necessary to offer the academic services. Appropriateness physical facilities, tools, equipments and resources to the purpose they are supposed to serve. Aesthetics (beauty or attractiveness, appearance, neatness) of the physical facilities, tools, equipment and resources. Appearance of academic staff. Comfort/convenience of physical facilities: classrooms, labs, workshops, and instructors' offices	Availability, adequacy, accessibility, convenience of physical facilities, tools, equipments and resources necessary to offer the support services. Appropriateness physical facilities, tools, equipments and resources to the purpose they are supposed to serve. Aesthetics (beauty or attractiveness, appearance, neatness) of the physical facilities, tools, equipment and resources. Appearance of support staff. Comfort/convenience of physical facilities used for the support services.
11.	Functionality/usefulness [a]	Fitness for the purpose of service.	Teaching and learning venues/environment should be fit for the purpose and user friendly. Appropriateness or usefulness of lessons, courses and programmes to the purpose or future career, personal development. Usefulness of the advising service to the student. Usefulness of the research supervision to the advisees.	Support service environment should fit for the purpose and be user friendly. The functioning of facilities and equipment used in the service centres.
12.	Commitment [a]	The apparent commitment of employees to their work including pride in their job	The apparent commitment of academic staff to their work including pride in their job.	The apparent commitment of support staff to their work including pride in their job.
13.	Organization [jn] and Management [an]	Effectiveness and efficiency of the service, and handling of unusual situations	The provision of programme/course timetables exam schedules, advising and supervision timetables. Effective course admin, fully covered course hours, initial planning and scheduling respected, adequate course organization & management.	The provision of services according to the timetables. Efficient admission process. The services of the university are effective without wasting time or efforts or expenses. The abilities of the university to resolve any grievance, movement or conflict among students, and between students and local community.

	Dimensions	Descriptions	Implications to the academic services (TLA, ADV, RSUP, INL)	Implications to the support services
14.	Flexibility [ah]	Willingness and ability of the service provider to amend the nature of the service to meet the customer needs	Adapt teaching methods to suit the needs of students. Permit individual students to attend an alternative group if timing is an issue for them. Timetabling flexibility where assigned classes are disadvantaging students. (flexible curriculum, part time students)	Adapt systems and processes to meet students' requirements; not using rules and regulations to disadvantage students.
15.	Motivation [a] /gain [h]	The ability to enthuse or inspire customers by the service.	Becoming motivated to act in a specific way because of the subject material in a lecture, advising session or supervisors' comment and suggestion. Academic service which is motivating to learn and achieve.	Becoming motivated to act in a specific way because of the support service or following an encounter with a member of support staff.
16.	Socializing [ach]	Opportunities for social interaction and social adjustment. Helping students behave in a way that is acceptable by the university society.	Conducting induction and orientation sessions that helps students approach the academic staff easily, adjust to the university environment, communicate what is expected of them while attending the programme. Creating an environment of sharing experience.	Making new friends and using the student union facilities. Opportunities for meeting fellow students. Student networking.
17.	Industry-links[c]/Corporate collaboration [bi]	Providing the service/programmes in a way that integrates theory with practice and as a result ensures professional skills development and future job prospect.	Providing the service/programmes in a way that integrates theory with practice and as a result ensures future job prospect. University collaboration and contact with industry/business/community/stakeholders during course development, course provision and practicum. Courses created in co-operation with business. Contact between teachers and business. Teachers having experience from business/industry. Ability to contribute to the corporate world.	The university collaboration with the industry/ business/ stakeholders to provide different support services to students. A helpful career service that creates job opportunities for graduates.
18.	Cost [c]	Reasonable and affordable cost for goods and services.	Affordability of costs incurred on students in the process of making resources available for academic activities (printing, writing, book price, research costs, etc).	Affordability of some of the support services like cafes, entertainments, restaurants, etc.

2.5 CUSTOMER SATISFACTION IN HIGHER EDUCATION AND ITS DIMENSIONS

Customer satisfaction is another contested variable in the study of service quality. The contest among scholars prevails mainly in its conception, relationship with perceived service quality, the constructs/attributes used to measure satisfaction and how satisfaction should be measured.

The conception of customer satisfaction, for example, can be examined from two schools of thought. One school considers customer satisfaction as an outcome and the other school views it as a process (Boshoff & Gray, 2004). The outcome perspective defines customer satisfaction as a consequence of consumption experience explained mainly in terms of affective behaviours like pleasure, positive experience and state of self-fulfilment (Douglas, Douglas & Barnes, 2006, Landrum, Prybutok & Zhang, 2007; Oliver, 1999). Similarly, Guolla (1999) explains satisfaction as a post-consumption evaluation of a service that establishes the customer's psychological state or degree of pleasure about the service.

The process perspective, on the other hand, does not explain satisfaction as a pleasure resulting from the experience; instead it describes it as a cognitive process that involves the customer's judgment of the service rendered vis-à-vis the expected (Baykal, Sokmen, Korkmaz & Akgun, 2005; DeShields, Kara & Kaynak, 2005; Marzo-Navarro et al., 2005; Nasser et al., 2008). Most of the proponents of this school usually assume satisfaction as antecedent to service quality or as a concept similar to perceived service quality.

Although both schools of thought have been widely recognized, the choice of a customer satisfaction perspective and its conception must take into account the perspective selected to conceptualize service and service quality. As presented in chapter one, the proposed conceptual framework for service quality treated perceived service quality as a function of perceived service providers' performance measured against some criteria or dimensions. The discussion of the service production process in the previous section also revealed that service quality is an outcome-focused process that requires the involvement of customers and the necessary prerequisite resources. Thus, customers as service recipients and judges form the perception of service quality evaluating performance against a set of dimensions and this perception may lead to satisfaction or dissatisfaction. Such conception of service and service quality makes the outcome perspective of consumer satisfaction more proper for this study than the process perspective.

Hence, consumer satisfaction in this study adheres to the outcome perspective and considers satisfaction as an outcome of a service resulting from the customers' perception of the service quality (Landrum et al., 2007). That means there is an outcome (performance judgment)-outcome (psychological) connection between perceived service quality and customer satisfaction. Strengthening this idea, Boshoff & Gray (2004, p. 28) state that ". . . [service] consumption is an experience and consists of collective perceptual, evaluative and psychological processes that combine to generate consumer satisfaction."

Satisfaction, the second outcome of a service, preceded by quality perception, usually occurs in the form of affective behaviours – pleasure, fulfilment or valence (perceived usefulness). Elaborating on this point and the relationship between the two concepts, Taylor, Nicholson, Milan and Martinez (1997) and Oliver (1993) explain that service quality is a mental judgment of the service performance while satisfaction is largely an affective response that addresses the pleasure or state of fulfilment or the value that consumers attached to the service as a result of the perceived performance. After reviewing the works of different scholars, Landrum et al. (2007) also conceptualized customer satisfaction as a sense of contentment that arose from the customers' perception or judgment. In other words, service quality is a success measure that gives way to the feeling of satisfaction or dissatisfaction. Landrum et al. (2007) further elaborated that usefulness of the service or its ability to enhance the performance of the customer contributes to the customer's dis/satisfaction.

Pollack (2008) also reviewed the works of different authorities and described service quality and customer satisfaction as distinct but related constructs. For Pollack, service quality is the delivery of outstanding service relative to consumer expectations, whereas customer satisfaction is the consumers' fulfilment response, a post consumption judgment by the consumer that a service provides a degree of un/pleasant consumption-related fulfilments.

Another concern in relation to satisfaction is the attributes or constructs used to measure service quality. This issue is not free from dispute. The measurement framework and the perspective chosen to conceptualize satisfaction have their implication to the variations in the attributes or constructs of satisfaction. As it is evident in the literature of marketing and service quality, customer satisfaction can be measured after every experience or encounter (transaction-specific satisfaction) or after numerous encounters with the service (cumulative satisfaction) (Guolla, 1999; Jones & Suh, 2000). A similar and

most commonly exercised approach to measure customer satisfaction is either to use multiple service encounters or overall satisfaction. The transaction-specific or multiple encounter approach refers to the major aspects of the service or the service providers in the measurement of student satisfaction. For instance, Guolla (1999) measured satisfaction with the course and the instructor to assess satisfaction with a programme. Hardy & Williamson (1974) also measured college satisfaction using students' satisfaction with the administration, the faculty and fellow students.

Other researchers measure satisfaction with service elements such as: teaching/learning; assessment/feedback; academic support; course content, course organization/management; learning resources; personal development, student orientation and support services, information and communication service and participation in decision making (Ansari & Moseley, 2011; Baykal et al., 2005). Nasser et al. (2008) in their study of the relationship between university students' knowledge of services and satisfaction used six dimensions of service quality to measure student satisfaction. These were satisfaction with: academic experience, academic advisor, residential life, campus life, personal development opportunities, resources and student services. Similarly, Russell (2005) suggests that satisfaction can be more feasibly measured with a set of general university characteristics such as lecturers' teaching ability; availability of staff; library and computing facilities; class sizes and students' workload.

Alternatively, satisfaction is measured in terms of the customers/students' overall/cumulative satisfaction with the entire service of the institution (DeShields et al., 2005; Douglas et al., 2006; Douglas et al., 2008; Landrum et al., 2007; Ledden, Kalafatis, & Samouel, 2007). In this approach researchers use single or multiple items to measure overall satisfaction. Positive/negative impressions of the service, degree of overall satisfaction, favourable word-of-mouth communications, intent to repurchase/use the service, etc are some of the attributes these researchers used to measure overall satisfaction. Terblanche and Boshoff (2010) are among the advocators of this approach who claim that cumulative satisfaction is better able to predict the subsequent behaviour of customers and the performance of the institution rather than the transaction-specific satisfaction.

Compromising the two positions of measuring satisfaction, Boshoff and Gray (2004) argue that since overall satisfaction considers all encounters and experiences with the services in the organisation, it is likely to be multidimensional and results from many transactional satisfactions. Thus transactional

satisfactions can be considered as contributors and subsequent modifiers to satisfaction at an organisational/general level. Taking this fact into account, Boshoff and Gray used both dimension-specific and overall satisfaction to show the relationship among service quality, customer satisfaction and loyalty. Jones and Suh (2000) corroborate this view and suggest that the use of either transaction-specific satisfaction, overall satisfaction or both depends on the goal of the measurement. When the goal is the prediction of subsequent behaviours like loyalty and only one type of satisfaction can be measured, it would be advisable to use overall satisfaction. If, however, the goal is to continually monitor service quality and customer satisfaction at the service encounter level, transaction-specific satisfaction could suffice. Transaction-specific satisfaction can influence loyalty through the moderation of overall satisfaction. Jones and Suh further commend that both types of satisfaction measures can be used in order to monitor the overall satisfaction with the service provider as well as satisfaction with a particular encounter. In this study, too, service specific satisfaction is used together with overall satisfaction to measure the variable.

2.6 PERCEIVED GAIN IN HIGHER EDUCATION AND ITS DIMENSIONS

According to the transformational perspective of quality, the behavioural changes observed on students as a result of their exposure to higher education serves as an indicator to the quality of higher education service (Lagrosen et al., 2004). The observed behavioural changes are usually referred to learning gains or higher education effect/impact. In view of the fact that higher education institutions are responsible for the holistic development of students, the services rendered are expected to transform the student into the whole person. Brennan et al. (2010) clearly communicated the impact of higher education on students' holistic development when they stated:

> Higher education is about more than academic study, more than preparation for a job. For many students, higher education had been about something more than education. It was not just a function of how hard they had studied, how committed they had been to their courses, or how ambitious they had worked for their future. . . . it was a function of being there, of being in a new environment, of making new friends, of identifying with new ideas, of developing new interests. For the majority of students, the experiences they had in university were associated with the achievement of greater self-confidence, independence, communication skills, understanding of other people, and maturity. These were all things that had learned at university (p. 621).

Taking such contributions of higher education into account, different scholars used self-reported/perceived gains to study the effect of higher education on students (Kom, 1969; Pascarella, Pierson, Wolniak, & Terenzini, 2004; Pike & Kuh, 2005) or as a value-added measure to higher education service quality (Šimić & Čarapić, 2008; Tam, 2006).

Most often researchers adapt or adopt constructs and respective attributes used to measure self-reported gain from the widely used survey instruments such as College Student Experiences Questionnaire, the College Student Survey and the Follow-Up Survey (Anaya, 1999). However, the emphasis and the number of constructs used to measure gains vary among researchers. For example, Li, Long, and Simpson (1999) focused on two constructs, i.e. critical thinking and communication skills, while Ory and Braskamp (1988) used three - personal/social development, intellectual development and general education. Others increased the constructs to four by adding communication skills (Dilnesaw, 2007; Pike & Kuh, 2005) or vocational/professional development (Tam, 2006). The reason for variation could be the nature of education offered in a HE or the researcher's preference among the development areas. Based on Brennan et al.'s (2010) idea of holistic development that has consistency with the aim of HE in Ethiopia (see proclamation 2009) and the works of already mentioned authorities, five constructs are used in this study to measure perceived gain. These are: (1) cognitive/intellectual skills, (2) vocational/professional preparation, (3) general education, (4) personal/social development (Tam, 2006) and (5) communication skills (Dilnesaw, 2007; Li et al., 1999; Pike & Kuh, 2005).

Alike the constructs, there are variations among scholars in specifying the attributes used to measure each construct. For instance, some researchers (Dilnesaw, 2007; Li et al., 1999; Ory & Braskamp, 1988) measure cognitive/intellectual gains using students' reported changes in their analytical, synthesis, evaluation, problem solving and self/independent learning skills. Although they are addressed in the already mentioned attributes, Pascarella et al. (2004) considered students' reported ability to reason out, clarify and extend arguments as important attributes to cognitive/intellectual gains. For Ledden et al. (2007), the "epistemic value" or the acquisition of knowledge by itself is an important attribute that is worth considering.

Ledden et al. (2007) explain gain in professional preparation as a functional value of attending higher education and they measure it in terms of students' judgment about what they have gained for future

employment or career advancement. Students' opinions about the usefulness of knowledge acquired for future work can also be used as an attribute to measure gain in professional preparation (Šimić & Čarapić, 2008).

Gain in general education is measured in terms of acquired background and specialization for further education; a broad general education about different fields of knowledge; acquaintance with broad literature; understanding and enjoyment of art, music, drama; awareness of different philosophies, culture and ways of life; knowledge about the world; and seeing the importance of history for understanding the present and the past (Dilnesaw, 2007; Ory & Braskamp, 1988). After studying the impact of college on students, Kom (1969) also reported that attending higher education results in such general education developments as increase in students' "open-mindedness", a decrease in conservatism or traditionalism, and a growing sensitivity to aesthetics.

Personal/social development is measured in terms of such attributes as (1) the values and ethical standards that students have developed during their college stay, (2) students' self-understanding of their abilities, interests and personalities, and (3) developments in social interaction with others, i.e., understanding other people, the ability to get along with different people, and the ability to function cooperatively as a team member (Dilnesaw, 2007; Ory & Braskamp, 1988). Similarly, Ledden et al. (2007) suggest that all the benefits derived through interpersonal/group interactions in the universities can be used as attributes to measure social developments. These authors further note that students' emotional maturity, sense of self-achievement and satisfaction developed as a result of exposure to higher education can be used as important attributes to measure personal developments.

Gain in communication is an important skill central to all other developments. Hence, it needs to be treated as one construct of gain that plays a significant role in terms of changes in intellectual, general education, professional and personal/social constructs. To measure changes in communication skills, Li et al. (1999) and Dilnesaw (2007) used the following attributes: writing clearly and effectively; presenting ideas and information effectively when speaking to others; and using the computer and other information technology.

Another concern in the study of higher education impact is the validity of using self-reported/perceived gain as a measure of students' growth and development. The research conducted in this regard shows mixed

results. For instance, Bowman (2010) conducted a study on first year college students to check whether the students' self-reported gain corresponds with the longitudinal measures. The result shows that the correlations between self-reported gains and longitudinal gains are generally small or virtually zero and finally he concluded that students' estimates of self-reported gains may not accurately reflect longitudinal gains, regardless of whether the longitudinal measures are objective or subjective. He further suggests that self-report measures may be more effective at gauging student satisfaction or other student perceptions than the aspects of learning and development that they are purported to measure.

On the contrary, Anaya (1999) compared three learning measures used in the study of college impact - average college grades (GPA), standardized test scores (GRE), and student-reported gains - and concluded that self-reported gain as a measure of cognitive growth has a modest relative validity and can be used as a substitute for more direct measures of learning. Despite the controversy, literature on college impact seems to favour students' self-report as a measure of gain for it can cover a wide range of learning and developmental outcomes, and it is fairly inexpensive to survey students' growth and development since entering college (Anaya, 1999). The empirical evidence from the work of Terenzini, Theophilides, and Lorang (1984) also confirms that students report their personal development based on their experience in the colleges, not based on their pre-college traits. Thus, there seems to be adequate methodological, practical and empirical justifications to use students' self-reported development as a valid and reliable measure of perceived gain.

2.7 CUSTOMER LOYALTY IN HIGHER EDUCATION SERVICE AND ITS DIMENSIONS

Customer loyalty is one of the most complex concepts in the service quality and service marketing literature. The different elements (cognitive, affective and actions) involved in the development of loyalty behaviour (Evanschitzky & Wunderlich, 2006) and the variation in the range of options the customers have to make service buying/use decisions (Boshoff & Gray, 2004) contribute to its complexity. Moreover, the use of concepts like "institutional commitment" - the feelings of attachment that students establish with the institution (Sandier, 2000; Strauss & Volkwein, 2004), "persistence" – "intentions to return to the organization" (Braxton, Vesper, & Hossler, 1995, p. 598) and "retention" (Terblanche & Boshoff, 2010) in the service quality literature sometimes as distinct from loyalty and in most cases as concepts subsumed in it also adds to the complexity of understanding and measuring loyalty.

Despite its complexity, different scholars tried to define or operationally describe loyalty. Their efforts are, however, criticized for lack of theoretical foundations and inability to include all loyalty reactions (Pont & McQuilken, 2005). In response to these criticisms, researchers strived to give theoretical foundations for their definitions and treated loyalty as multi-dimensional construct. Among the widely cited theories used to back up the definitions of loyalty are: behavioural perspective, the behavioural-affective perspective, the cognitive-affective-behavioural perspective and cognitive-affective-conative-behavioural perspective (Evanschitzky & Wunderlich, 2006; Fisher, 2001; Han, Kwortnik & Wang, 2008; Juan & Yan, 2009; Oliver, 1999).

Advocates of the behavioural perspective, for instance, conceptualize loyalty in terms of revealed overt behaviour (i.e., repeated use of a specific service, word-of-mouth behaviour in the past) (Fisher, 2001). The behavioural-affective perspective describes loyalty as both revealed repurchase behaviour and emotional preference to a service or a firm (Juan & Yan, 2009). The cognitive-affective-behavioural perspective followers explain loyalty as repeat purchase behaviour based on belief acquisition and affect formation (Han & Wang, 2008; Juan & Yan, 2009). They described loyalty as "the degree to which a customer exhibits repeat purchasing behaviour from a service provider, possesses a positive attitudinal disposition toward the provider, and considers using only this provider when a need for this service arises" (Gremler & Brown cited in Han & Wang, 2008, p. 23). The most comprehensive one is the cognitive-affective-conative–behavioural perspective proposed by Oliver (1999) and explains loyalty as a true repeated service use behaviour resulted from belief acquisition, affect formation and behavioural intention. Oliver (1999, p. 36) further explains the four elements of the perspective when he states that: "cognitive loyalty focuses on the brand's [service's] performance aspects, affective loyalty is directed toward the [service's] likableness, conative loyalty is experienced when the consumer focuses on wanting to rebuy [reuse] the brand [the service], and action loyalty is commitment to the action of rebuying [reusing]." Evanschitzky and Wunderlich (2006) tested Oliver's framework empirically and confirmed that loyalty can be explained as a four-phased behaviour. Such theoretical and empirical evidence confirm that loyalty is a multi-dimensional and higher-order construct of service quality.

An analysis of the Oliver's phases of loyalty development in light of the variables in the proposed conceptual framework of this study shows the concurrence of Oliver's cognitive and affective phases with the service quality, perceived gains and satisfaction variables. In this regard, Evanschitzky and Wunderlich

(2006) suggest that the cognitive aspect of loyalty develops based on the customers' judgment of performance or service quality and the value attached to the gains obtained from consuming the service. In other words, cognitive loyalty mainly predicts the customer's belief in and preference to the service (Oliver, 1999). In the context of higher education, the students' preference for and belief in an institution depends on the institution's image or credibility of its programmes, quality of service provision and perceived gains (Abrantes, Seabra, & Lages, 2007; Ledden et al., 2007; Pereda et al., 2007). Hence, this aspect of loyalty concurs with the measures of service quality and perceived gains presented in the previous sections. As discussed earlier, the affective aspect of loyalty deals with the satisfaction-pleasurable fulfilment (Oliver, 1999) and refers to the likableness or positive attitude to the service. According to Terblanche and Boshoff (2010) attitudinal loyalty is normally displayed by an enduring (emotional) bond with a service and strong customer preferences for the service. This fact implies that the affective loyalty is also very much connected to and dependent on the measures of satisfaction discussed as a variable of the service quality framework in the previous section.

The conative and action aspects of loyalty are the higher-order motivational and action-oriented behavioural aspects distilled from the cognitive and affective elements and manifested in terms of intentions to use the service and true as opposed to bogus actions (repurchase or reuse of the service, positive word of mouth, etc) (Evanschitzky & Wunderlich, 2006; Han & Wang, 2008; Yu & Kim, 2008). These two aspects of loyalty (conative and action) were chosen to be the constructs to measure loyalty in this research for the following reasons: (1) cognitive and affective aspects, though they are basis for the conative and action behaviours, are addressed in the service quality, perceived gains and satisfaction constructs of the research framework chosen for this study; (2) since decisions to use the service in higher education are made differently from those in the retail context, many scholars recommend the behavioural intentions and behavioural actions to measure loyalty in the higher education context (Boshoff & Gray, 2004; Brown & Mazzarol, 2009; Ehigie & Taylor, 2009; Yu & Kim, 2008). In other words, these researchers focus on the referral and repurchase intentions/wants and actions/commitments to measure loyalty in higher education context.

Customer loyalty is, therefore, conceptualized as the feeling of attachment or commitment to a service provider expressed in terms of the intent to study at a higher level in the same institution, the frequency and intensity a student used ancillary services and willingness to recommend the institution to others (Douglas

et al., 2008). According to Fisher (2001), a loyal customer stays with the same service provider, is likely to engage in positive word-of-mouth communication, recommends the service and influences the decision behaviour of friends and family members. Corroborating this idea, Lin & Tsai (2008, p. 408) claim that "students who reveal high-loyalty are likely to retain their institution and spread good word-of-mouth for the institution, especially when their thirst for knowledge and their growth needs toward learning are satisfied by the quality of teaching services." Loyal students also disseminate positive information about the institution to prospective students and donors and engage in activities that could promote the image of the institution (Ehigie & Taylor, 2009). Similarly, Yu and Kim (2008) suggest that when students are satisfied with and happy about the services in the university, they are likely to promote the university through positive word-of-mouth, support or donate to their university and strongly identify with their university.

Specifically, different researchers used different sets of attributes to measure the two constructs of loyalty - behavioural intentions and behavioural actions. Lin and Tsai (2008), for example, used attributes like positive word-of-mouth, recommending the institution and promoting the institution to measure behavioural actions; and intent to continue or remain in the institution, and the intent to rejoin the institution for further study to measure students' behavioural intention. Although it is in the context of business, Terblanche and Boshoff (2010) also measured customers' action or commitment to the service in terms of repurchase/reuse behaviour and tolerance to service related procedures/requirements. Other researchers also used attributes like student's willingness to recommend the course or institution to others, to maintain contact with the academic and ancillary service providers, to select or return to the institution again for future study or to join the alumni as indicators of loyalty in the context of higher education (Boshoff & Gray, 2004; Brown & Mazzarol, 2009).

The works of Jones and Farquhar (2003) also confirm that truly loyal customers are usually portrayed as being less price-sensitive and more inclined to increase the number and/or frequency of purchases. They may become advocates of the organization concerned and play a role in the decision making of their peers or family. Pont and McQuilken, (2005) on their part outlined a positive and negative "behavioural-intention battery" to measure loyalty. They suggest that institutional loyalty and tolerance to service procedures, requirements or price increase are the positive behavioural intentions whereas complaining, reducing level of engagement in a service, withdrawing from the institution or transferring to other institutions are negative behavioural intentions signalling customers' disloyalty or defection.

2.8 STUDENTS' CHARACTERISTICS AND THEIR INFLUENCE ON SERVICE QUALITY CONSTRUCTS

In the educational service context the involvement of students is crucial to the delivery of quality service. The degree and type of their involvement as well as their expectations and perceptions of service quality may be influenced by different factors. Literature in the area attributes student characteristics as one possible source of influence. Studying students' characteristics is, therefore, essential to sort out particular student-related factors contributing to the quality of HE service.

Students' characteristics refer to the demographic and non-demographic student-related factors that may contribute mainly to perceived service quality and to some degree to students' satisfaction, perceived gain, and loyalty. In this section attempt is made to review first the factors that may affect perceived service quality in terms of its aspects, i.e., service expectation and perception. Then the review proceeds looking into the effects of student characteristics on other subsequent service quality constructs.

2.8.1 Students' characteristics and their effect on perceived service quality

As stated in the first chapter, perceived quality is operationally defined as perceptual evaluation of service delivery/performance against some criteria. That means the students' perceived service quality is shaped by their level of perception. Students' judgment of service performance implicitly bases itself on their service expectations. Hence, service expectations and perceptions are the *sine qua non* of perceived service quality. This entails studying the student-related factors that could contribute to shaping customers' service expectations and perceptions to fully understand perceived service quality. The next two sub-sections, therefore, review the major student-related factors that may influence service expectation and perception and in a way shape perceived service quality.

2.8.1.1 The effect of student characteristics on their service expectation

Service expectation refers to the service level that students believe they should get from higher education institutions. According to Pike (2006), expectations are key elements in the students' selection of a particular study area and institution. Students search for internal and external information to make

decisions about what and where to study. This information also serves as a reference to make a judgment about the performance of the programme and university after or during the service delivery, which is regarded as service perception in this study.

Literature and research in consumer behaviours, service marketing and service quality in HE revealed the different sources that could affect the formation of expectations. Demographic characteristics of customers are amongst the commonly reported factors that shape their expectation in both educational and business organisations. In the higher education context, Elizabeth (2005) suggests that the postgraduate students' demographic and academic characteristics influence their study expectations. Kuh, Kinzie, Buckley, Bridges and Hayek (n.d, p. 37) also note that "student background characteristics and pre-college experiences shape expectations to varying degrees." Kuh et al. further explained that students with high academic secondary school performance have high expectation of university activities.

In a similar vein, Pike (2006) shows the significant relationship between gender and students' college expectations when he states: "Females had significantly lower expectations of being involved in science and mathematics than did males. They had significantly higher expectations of interacting with diverse acquaintances and being involved in clubs and organizations." (p. 812). Pancer, Hunsberger, Pratt and Alisat (2000) have also studied the relationship between two demographic variables (i.e. sex and college class) and college expectation. Their findings show that each of these variables is related in a significant and positive manner to educational expectations and the strengths of the relationships are moderate in size. With regard to the impact of class standing on expectation, Pike (2006) argued that service expectation can be modified periodically based on the information students receive at the time of entry or at every encounter of service. Snow, Bartel and Cullen (1996) also studied "How ethnicity influences service expectation" and concluded from the results that different service expectations do exist between various ethnic backgrounds. On the other hand, Bebko (2000) reviewed the works of different researchers in the business context and concluded that the effect of customers' demographic characteristics on expectation is inconsistent.

Despite the prevailing inconsistencies in findings, the discussion made so far purports the fact that demographic factors such as sex, academic performance, ethnicity and year of study seem to make some contributions to shaping service expectations.

Literature also suggests that customers' expectations about a particular service can be shaped base on the information gathered from a variety of sources and personal needs. Scholars like Clow and Vorhies (1993), Parsuraman et al. (1985), Prugsamatz, Pentecost and Ofstad (2006), and Webster (1991) confirm this fact and suggest that (1) advertising, (2) words of mouth, (3) prior experience and (4) personal needs are most influential factors in shaping customers'/students' expectations. Webster, for instance, studied the influences upon customer expectation and found that word-of-mouth communications have the strongest impact on expectations, followed by past personal experience, advertising, and sales promotion.

The work of Zeithaml, Berry and Parasuraman (1993) substantiate the above suggestions and confirm that expectations can be directly and positively influenced by (1) personal and non-personal statements or promises about the service made by the organisation (advertising), (2) personal and sometimes non-personal statements made by parties other than the organisation (word-of-mouth communications), (3) the customer's previous exposure to similar services (past experience), and (4) the quality cues such as price and tangibles (interior decor, furniture, the appearance of the service provider, the equipment, facilities or instruments) associated with the service (implicit service promises). In the higher education context in particular, students use information obtained from persons (alumni, friends, teachers, counsellors), media (television, radio or print newsletters, visiting websites), or calling the relevant people in the universities to inform their decision about study area and place (Caddozo, 1965) and this in turn determines their expectations.

Form the forgoing reviews it is clear that there are a host of demographic and non-demographic antecedent factors contributing to the formation of service expectations although inconsistencies among findings prevail.

2.8.1.2 The effect of student characteristics on their service perception

Perception, defined as the customer's judgment of the service delivered on the basis of certain criteria or expectations, is also subject to many factors. After reviewing literature and conducting empirical study, Feldman (1977) concluded that differences among the background, characteristics, and experiences of students are seen as genuine sources of influence on their ratings of teachers and courses. As it is indicated in the proposed framework of this study as well as the discussions made earlier, one of the major

factors affecting perception is the level of service expectation that customers set before or during the service encounters. As a result, some authorities consider factors of expectations as factors of service perception too. For instance, in their study of student perceptions of college quality, Jo Kealy and Rockel (1987) have identified a host of internal and external factors affecting students' perception of college quality, measured in terms of their perception of academic, social, athletics and location qualities. The external factors found to have significant influence on at least one of these quality indicators include: information from (1) people such as: current Colgate students, faculty, alumni and parents, high-school faculty, high-school guidance counsellors; (2) information from written materials like: college catalogue, descriptions of major programmes, student quotes about their college experience, faculty listings, descriptions of campus life, and course listings; (3) information learned through direct personal contact including: visit to campus and programmes that introduce prospective students to members of the Colgate faculty or alumni.

With regard to the internal factors, Jo Kealy and Rockel (1987) reported that student personal characteristics like the need for financial support, getting preferred academic or interest areas, and engagement in leadership activities were found to be positively influencing the students' perception of college quality. Both the external and internal factors identified by Jo Kealy and Rockel are very much related to what has been discussed earlier as factors of service expectations - advertising, word of mouth, prior experience and personal needs.

The works of different researchers have also demonstrated the relationship between demographic factors and customers' perception of services. For instance, Onwuegbuzie et al. (2007) studied whether students' perception of the characteristics of effective college teachers is correlated with their demographic characteristics such as gender, ethnicity, age, major, year of study, and grade point average (GPA). Their findings show that only GPA did not appear to play a role in the prediction of quality college teaching. Similarly, Junn and Fuller (1996) studied the differences on students' perceptions of services in university campus by student characteristics like sex, ethnicity, and class standing. Their findings revealed that the three demographic characteristics were correlated with the use and satisfaction of campus services. That means increased class standing was positively correlated with students' higher ratings of satisfaction for services, and females and white students rated services more favourably than male and non-white students. This result clearly evidences the fact that the demographic characteristics of customers contribute in shaping the perception of students to the rendered services.

The nature of the discipline that students are attending is also found to be an important source of variation in the students' perception of service. In this regard, Pike and Killian (2001, p. 429) reviewed the works of different scholars and reported that "academic disciplines are one set of sub-environments in which students' academic orientations, expectations, and perceptions of the college environment differ significantly." Pike and Killan substantiate this idea by the points made by Berdie (cited in Pike & Killian, 2001) that state, "college expectations and perceptions in a complex university are not homogeneous, and students in different divisions of the university differ in these respects just as they differ in academic ability and achievement" (p. 429). Pike and Killan's findings also confirm the existence of significant differences in the college experience and learning/gain between pure and applied disciplines.

The work of Burns and Ludlow (2006) extended the discussion of factors affecting perception to class attendance. The researchers highlighted the importance of class attendance in understanding students' evaluation of teaching and course quality. They found that the perception that regular attendance is necessary was found to be a statistically significant predictor of instructors' excellence ratings. The researchers further reported that this relationship accounts for 5.3% of the variance in perception.

Other researchers have also examined the influence of students' values, attitude to education and living place on their perception of service quality. For instance, Trent and Johnson (1977) show that students' values and attitudes to education play a major role in the evaluation of a faculty. Consistent to the above findings, Nakashima, Putro, Mulyono and Takeshi (2010) reported that customers' perception of the factors of service quality vary by their living place and values or life orientations. These researches evidence that the students' life value or goal orientation, life experience resulting from living place and attitude to education influence their perception of service quality.

The discussion in this section clearly reveals that there are many more communalities among the demographic and non-demographic student-related factors that may influence customers' expectations and perceptions. The demographic factors include: age, gender, ethnicity, year of study, GPA, place of living, area of study, whereas the non-demographic variable includes: goal orientation, attitude to education, self-efficacy, prior experience (previous exposure to higher education institutions, the quality of secondary school they have attended), personal needs/preferences, formal advertisements, word of mouth before and after the encounter, class attendance and participation or involvement in different campus activities. In

other words, these factors are likely to contribute to shaping perceived service quality in the HE context. Sultan and Wong (2013, p. 86) also recommended that "future research should analyse the overall effects of programme or course of study, location of study and year of study in the model [of service quality]."

2.8.2 Students' characteristics and their effect on satisfaction, perceived gains and loyalty

Research and literature have also shown that the influence of student characteristics, identified in the previous sections, extend to the other quality variables, i.e., satisfaction perceived gain and loyalty. In this respect, Shama, Chen and Luk (2012) studied customers' gender and age as moderator variables in a comprehensive service quality evaluation model and claim that ". . . the positive association of perceived value and satisfaction with behavioural intentions, is stronger for the male and older customers; whereas the positive association of service quality with satisfaction and value is stronger for female and younger customers." (p. 102). A study conducted in Pakistan's higher education sector also revealed that students' level of satisfaction in higher education is different between male and female students, owing to the socio-economic setting in the country (Butt & Rehman, 2010). Voorhees (1987) also reported sex, purpose for enrolling, and intention to return as important factors contributing to students' persistence/loyalty. More evidence about the effect of student-related factors on extensions of perceived service quality is provided in the topics discussed to develop the structural model of service quality in chapter three.

For the interest of this section, the reviews made so far provide sufficient ground to specify the student characteristics that have some influence on perceived service quality, satisfaction, perceived gain and loyalty. The review has also laid the foundation to study the influences of the demographic and non-demographic student characteristics on satisfaction, perceived gains and loyalty in addition to perceived service quality.

2.9 CONCLUSION

The discussion made in this chapter, though it is at a general level, has laid the analytical foundation for the understanding of HE service, how it is produced and the dimensions and attributes used to measure the constructs of service quality in the higher education context. The chapter also treated student characteristics as one important factor that may affect both perceived service quality and its extensions.

Broadly speaking, service in the context of higher education refers to both academic and support services. The academic services include: (1) teaching, learning, and assessment, (2) academic advising or consultation, (3) research supervision, and (4) community or industry link services. The support services, on the other hand, cover (1) admission/registration services, (2) residential services, (3) campus life/personal development services, (4) general student services, (5) resources and facilities provision services.

With regard to the service production process, the analysis of literature reveals that the delivery of services in the HE context requires the involvement and interaction of both the service providers (academic and support staff) and the service recipient (student). This fact makes the study of student characteristics an important aspect of the service production process in addition to the service providers. The service delivery process is explained in terms of three interrelated components: (1) the physical (tangibles) and administrative environment or context where the service transaction is taking place, (2) the 'sensual' or 'explicit' service which consists of both the technical and functional services rendered by the service provider during the production of a service, and (3) the 'implicit' or psychological aspect of the service which deals with the treatment and handling of students through cognitive and behavioural reactions during service provision.

Students being the primary consumers of HE service are considered as important judges of the quality of service provided to them. The assumption here is that students have actual or implied needs or expectations (standards of service measurement) derived from their demographic and non-demographic characteristics. Based on their expectations they measure the actual service delivery against certain dimensions and arrive at a cognitive judgment about the extent to which the service provider is delivering the service to students. This judgment of performance is operationally defined as 'perceived service quality'. The perceived service quality of academic and support services is measured against the 18 'general' dimensions identified from the synthesis of literature in the area (see Figure 2.2). The dimensions are taken as 'general' because they require further contextualization and refinement to fit the context of Ethiopian HE, which will be done in chapter five. These 18 dimensions, which serve as a means to measure both academic and support services, are: (1) Reliability, (2) Responsiveness, (3) Communication, (4) Access, (5) Competence, (6) Courtesy, (7) Credibility, (8) Safety and Security, (9) Empathy, (10) Tangibles, (11) Functionality/usefulness, (12) Commitment, (13) Organization and Management, (14) Flexibility, (15)

Motivation/gain, (16) Socializing, (17) Industry-links/corporate collaboration, and (18) Cost. The dimensions also fall under the three service production process components.

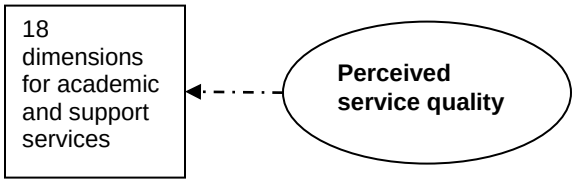

Figure 2.2. Proposed measurement model for perceived service quality in HE

According to the conceptual framework of this study, service quality is not limited to the provision of service that meets the expected level of performance. It has to add value (perceived gain), satisfy and make the students loyal to their institution. Hence, the notion of service quality includes these variables too. On the basis of an extensive review of literature the dimensions and attributes used to measure the three variables were identified. Satisfaction being an affective outcome variable that results from the cognitive judgment of the fit between service expectation and perception refers to the degree of pleasure students feel. Although there are disputes on how to measure the satisfaction of students, the extensive discussion on the different perspectives show the importance of using both the service encounter and overall satisfaction approaches together. Accordingly, satisfaction in this study is measured in terms of satisfaction with academic services, support services and overall or institutional level satisfaction (see Figure 2.3).

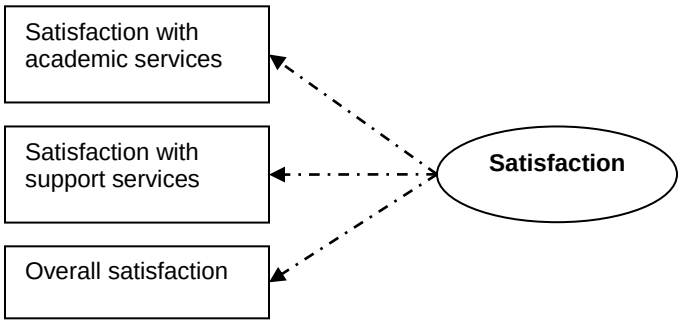

Figure 2.3. Measurement model for satisfaction

On the basis of the transformational perspective of quality, this study considered the behavioural changes observed on students as a result of their exposure to higher education as an important indicator and a

second level outcome variable of higher education service quality. After discussing the different suggestions of authorities with regard to the dimensions of perceived gain and the purpose of higher education, five dimensions were identified to measure perceived gain. These are: gains in (1) cognitive/intellectual skills, (2) vocational/professional preparation, (3) general education, (4) personal/social development, and (5) communication skills (see Figure 2.4).

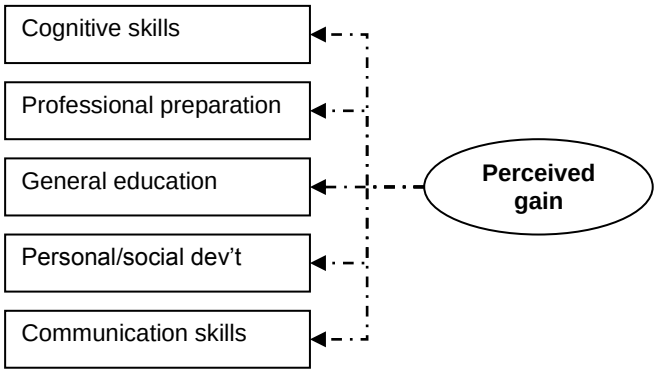

Figure 2.4. Measurement model for perceived gain

Loyalty is another second and/or third level outcome construct of service quality. Literature provides different perspectives to explain loyalty. The overarching perspective explains loyalty in terms of the cognitive, affective, conative and action constructs. The first two constructs of this perspective do have direct association with the perceived service quality, satisfaction and perceived gains. Moreover, the cognitive and affective aspects lead to conative and action manifestations of loyalty. Hence, taking only the behavioural intentions (e.g., intent to continue in the institution or use a service, to re-join the institution for further education, intent to reuse a service) and behavioural actions (e.g., commitments, willingness to recommend, repurchase/reuse behaviours, tolerance to service related procedures) aspects suffice to measure loyalty (see Figure 2.5). In addition, the two are mostly used and recommended dimensions of loyalty in the context of higher education.

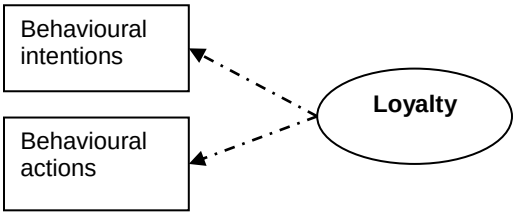

Figure 2.5. Measurement model for loyalty

As already touched on earlier, students are important allies in the service production process. They make decisions regarding where and what to study, set their expectations of the services and judge performances of service providers accordingly. However, the decisions, expectations and judgments they make, set and pass respectively are affected by their demographic and non-demographic characteristics. So, studying the students' characteristics that affect perceived service quality is vital.

In this regard, literature analysis made in this chapter identified seven demographic factors (age, gender, ethnicity, year of study, GPA, place of living, area of study) and ten non-demographic factors (goal orientation, attitude to education, self-efficacy, prior experience, personal needs/preferences, formal advertisements, words-of-mouth before and after encounter, class attendance and participation or involvement in different campus activities). The researcher, however, excluded age and ethnicity from the demographic factors for the fact that students in Ethiopian HE undergraduate programmes are of similar age group so it makes no sense to include this factor in the study. As the country is one of the most multi-ethnic countries, the number of ethnic groups is very large and this makes the analysis of ethnicity difficult. Thus the demographic factor was reduced from seven to five: gender, year of study, GPA, place of living and area of study.

Similarly, attitude to education and self-efficacy were excluded from the non–demographic factors as they are in one way or another represented by the student's goal orientation and this reduces the non-demographic factors to seven. Therefore, the two broad categories of student characteristics with the respective factors served as aspects to describe student characteristics (see Figure 2.6).

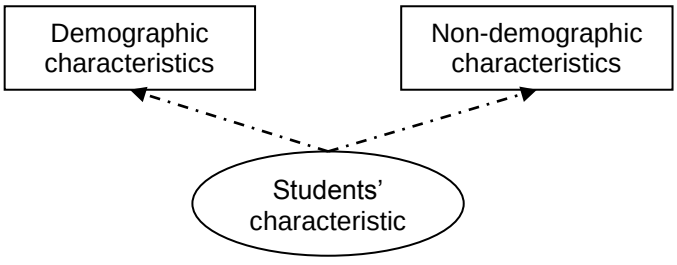

Figure 2.6. Aspects used to describe characteristics of students

Literature, however, does not limit the effect of student characteristics on perceived service quality. There is evidence that shows the potential effects of these characteristics on the extensions of perceived service quality as well.

In general, this chapter has provided literature-based measurement models for service quality constructs (perceived service quality, satisfaction, perceived gain and loyalty) and student characteristics proposed in the conceptual framework of the study. The discussion in this chapter has laid a theoretical foundation useful to develop instruments used to measure service quality and the characteristics of students that have associations with the service quality constructs in the context of HE. The interplay among the service quality constructs together with the effect of student characteristics on these constructs will be examined in chapter three and that will help to develop the structural model of HE service quality from a general point of view.

CHAPTER THREE

MODEL DEVELOPMENT FOR HIGHER EDUCATION SERVICE QUALITY

3.1 INTRODUCTION

As it is stated in chapter one, the second major purpose of this study is developing a model that could serve to understand service quality in the context of HE in general and in Ethiopian HE in particular. Although the study emphasises the Ethiopian HE, this chapter deals with the development of a structural model on the basis of literature and from a general point of view. The model portrays the direct and indirect hypothetical causal relations (1) between perceived service quality dimensions and other three service quality constructs and their respective dimensions, (2) between student characteristics and service quality constructs and (3) among the service quality constructs. Such an analytically constructed structural model is believed to theoretically verify the conceptual framework of the study. The conceptual framework describes higher education service quality as the process of service provision that not only meets the expected level of performance but also results in perceived gain, satisfaction and loyalty to the institution.

This chapter analytically determines the general service quality model that would help to explain service quality in the context of HE from a general perspective. Specifically, it strives to address the following sub-research questions theoretically:

- RQ4.1: Does perceived service quality have a direct effect on satisfaction, perceived gain and loyalty?
- RQ4.2: Does perceived service quality have an effect on loyalty mediated by satisfaction and perceived gain?
- RQ4.3: Does satisfaction have a direct effect on loyalty?
- RQ4.4: Does perceived gain have a direct effect on satisfaction and loyalty?
- RQ4.5: Does perceived gain have an effect on loyalty mediated by satisfaction?
- RQ4.6: Do demographic and non-demographic student characteristics have an effect (direct and indirect) on perceived service quality, satisfaction, perceived gain, and loyalty?

The theoretical answers to the above sub-research questions help to formulate a hypothesized structural model at a general level. The hypothesized model shows the analytically established causal relationship among the variables and constructs in the model.

Ensuring the fitness of the analytically established structural model to the context of EPHE is an overarching research question identified as RQ4. It embraces all the above sub-research questions and needs to be answered empirically in chapter five. The empirical answers to the above sub-research questions will enable the researcher to verify the hypothesized relationships among the variables and constructs. The empirical evidence specifies the magnitude that the dependent variable (both latent and observed) in the hypothesized structural model is accounted for by the independent variables. Examining the structural model invariance between different groups of students is another aspect of the model fit test. Research question RQ4.7 that states "Do two or more groups differ in their regression coefficients of the paths in the structural model?" addresses the structural model invariance test in chapter five.

Chapter three, thus, first addresses the effect of perceived service quality dimensions on satisfaction, perceived gains and loyalty and their respective dimensions (section 3.2). It then proceeds to look into the direct link between perceived service quality and its extensions (section 3.3), the relationship between perceived gains and satisfaction (section 3.4), satisfaction and perceived gains as precursors to loyalty (section 3.5), and the relationship between perceived service quality and loyalty mediated through satisfaction and perceived gains (section 3.6). Section 3.7 briefly discusses the effects of students' characteristics on perceived quality, satisfaction, perceived gains and loyalty. Finally, section 3.8 concludes the discussion by presenting an analytically generated structural model of service quality within the HE context.

3.2 THE EFFECT OF PERCEIVED SERVICE QUALITY DIMENSIONS ON SATISFACTION, PERCEIVED GAINS AND LOYALTY

In chapter two an extensive review of literature was made to identify the dimensions used to measure perceived quality in HE. In this section, the discussion is extended to the effects of perceived service quality dimensions on the other service quality constructs and their dimensions. In this regard, different researchers have examined the possible effects of service quality dimensions on satisfaction, perceived

gains, and loyalty. For instance, Marzo-Navarro et al. (2005) identified three dimensions of perceived service quality, i.e., the competence of teaching staff, efficient enrolment, and course organisation as determinants of overall satisfaction. Douglas et al. (2006) also measured student satisfaction in a UK university and reported that teaching and learning related factors are associated more with students' satisfaction than the physical facilities. Douglas et al. (2008), as well, conceptualized satisfaction as positive (satisfiers) and negative (dissatisfiers) experiences with academic and support services and identified motivation, functionality, friendliness and socialization as satisfiers; responsiveness, communication and access as criticals; and attitude, management and tangibles as dissatisfiers.

The empirical findings of De Shields et al. (2005) also show that the students' college experience has a direct and positive relation with satisfaction. Their findings also indicated that the faculty and class variables determined satisfaction indirectly mediated through the college experience. On the contrary, factors related to advising staff had no significant relation with the student experience and did not contribute to satisfaction. Butt and Rehman (2010) on their part investigated the determinants of student satisfaction and studied the respective influence of each determinant on the level of satisfaction in the higher education context. Their findings revealed that all the variables identified as determinants had a significant positive relation with satisfaction but their relative influence on the level of satisfaction varied. According to Butt and Rehman, teachers' expertise is the most influential factor in the students' satisfaction, whereas courses offered and learning environment are the next important factors. Classroom facility is the least important factor among all the variables. Finally, the researchers concluded that teachers' expertise, courses offered and learning environment enhance students' satisfaction in higher education.

Other studies examined the effect of perceived service quality dimensions on both satisfaction and loyalty. The work of Marzo-Navarro, Pedraja-Lglesias and Rivera-Torres (2005) is an example of such studies. The purpose of the research was to identify perceived service quality dimensions that have an impact on the satisfaction of students and loyalty - an intention to recommend the attended courses to others. The findings confirmed that teaching quality, enrolment efficiency, and course organisation have a direct impact on student satisfaction and an indirect impact on loyalty - mediated through satisfaction.

Similarly, Gbadamosi and De Jager (2008) first identified perceived service quality dimensions in higher education and examined the dimensions' relationship with an intention to leave the university- disloyalty

and overall satisfaction with the university. Of the dimensions identified, the researchers reported that internationalization, access and approachableness of services; being student focused, marketing and support; international student and staff; academic quality, and sports reputation and facilities were strongly but negatively correlated with intention to leave (disloyalty). On the other hand, the students' overall satisfaction with the university was found to be an important correlate of academic quality, living arrangement (accommodation), and transport (location and logistics). Douglas and McClelland (2008) on their part reported that from 22 dimensions of perceived service quality in HE, only responsiveness, motivation, communication and usefulness from the teaching learning and assessment services; and responsiveness, access, friendliness and socialization from the support services are found to be important determinants of student satisfaction and loyalty.

Many other researchers have also identified HE experiences or service dimensions that have direct and indirect effects on perceived learning gains. For instance, the work of Abrantes, Seabra and Lages (2007) reveals that students' interest in the courses, their positive feeling about the pedagogies employed and learning performance contributed directly to their perceived gains. On the other hand, factors like student-instructor interaction, instructor's responsiveness, course organisation, and instructor's likeability have an indirect but strong influence on perceived gains. Based on their findings the researchers concluded that ". . . instructors' personal qualities and teaching characteristics (i.e., responsiveness, likeability, and instructional methods) strongly influence perceived learning [or gain]." (p. 963). This finding clearly shows that some of the service quality dimensions such as competence, courtesy, responsiveness, and empathy can determine the students' perceived gain.

Pascarella et al. (2004) also confirmed that both academic and non-academic experiences in HE contributed to students' learning gain despite the variations observed among students coming from the different family backgrounds. Pascarella et al. further recommended that higher education should provide students access to academic and non-academic experiences to facilitate their development and growth. Similarly, Li et al. (1999) studied the effects of students' abilities at enrolment, quality of teaching, quality of curriculum, quality of advising and quality of lower division courses, and gender on the self-perceived gain (in critical thinking and communication skills). Their findings revealed that all the factors except the quality of lower division courses and gender affected self-perceived gain indirectly - mediated through academic integration and social integration. On the other hand, the quality of lower division courses, gender, and the

mediating variables were found to have a direct effect on self-perceived gain. The researchers empirically confirmed that the factors considered in their model accounted for 13.5% and 25.3% of the variance in self-perceived gain. This finding implies that the dimensions of academic service quality and student characteristics have the potential to directly or indirectly determine the students' perceived gain and its dimensions.

In sum, the discussions made so far clearly indicate that perceived academic and support service quality dimensions have some connections to satisfaction, perceived gain, and loyalty. The connections also extend to the dimensions of the respective constructs. These theoretical and empirical analyses partly verify the proposed framework of the study.

3.3 DIRECT LINKS BETWEEN PERCEIVED SERVICE QUALITY AND ITS EXTENSIONS

This section examines the direct link between perceived service quality and its subsequent outcomes – perceived gains, satisfaction, and loyalty. Following the logical arrangement of variables in the proposed framework in chapter one, the discussion starts with the link between perceived service quality and satisfaction and proceeds to the links between perceived service quality and perceived gains and then to the link between perceived service quality and loyalty.

3.3.1 Perceived service quality and satisfaction

The efforts made to examine the link between perceived service quality and satisfaction are more abundant in the business and industrial contexts than in higher education. The studies conducted in the business context have shown almost consistent results that perceived service quality has a direct positive relationship with customers' satisfaction. For instance, Johnson, Anderson and Fornell (1995) have developed and tested the structural validity of an alternative model that consisted of market-level expectations, perceived product performance, and customer cumulative satisfaction variables. From the results of their study, they concluded that perceived service quality positively influences customers' overall satisfaction. Chang and Annaraud (2008) also examined the level of service quality and customer satisfaction in the context of a chain steakhouse in Taiwan. Their findings revealed that perceived service quality is one factor that has a direct positive relationship with customer's satisfaction. Similarly, Anderson and Sullivan (1993) analytically developed a model that shows the antecedents and sub-sequences of

satisfaction and then tested empirically in an industrial context. In the model, they included product expectation, product perception, and disconfirmation (the gap between perception and expectation - perceived product quality) as precursors of satisfaction. Their empirical evidence confirmed that perceived product quality positively influenced customers' satisfaction.

The works of Loke, Taiwo, Salim and Downe (2011) corroborate the above findings. They examined the impact of perceived service quality dimensions on customer satisfaction in the context of telecommunication service and found a significant positive relationship between perceived service quality and customer satisfaction except in the area of tangibility. This finding implies that reliability, responsiveness, assurance and empathy have more significant and positive influence on customers' satisfaction than the physical aspects of a service do.

There are, however, few studies conducted to examine the relationship between perceived service quality and satisfaction in the context of higher education. These studies usually extend the examination of links to perceived gains, loyalty and other related variables. Although these works demonstrate links with more variables, this section focuses only on the discussion of the link between perceived quality and satisfaction. The work of Duque and Weeks (2010) is among such studies. They first developed a conceptual model analytically for assessing undergraduate students' learning outcomes (gains) and satisfaction. The model specifies academic quality, support service quality and student involvement as independent variables and learning outcomes/gains (cognitive and affective) and overall satisfaction as dependent variables. Then the researchers empirically tested seven hypothetical relationships between these variables taking different programmes into account and the results revealed that four out of the seven hypothesized relationships were significant in all the estimations, i.e., academic quality on satisfaction, support service quality on cognitive outcomes, student involvement on cognitive outcomes and cognitive outcomes on affective outcomes. Two out of seven relationships were significant in two estimations: educational quality on cognitive outcomes for geography and nursing students and cognitive outcomes on satisfaction for business administration and nursing students. Finally, the relationship of support service quality on satisfaction was significant only for the geography students. These findings imply that perceived service quality (academic and support) has a direct positive influence on both satisfaction and perceived gains despite some variations among the programmes studied.

Hartman and Schmidt (1995) considered alumni as participants of the study and found that both the perceived quality of the service provider's performance and the perceived outcomes (gains) of performance influenced the alumni's assessments of satisfaction with higher education. Although studies in the context of higher education are few, the existing findings have shown a strong positive relationship between perceived service quality and satisfaction (Petruzzellis, D'Uggento, & Romanazzi, 2006). Despite the observed consistencies in the relationships among the constructs, there exist some discrepancies among the studies with respect to the attributes used to measure perceived service quality, satisfaction, and perceived gains. This reality dictates the need to consider context relevant attributes of the service quality constructs in the examination of the relationships among constructs - a concern that will be addressed in chapter five.

3.3.2 Perceived service quality and perceived gains

The relationship between perceived quality and perceived gain is another area of interest in this study. Studies carried out to explore the relationship between these two variables are scarce. Some are available in the literature of student engagement and others in studies related to the effect of colleges on student learning and development. Findings in such studies show the likelihood of having a two-way relation between perceived service quality and perceived gain. For instance, the work of Wawrzynski, and Jessup-Anger (2010) indicates a direct link that goes from perceived gain to perceived quality. According to these researchers, students' perception of university service quality is a result of their expectation and gain from campus experiences.

On the other hand, there is a considerable amount of empirical evidence about the link that goes from perceived service quality to perceived gain. The works of Tam (2004, 2007) are cases in point. According to Tam (2004), students' involvement in different university experiences, as well as their interaction with the institutional environment, predicted outcomes or gain in a range of cognitive and affective attributes. Specifically, she claims that the quality of student involvement in the university activities was the most important determinant of self-reported gain.

Empirically, Tam (2004) found that students' involvement in campus residential activities was positively related to the personal development gain ($r = 0.34$). Course learning experience was also found to be

related to the general educational gain (r = 0.41) as well as intellectual gain (r=0.44). Her findings also confirmed that students' experience with lecturers was significantly related to all aspects of gain and particularly to general educational development. Students' involvement in campus residential activities was significantly related to the personal development gain (r = 0.34).

Tam (2004) has also compared the residential group and the non-residential group of students. The result generally indicated that students staying on campus reported more gain in all aspects of growth, particularly in personal development, than those staying off campus. The finding echoes the fact that development fosters when students feel part of a community that engages members in meaningful interactions with each other.

On the basis of her findings, Tam (2004) claims that university years are a time of student transformation in many aspects because students have reported gain not only in subject knowledge and in a range of cognitive and intellectual skills but also development in a broad array of value, attitudinal, psychosocial, and moral dimensions. As a result of their time and experience on campus, students have undergone changes and development, and have their lives enriched not just through intellectual stimulation but also socially, emotionally and culturally. Finally, Tam recommended that university managers and teachers need to shape the educational and interpersonal experiences and settings of their campus in ways that will promote learning. They also need to persuade students to become involved in their university activities as well as to exploit the various university settings and opportunities to their fullest. Tam advocates the importance of orienting institutional policies and practices towards developing a climate that promotes students' active participation in their own university.

With the belief that university experiences are important contributors to students' gain and satisfaction, Tam (2007) examined students engagement in academic and support services/activities (library, course learning, lecturers, clubs and organisations, computers, campus residence, and conversations) and their relationships with perceived gain and satisfaction. Her analysis shows that engagements in these activities, which are aspects of perceived service quality, have modest relationships with both perceived gain and satisfaction. This result confirms the claim that perceived service quality is directly linked to perceived gain and satisfaction.

Miller, Rycek and Fritson (2011) also reviewed the works of different researchers and concluded that good educational practices have strong links to post-occupational status and income, growth in leadership and job-related skills, development of critical thinking skills and other cognitive measures, openness to diversity and challenge. In other words, Miller et al. suggested that educational service can be perceived as quality as long as students have gained something relevant to their cognitive, professional, emotional, social and personal developments. On the basis of their literature review, Miller et al. further identified some practices that contribute to the different student gains. These include: (a) student-faculty contact, (b) cooperation among students, (c) active learning, (d) prompt feedback to students, (e) time on task, (f) high expectations and (g) respect for student and knowledge diversity, (h) quality of teaching received, (i) influential interactions with other students in non-course related activities and (j) a supportive campus environment.

These practices are some amongst the many attributes of perceived service quality discussed in chapter two and the analysis provides evidence that students who are engaged in such practices are likely to gain a lot. Strengthening the results of studies reviewed in this section, Duque and Weeks (2010) suggested that perceived service quality (academic and support) has a direct positive influence on perceived gain. On the basis of this argument, it seems possible to conclude that engaging students in purposeful educational and other campus experiences will result in highly perceived service quality and highly valued learning outcomes or gain.

Similarly, Zhao and Kuh (2004) operationally defined a learning community as a formal programme where groups of students take two or more classes together and they studied whether participation in a learning community is linked with student success, engagement in educationally purposeful activities, self-reported gain in a variety of desired outcomes of college, and overall satisfaction with their college experience. The result confirms that participating in learning communities is positively linked with student academic performance, engagement in educationally fruitful activities (such as academic integration, active and collaborative learning, and interaction with faculty members), gain associated with college attendance (cognitive, professional, general education, personal, social), and overall satisfaction with the college experience. More specifically the findings reveal that experience in learning communities (1) has a valuable effect on academic performance, (2) is associated with higher level of academic effort, academic integration, and active and collaborative learning, (3) is positively linked with frequent interaction with faculty members, engagement in diversity-related activities, and higher order thinking skills, the quality of

academic advising and the degree to which the campus was supportive of their academic and social needs and (4) is positively linked with the students satisfaction with their college experience in general. Eventually, these results indicate the connections between experience in learning communities and students' gain. Yet, the researchers specifically pointed out the positive association between experience in learning communities and student gain in personal and social development, practical competence, and general education with the effect size ranging from 0.36 to 0.48 for first-year students and 0.24 to 0.40 for senior students.

From the operational definition of participation in a learning community and associated relationships identified in the above research, it is possible to deduce that the term 'participation in learning communities' refers to the participation of students in academic and support activities which are largely determined by the quality of academic and support services rendered. Hence, participation in a learning community is concomitant to perceived service quality. Consequently, the reported link between participation in learning communities and different outcome variables implies the link between perceived service quality and those outcomes including perceived gain.

The analytical and empirical evidence presented so far stresses the importance of student engagement both in academic and support services in the overall development of students. In one way or another, quality of academic and support services rendered determine the kind and degree of students' engagement, which in turn results in multifaceted gain. Logically, students' gain is the consequences of high-quality service that provides opportunities for greater student involvement. Corroborating this fact, Astin (cited in Tam, 2004) suggested that a high-quality institution is one that facilitates maximum growth among its students and contributes to the educational and personal development of its students.

From the two major positions discussed in this section about the links between perceived quality and perceived gain, it seems possible to conclude that there is more evidence that favours the forward connection between perceived service quality and perceived gain than otherwise. Thus, founded on this analysis, it is possible to hypothesize that students' perceived service quality has a direct positive relation with their perceived gain.

3.3.3 Perceived service quality and loyalty

Persistence, retention, and institutional commitment are alternative terms used in the literature to describe loyalty. With regard to the link between perceived quality and loyalty, there is research evidence from both business and higher education contexts. In the business context, for example, Al-Hawari, Ward and Newby (2009) studied the effect of service quality on customer retention comparing the traditional and automated bank services. Their finding revealed that all the traditional service quality factors, not automated ones, have positively influenced customer retention. From this result, it is possible to understand that loyalty is influenced more by services that involve frequent face-to-face interactions between the service provider and the customer than by automated ones.

However, the studies conducted in the context of higher education indicated mixed results. For example, Robinson (1969) examined the relation between student persistence in college and ten academic and ten non-academic factors of perceived service quality. He found that seven major factors (social environment, scholastic habits, faculty, advisement, financial, study arrangements, and counselling) accounted for approximately one-half of the common variance in students' evaluations of persistence. This means that some aspects of perceived academic and non-academic service quality have a positive relation to student retention. Contrary to Robinson's work, Voorhees (1987) explored factors that determine persistence of community college students and found that persistence is a function of gender purpose for enrolling, and intention to return rather than measures of academic integration including grade-point average, number of hours spent for studying each week, and frequency of informal interaction with faculty. Unlike frequently reported factors, the work of Voorhees indicates the possibility of having circumstances where the non-academic factors (perceived quality of support services) outweigh the academic factors in determining the persistence of students for some reasons.

Nora, Cabrera, Hagedom, and Pascarella (1996) on their part studied the contribution of precollege, institutional (both academic and support services), environmental (financial support and encouragement from significant others) factors and perceived gain to persistence decisions and the extent to which these factors varied among different ethnic and gender groups. Their findings testify that college persistence decisions among females and males appear to be affected only by precollege factors, institutional-related factors, and cognitive and affective gain. On the other hand, only environmental factors, cognitive abilities,

and affective gain associated with attending college were found to contribute to the persistence behaviour among minority students. From this study again it is clear that both institutional factors (the academic and support services) and perceived gain have predictive power to loyalty for both boys and girls, although the institutional factors fail to predict the loyalty of minority students.

Strauss and Volkwein (2004) studied the factors that influence student institutional commitment (alternatively used with the term 'loyalty') at higher education institutions and found that both academic integration and growth, and social integration and growth to be the most important predictors. Particularly, classroom experiences, social activities and friendships are found to be strong predictors of institutional commitment. Other predictors which have significant but smaller effects on commitment include the financial aid and the precollege characteristics of students - age, ethnicity, and marital status. From this finding, it is possible to observe that perceived quality of both academic and support services and perceived academic and social growth/gain contribute positively to students' institutional commitment. Student characteristics also have significant but small influence on students' institutional commitment. Hence, it is possible to suggest that student characteristics, perceived service quality and perceived gains have a direct and positive influence on loyalty.

Lin and Tsai (2008) also developed students' loyalty model using four analytically identified variables. Two of these variables were perceived Quality of Teaching Service (QTS) and the perceived Quality of Administrative Services (QAS). They tested the model employing structural equation modelling approach in the context of a private university in Taiwan and found that the QTS has a direct positive significant effect on student loyalty with the path coefficient of 0.28, whereas, the effect of QAS on student loyalty was observed to be insignificant and negative with the path coefficient of -0.08. Similar to the finding reported earlier in the context of bank services, these researchers also attributed the observed insignificant effect of perceived administrative service quality on student loyalty to the less frequent contacts between students and administrative staff. Generally, although there are some variations among the findings, there seems to be an adequate ground to conclude that students' perceived service quality has a direct positive effect on their loyalty to their institution.

3.4 THE RELATIONSHIP BETWEEN PERCEIVED GAIN AND SATISFACTION

In almost all works we find in the literature on loyalty, the link between customer satisfaction and perceived value of service outcomes or gain is studied in search of precursors to loyalty. The discussion of the relations between satisfaction and perceived gain is, therefore, dependent, to a large extent, on those studies conducted to address loyalty. Many of these works are done in the business and other sectors as compared to those conducted in education. For instance, the research conducted by Moliner (2009) in healthcare services shows that the gain from the services (judgment in terms of what is obtained compared to what is given) has a significant influence on consumer satisfaction. A study conducted on a web-based online service also confirmed that perceived value or gain has a significant effect on customer satisfaction (Yang & Peterson, 2004). Another study conducted in a business context by Sharma, Chen, and Luk (2012) also revealed a positive significant correlation between perceived service value and customer satisfaction.

The few studies conducted in the context of higher education have similar findings. Chiandotto, Bini, Bertaccini (2002), for example, identified perceived value/gain as one variable among others (perceived quality, image, and expectation) that causes student satisfaction. Similarly, Hartman and Schmidt (1995) studied the determinants of alumni satisfaction with higher education and concluded that satisfaction with higher education service is a function of how well that service was delivered (perceived service quality or performance) and how well it helped the service user achieve his/her goals (outcomes or gain). Brown and Mazzarol (2009) also developed and tested an elaborated model to determine drivers of student satisfaction and loyalty in a higher education setting in Australia. Their findings revealed that student satisfaction is predicted by perceived image of the university and perceived value of outcomes or gain. As stated in sub-section 3.3.1, the results of Duque and Weeks' (2010) research reveal that gains, especially cognitive ones, have a direct positive influence on the overall satisfaction of undergraduate students. Kuo, Wu and Deng (2009) also substantiated the above findings when they suggest that perceived value positively influences both customer satisfaction and post-purchase intention. The evidence presented so far clearly indicates that there is a unidirectional positive relation between the two variables, i.e., going from perceived gain to satisfaction. Thus, it seems possible to analytically conclude that students' perception of gain has a direct positive relation to their satisfaction.

3.5 SATISFACTION AND PERCEIVED GAIN AS PRECURSORS TO LOYALTY

Examining satisfaction and perceived gain as precursors to loyalty is another concern in the proposed framework of this study. This section provides literature reviews that show the direct link between satisfaction and loyalty, and perceived gain and loyalty.

3.5.1 Satisfaction and loyalty

Literature shows different perspectives with regard to the direct link between satisfaction and loyalty. Many authorities and researchers claim that a satisfied customer will remain loyal to an institution. Some others, however, argue that satisfaction does not necessarily translate into loyalty.

There are different positions even among the researchers who advocate the first perspective. For instance, Shankar, Smith, and Rangaswamy, (2003) claim that satisfaction and loyalty have a reciprocal relationship such that each positively reinforces the other, whereas other researchers like Moliner (2009), and Setó-Pamies (2012), and Webster (1991) report the path that goes from satisfaction to loyalty. Webster (1991, p. 8), for example, states, “Consumer satisfaction has a definite impact on attitude change, repeat purchase, and brand loyalty.” In a similar vein, Moliner (2009) stated that satisfaction and trust influenced loyalty. The work of Setó-Pamies (2012) also confirms that customer satisfaction has not only a considerable influence on loyalty but also a mediating role between customers’ perceptions of service quality and their loyalty intentions. Another study conducted in the context of business by Haghighi, Dorosti, Rahnama, and Hoseinpour (2012) on factors affecting loyalty identified satisfaction as one among many factors. The researchers further concluded that satisfaction positively influences loyalty and serves as a mediating variable to the relations between perceived quality and loyalty.

Studies conducted in the context of higher education also show similar results. For instance, the work of Yu and Kim (2008) reveals that student satisfaction with various services at the university has a positive influence on student loyalty. Satisfaction with administrative services, however, has limited impact on loyalty. This result implies that not all types of student satisfaction have a significant influence on student loyalty. White (2012) also studied the influences of students' emotions experienced in the classroom (the psychological aspect of service quality) on subject-level satisfaction and loyalty to institutions. The result shows that students' emotions, when combined with performance perceptions, explained 71% of the

variance in satisfaction with learning and teaching experience that, in turn, explained 82% of the variance in loyalty to the institution. This finding clearly reveals not only the strong effect of the psychological aspect of service dimensions on satisfaction but also the strong relationship between satisfaction and students' loyalty to the institution.

Another group of authorities and researchers, even if they believe in the importance of customer satisfaction in achieving customer loyalty, claim that satisfied customers still defect. In this regard, Pont and McQuilken (2005) suggested that although satisfaction has a significant impact on loyalty, there are other constructs at work aside from satisfaction that can determine the customers' future behavioural intentions (an aspect of loyalty). Similarly, Anderson and Srinivasan (2003) reported that e-satisfaction has an impact on e-loyalty; however, the relationship between the two is moderated by (1) consumers' individual level factors like convenience, motivation and purchase size, and (2) the firm's business level factors such as trust and perceived value developed by the company. Oliver (1999) corroborates the above claim when he suggests that consumer loyalty and satisfaction are linked inextricably but unevenly. This is to mean that although loyal consumers are mostly satisfied, satisfaction does not universally translate into loyalty. According to Oliver, satisfaction is a necessary step in loyalty formation but becomes less significant as loyalty begins to be set through other mechanisms such as personal determinism, courage, and social bonding at the institutional and individual level. In other words, when these additional factors are taken into account, ultimately loyalty emerges more as a combination of perceived product superiority, personal courage, social bonding and their synergetic effect than satisfaction.

Despite the observed variations in the research results about the links between satisfaction and loyalty, there seems adequate ground to anticipate the direct effect of students' satisfaction on their loyalty to their institution.

3.5.2 Perceived gain and loyalty

In addition to satisfaction, perceived gain is another precursor to loyalty. The work of Yang and Peterson (2004) testifies to this fact. Although it is in the context of general services, Yang and Peterson studied the influences of customers' perceived value, satisfaction and switching cost on loyalty on web-based online services. The researchers also considered both the direct and indirect influences of perceived value and

satisfaction on loyalty. The result reveals that perceived value and customer satisfaction are two powerful predictors of customer loyalty (the coefficients were 0.60 and 0.34, respectively). Stating differently, the findings suggest that customer loyalty can be generated through improving customer satisfaction and offering high product/service value. Perceived value is also another key driver of customer loyalty and customer satisfaction. Finally, the researchers concluded that institutions striving for customer loyalty should focus primarily on satisfaction and perceived value. Similarly, the work of Nora et al. (1966) revealed that perceived gain is one of the factors that contribute to students' persistence behaviour. The work of Strauss and Volkwein (2004) also confirmed that both academic and social growths (gains) are among the most important predictors of students' institutional commitment. On the basis of the above evidence, it seems logical to conclude that perceived gain has not only a direct positive relation to loyalty but also an indirect relation mediated through satisfaction.

3.6 THE RELATIONSHIP BETWEEN PERCEIVED QUALITY AND LOYALTY MEDIATED THROUGH SATISFACTION AND PERCEIVED GAIN

The mediating role of satisfaction and perceived gain to the relation between perceived quality and loyalty is another concern worth treatment to complete the development of a service quality structural model. In this regard, some studies examined the mediating role of satisfaction and perceived gain separately. Others integrate them with other variables. Still others examined the combined mediating effects of the two variables on the perceived quality-loyalty link.

The works of Chiandotto, Bini, and Bertaccini (2002) and Juga, Juntunen and Grant, (2010) are among the studies that examined the independent mediating role of satisfaction and perceived gain. Chiandotto et al. (2002), for instance, used the European Customer Satisfaction Index model to evaluate the quality of the university educational process. The model considers perceived quality, value, image and expectation as causes of satisfaction and complaints, and loyalty as a consequence of satisfaction**.** After testing the model the researchers reported that perceived value and satisfaction independently mediate the relationship between perceived service quality and loyalty. Juga et al. (2010) also studied service quality and its relation to satisfaction and loyalty in the logistics outsourcing context and found that perceived service quality influences loyalty indirectly through overall satisfaction. As stated elsewhere in the previous sections, the work of Setó-Pamies (2012) confirms that customer satisfaction is a mediator variable for the relationship

between customers' perceptions of service quality and their loyalty intentions. The evidence from Oh's (1999) framework revealed that perceived service quality has a direct influence on customers' perceived value and customer satisfaction but an indirect influence on loyalty mediated through both perceived value and satisfaction.

After reviewing the works of different researchers, Seth, Deshmukh and Vrat (2005) reported some models that clearly show the antecedent and mediator relationship among the perceived quality, customer value, satisfaction, and loyalty. The Oh's framework which is already presented above is one and that of Dabholkar et al.'s (2000) is another. Dabholkar et al.'s framework, as reviewed by Seth et al., clearly reveals the antecedent role of perceived service quality and its dimensions to customers' satisfaction and behavioural intentions (loyalty). According to Seth et al., the Dabholkar et al.'s model of perceived service quality and its dimensions are a prelude to customers' satisfaction which in turn serves as a precursor to loyalty.

Kuo et al. (2009) on their part examined the relationship among service quality, perceived value, customer satisfaction, and post-purchase intention in a mobile value-added service context in Taiwan. They used structural modelling and multiple regression analysis and found the following results: 1) service quality positively influences both perceived value and customer satisfaction; (2) perceived value positively influences both customer satisfaction and post-purchase intention; (3) customer satisfaction in turn positively influences post-purchase intention; (4) service quality has an indirect positive influence on post-purchase intention through customer satisfaction or perceived value. Finally, the researchers concluded that the model is effective in explaining the relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in the context of mobile added-value services.

Extending the model to include employee loyalty and firm profitability, Yee, Yeung and Cheng (2010) developed and tested the relationships among employee loyalty, service quality, customer satisfaction and customer loyalty, and firm profitability in the context of high-contact services. The result confirms that employee loyalty is significantly related to service quality, which in turn impacts customer satisfaction and customer loyalty, ultimately leading to firm profitability. Using multiple-group analysis of structural equation modelling, the researchers found that the effect of employee loyalty on firm profitability through service quality, customer satisfaction, and customer loyalty is robust under different scenarios of employee-

customer contact level, market competitiveness, and switching cost in the sampled shops. Although the scope of Yeung and Cheng's work extends beyond the concerns of this study, it has clearly shown that perceived service quality influences customer satisfaction and satisfaction in turn influences customer loyalty.

Brown and Mazzarol (2009) have developed and tested an elaborate model to determine drivers of student satisfaction and loyalty in a higher education setting, Australia. Their model treats institutional image, perceived service quality, perceived value, satisfaction and loyalty as multidimensional variables but later turns to one-dimensionality to show the strength of relationships among the major variables. The researchers employed a partial least square (PLS) structural equation methodology to test inter-relationships among the constructs of the variables and determine the path of prediction. Accordingly, their findings show that student loyalty is predicted by student satisfaction, which is in turn predicted by the perceived image of the university and perceived value. However, unlike other studies, perceived quality of "humanware" (e.g., people and process) and "hardware" (e.g., infrastructure and tangible service elements) are found to have a weak and indeterminate impact on perceived value, students' satisfaction, and loyalty.

Generally, the discussion made in this section testifies to some degree the mediating roles of satisfaction and perceived gain on the relation between perceived service quality and loyalty. Hence, there seems reason to claim that satisfaction and/or perceived gain mediates the link between perceived service quality and loyalty. In other words, perceived service quality has an indirect positive relation with loyalty through the mediation of satisfaction and perceived gain.

3.7 THE EFFECTS OF STUDENT CHARACTERISTICS ON PERCEIVED SERVICE QUALITY, SATISFACTION, PERCEIVED GAIN AND LOYALTY

The extensive review of literature made in sub-section 2.8 in chapter two helped to identify at least five demographic factors such as sex, year of study, GPA, place of living, and area of study. The review also uncovered at least eight non-demographic factors: goal orientation, prior experience, personal needs/preferences, formal advertisements, words of mouth before and after encounter, class attendance and participation in different campus activities. In addition to identifying the factors, the reviews have shown the influences of these factors on service quality constructs and their respective dimensions. On the basis

of the analysis made in chapter two (sub-section 2.8), it is possible to claim that both demographic and non-demographic characteristics of students do have direct and indirect influences not only on perceived service quality but also on satisfaction, perceived gain, and loyalty as well as their respective dimensions. This claim underpins the conceptual framework discussed in chapter one that values the role of students in the production and consumption of HE services.

3.8 CONCLUSION

As it is stated in chapter one, developing a structural model that would help to understand service quality in the HE context is the second major purpose of this study. Although it is at a general level, this chapter attempted to address the purpose theoretically. The development of the structural model has taken into account the points discussed in chapter two and chapter three. The discussions in chapter two have made it clear that perceived service quality, satisfaction, perceived gain and loyalty are multi-dimensional constructs of HE service quality. Perceived service quality has eighteen analytically identified dimensions, satisfaction has three dimensions, perceived gain has five and loyalty has two dimensions. Student characteristics are also described in terms of at least thirteen aspects.

The literature analysis in chapter three with regard to the effects of perceived service quality dimensions on other service quality constructs and their respective dimensions evidences that these dimensions (academic and support) have a direct and/or indirect effect on the dimensions of satisfaction, perceived gain and loyalty. This analysis partly verifies the conception that service quality extends beyond judging or perceiving that academic and support services, expressed in terms of certain dimensions, are provided or performed to a certain level. With regard to the relationship between perceived quality and its extensions, literature provided sufficient evidence that serves as a ground to claim a direct positive relationship between the two. Similarly, the review on the link between satisfaction and perceived gain purports a unidirectional positive relation that goes from perceived gain to satisfaction. Satisfaction and perceived gain, in turn, are found to be precursors of loyalty and also serve as mediators to the link between perceived service quality and loyalty.

Hence, from the discussions in chapter two (and mainly section 2.8), it is possible to conclude that a host of demographic and non-demographic student characteristics influence perceived service quality and its

dimensions directly. The influence also extends directly to satisfaction, perceived gain, and loyalty, and indirectly through perceived service quality. Hence, the influences of student characteristics on perceived service quality, satisfaction, perceived gain, and loyalty are found worth investigating to make the study of service quality complete.

Although the literature analysis in this chapter and chapter two reveals all possible interplay among the dimensions of four constructs, between student characteristics and the four constructs as well as among the four constructs themselves, the researcher decided to delimit the structural model to include only the latter two. The interplays at the dimension level were intentionally omitted from the structural model for two reasons. First, the study will not be manageable if all the interplays are included in the model. Second, the interplay among the dimensions is implicitly considered for it is one of the assumptions to be satisfied to carry out the structural model fit test that involves the four constructs. Thus, the analytically developed structural model of HE service quality involving student characteristics and the four constructs appears to be the one shown in Figure 3.1.

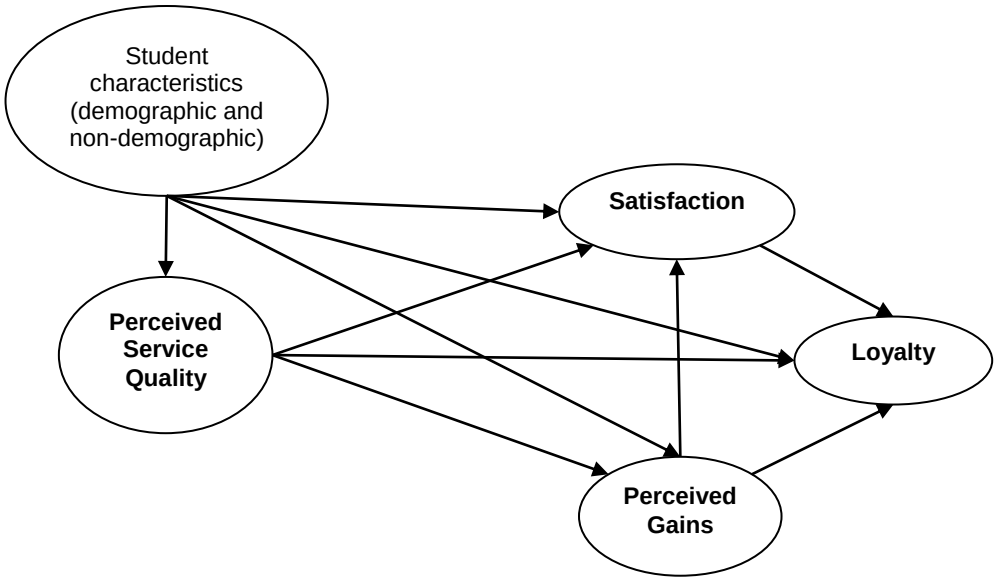

Figure 3.1. Analytically developed structural model of service quality in HE

The model theoretically verifies the conceptual framework of this study from a general point of view. It, of course, needs empirical testing to verify its fitness to the specific context of Ethiopian HE, which is done in chapter five. The next chapter - chapter four, however, deals with the design and methodology of the study.

CHAPTER FOUR

RESEARCH DESIGN AND METHODS

4.1 INTRODUCTION

As reported in the first chapter, the purpose of this study was twofold. First, it explores attributes and dimensions of service quality using a proposed conceptual framework as a lens and develops a service quality measurement instrument that works in the context of EPHE. Second, it uses the instrument to collect data and test the framework - measurement and structural model - proposed to work in the context of HE in general and in the context of EPHE institutions in particular.

The apparent inconsistencies in the available literature and empirical evidence, the absence of a comprehensive instrument for measuring service quality in the EPHE context as well as the lack of a comprehensive and well established theoretical framework that can serve to explain service quality in the context of HE motivated the researcher to develop both the measurement and conceptual/structural frameworks/models analytically from the existing literature and test them empirically in the EPHE context. This entailed going beyond desktop research - in other words, developing a reliable and valid service quality measurement instrument. In addition, testing analytically developed measurement and structural frameworks definitely requires collecting data from a representative sample population and conducting empirical study.

Following a critical review of the nature of education service, service quality measurement approaches, the interplay among the service quality constructs and characteristics of students that affect their perception of HE services, five major research questions were formulated to be answered empirically. The research questions mainly address (1) the dimensions of service quality constructs in HE context, (2) measurement model fit, (3) the relationship between students' characteristics and service quality constructs, (4) structural model fit and (5) status of service quality in EPHE institutions.

In this chapter the design and methodology of the study are explained. Specifically, it deals with the research paradigm, approach and design (section 4.2), methodological issues like population and sampling (section 4.3), instrumentation and data collocation techniques (section 4.4), and data analysis techniques

(section 4.5). In addition, aspects that contribute to the quality of the research such as validity, reliability and generalizability of the research (section 4.6) and ethical considerations (section 4.7) are discussed at length.

4.2 RESEARCH PARADIGM, APPROACH AND DESIGN

The selection of the research paradigm and approach largely depends on the purposes of the research and the proposed conceptual framework. Since the purpose of the research is already described in the previous section, it is imperative to recap the framework here before proceeding to the discussion of the research paradigm and approach.

4.2.1 Conceptual framework of the study revisited

As discussed in chapters two and three, the proposed conceptual framework explains service quality as a function of four constructs and students' demographic and non-demographic characteristics. The framework hypothesizes that service quality should be described in terms of not only students' perception of dimensions of service quality (perceived service quality) but also in terms of satisfaction, perceived gain and loyalty. The framework also claims that perceived service quality, satisfaction, perceived gain and loyalty are latent-level multidimensional constructs with attributes used to measure the respective dimensions. The framework takes the subjective nature of quality into account with demographic and non-demographic characteristics of students as contributors to subjectivity. In other words, it assumes that attributes used to measure the dimensions of the four constructs are prone to individual differences explained in terms of demographic and non-demographic characteristics of students. At the same time the proposed framework is synthesized from existing literature and empirical evidence and can serve as a lens to analyse the attributes and dimensions of the constructs as well as the interplay among the constructs.

The above stated nature of the framework required the researcher to identify the attributes and dimensions of the four service quality constructs by exploring participants' subjective views, taking into account their differences in background, exposures, experiences and preferences. This aspect of the framework dictated the need for a qualitative study.

The other hypothesized aspects of the proposed framework are the measurement and structural models of service quality in PHE context. The hypothesized measurement and structural models need to be tested for conformity to the data or may necessitate some re-specifications to explore alternative models that fit the data. The interplay among the constructs in the framework implies some level of objectivity resulting from previous empirical and theoretical evidence but needs to be tested for further conformity to the PHE context and hence it requires undertaking a quantitative study.

The nature of the framework and the problem it posed required the researcher to decide on the research paradigm and approach that gives room to flexibly address the subjective and objective reality issues inherently embodied in the problem and the analytically developed framework. The following sub-sections discuss the paradigm and the research approach employed in this study.

4.2.2 Research paradigm

According to Creswell (2012, p. 537), research paradigms refer to ". . . the broad philosophical assumptions researchers use when they conduct studies". The assumptions mainly deal with the nature of knowledge/truth/reality - ontology - and how it can be obtained - epistemology (Creswell, 2012). Mostly cited research paradigms include: post-positivism, constructivism and pragmatism (Creswell, 2012; Mertens, 2005). Post-positivists assume that knowledge or reality exists objectively independent of the researcher and there are objective ways of obtaining the reality - quantitative methods (Creswell, 2012; Morgan, 2013). On the contrary, the constructivists assume that knowledge is constructed in the minds of the observers and hence there are multiple realities (Creswell, 2012; Morgan, 2013). That means constructivists believe that knowledge or reality cannot be thought as something that exists independent of the knower/observer's experience or values and thus the search for knowledge should allow for the subjective interpretation of reality and negotiation of meanings - qualitative methods (Creswell, 2012; Morgan, 2013). The above discussions reveal that the two paradigms polarize the beliefs about ontology and epistemology. Morgan (2013, p. 4) explains the polarized positions of the two paradigms when he states that for "post-positivists . . . the world exists apart from our understanding of it, while constructivists insist that the world is created by our conceptions of it."

The third paradigm is pragmatism. Unlike the two classical paradigms, pragmatism accepts the existence of the subjective social and psychological world as well as the physical world (Johnson & Onwuegbuzie, 2004). It assumes that either dichotomizing knowledge/reality as exclusively singular/objective/absolute and multiple/subjective/relative or conceptualizing the world as independent of the researcher and as constructed by the researchers' thought is unrealistic (Creswell, 2012; Morgan, 2013). Instead, the pragmatists suggest that the two older assertions should be understood as equally important claims about the nature of human experience because, on the one hand, our experiences in the world are constrained by the nature of that world; on the other hand, our understanding of the world is inherently limited to our interpretations of our experiences (Morgan, 2013). Hence, ". . . ontological arguments about either the nature of the outside world or the world of our conceptions are just discussions about two sides of the same coin" (Morgan, 2013, p. 4). Similarly, Feilzer (2010, p. 8) advocates the possibility of having different realities in the real world contexts when he describes the real world as composed of realities "some objective, some subjective and some a mixture of the two".

Pragmatists prefer to focus on the knowledge creation process or inquiry rather than categorizing the nature of knowledge and the methods of obtaining it under different ontological and epistemological camps (Morgan, 2013). For pragmatists "knowledge is not about an abstract relationship between the knower and the known; instead, there is an active process of inquiry that creates a continual back-and-forth movement between beliefs [values] and actions [experiences]" (Morgan, 2013, p. 5).

On the bases of the above discussions the researcher found the pragmatic paradigm more suitable to his belief system and to the nature of the research problem under consideration. The researcher values the cyclic relations between beliefs and experiences in the process of knowledge generation as well as the mutual coexistence of subjective and objective realities instead of categorizing it into separate camps. Moreover, the researcher would like to enjoy the flexibility or the freedom that pragmatism offers to researchers to focus on finding useful answers to research questions. That means the researcher is free to choose and combine data collection methods according to their suitability to the formulated research questions. Such benefits of pragmatic paradigm have been acknowledged by researchers and authorities in the area (Creswell, 2009, 2012; Denscombe, 2008; Feilzer, 2010; Johnson & Ongwuegbuzie, 2004; Morgan, 2007, 2013).

The pragmatic paradigm, as it applies in this research, is explained in terms of the coexistence of subjective and objective realities as well as the knowledge generation process. For instance, the researcher tried first to get the subjective views of participants on the constructs of service quality through interviews. Applying the notion of saturated response, the views shared by at least two participants were taken as attributes to a particular dimension of service quality. The shared attributes were considered as objective realities used to describe or measure service quality objectively after being changed into questionnaire items. Clarifying such a link between subjective and objective realities, Babbie (2007) suggests that through negotiation of meanings people can find a common ground in their subjective experiences and that common experience represents the objective reality. In other words, Babbie states that "whereas our subjectivity is individual, then, our search for objectivity is social" (2007, p. 42).

Consistent with the above claim, the pragmatic paradigm asserts that an implicit and subjective knowledge (like service quality attributes obtained from interviews) constructed by individuals, based on their experience and beliefs, can be changed into an explicit or objective knowledge out there (such as shared attributes, dimensions of service quality constructs or composite scales in the questionnaire as well as the measurement and structural models of service quality) through negotiation of meanings and/or empirical tests (Goldkuhl, 2012).

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The experience-belief transaction promoted by the pragmatic world view in the knowledge generation process was applied in this study too. Recognizing the contribution of students' previous experience to their individual beliefs about service quality, the researcher considered student background and non-background characteristics in the study. The apparent individual (subjective) and collective (shared) beliefs about service quality were also identified using the interview and questionnaire respectively. These new beliefs were examined in relation to the students' previous experience and the existing theoretical and empirical evidence (products of previous experiences and beliefs). The validation of the shared beliefs, the development and test of service quality measurement and structural models as well as the examination of the causal relations among the variables in the structural model are all efforts made to generate new or modified and context-relevant belief/knowledge. Such engagements in the research process indicate that the knowledge generation process is "a continual back-and-forth movement between beliefs and actions [experiences]" (Morgan, 2013, p. 5).

Capitalizing on pragmatists' view on the experience-belief transaction in the knowledge generation process and coexistence of subjective and objective realities, Johnson and Onwuegbuzie (2004, p. 18) state that pragmatism "views knowledge as being both constructed and based on the reality of the world we experience and live in". The pragmatic paradigm also endorses "fallibilism" and "views current truth, meaning and knowledge as tentative and changing over time" (Johnson & Onwuegbuzie, 2004, p. 18). This requires the researcher to engage in "a dynamic homeostatic process of belief, doubts, inquiry, modified belief, new doubt, new inquiry, . . . , in an infinite loop" and "constantly . . . improve upon past understandings in a way that fits and works in the world in which he or she operates" (Johnson & Onwuegbuzie, 2004, p. 18). For instance, this study reviewed the different beliefs about service quality known so far, identified the inconsistencies and gaps (doubts) apparent in the area, raised different research questions addressing the identified gaps (inquiry), hypothesized an alternative conceptual framework for service quality (modified belief) and tested the framework for its fit to the context of EPHEIs.

From the above stances of pragmatism, there seems to be an adequate philosophical explanation to the search for attributes used to measure service quality and develop a model that explains it very well in the context of EPHE. The search for attributes necessitates (1) fetching the subjective but negotiated beliefs of students about service quality in the context of EPHEIs, (2) relating the new beliefs to what has been known so far (using the proposed conceptual framework as a lens), (3) developing a context relevant measurement instrument (questionnaire) from the negotiated beliefs for measuring service quality constructs objectively, and (4) confirming the service quality measurement and structural model fit to decide on the measurement and structural validity of the hypothesized service quality framework.

Such a knowledge generation process and the coexistence of subjective and objective realities entail a research approach that mixes qualitative and quantitative studies, i.e., mixed method research approach (Creswell, 2009; 2012). According to Denscombe (2008), the pragmatic paradigm also provides a basis for using the mixed methods approach in social science research when neither qualitative nor quantitative research alone could adequately address the research problem under study. The next sub-section presents the research approach and the specific design chosen for the study on the basis of the selected paradigm.

4.2.3 Research approach and design

A mixed methods research approach, particularly an exploratory sequential design with more emphasis on the quantitative approach (qual→QUAN), is found appropriate to address problems that entail considerations of the subjective aspects of service quality as well as the need for testing the measurement and construct validity of a hypothesized framework (Creswell, 2009; 2012). Substantiating the appropriateness of the selected research design to the kind of research problem at hand, Creswell (2012, p. 543) states that "the purpose of an exploratory sequential mixed methods design involves the procedure of first gathering qualitative data to explore a phenomenon, and then collecting quantitative data to explain relationships found in the qualitative data."

The fact that service quality has not yet been well conceptualized in the context of Ethiopian public universities coupled with its subjective, time- and context-dependent nature entail identifying its attributes and dimensions from the viewpoints and experiences of students. This required primarily a qualitative study so that subjective and context specific responses can be explored, analysed and interpreted to determine the specific attributes and dimensions of service quality. The findings from this qualitative phase of the research partly answer the first research question that deals with the identification of attributes and dimensions of the four service quality constructs in the EPHE context as perceived by students. The attributes and dimensions of service quality constructs identified in this qualitative phase of the study were used to create subscales of the instrument (questionnaire) designed to objectively measure service quality in the context of EPHE.

A quantitative study followed the qualitative study. The quantitative phase first piloted the questionnaire developed from the results of interviews and literature on a reasonably large sample size to ensure its reliability and validity. Then the instrument was used to collect data from the research sites to fully answer the first research question and the remaining four research questions. The four research questions aim to test the service quality measurement model, examine the relationship between student characteristics and service quality constructs, test the proposed service quality structural model as well as determine the status of service quality provision in EPHIs.

The selection of the design to the problem under study is very much in line with what Creswell (2012, p. 543) writes:

> A popular application of this [exploratory] design is to explore a phenomenon, identify themes, design an instrument, and subsequently test it. Researchers use this design when existing instruments, variables, and measures may not be known or available for the population under study.

The selected research design therefore connects the qualitative study with the quantitative study and enables the research to take advantage of the complementary strengths of the two approaches. Combining qualitative and quantitative approaches and thereby taking advantage of the strengths of the two approaches has long been recommended by different authorities (Creswell & Clark, 2007; Creswell, 2012) and researchers in the area (Angell et al., 2008; Gbadamosi & De Jager, 2008; Morgan, 2007, 2013; Pereda et al., 2007), and has thus been found to be helpful in the present study.

In general, the selected sequential design in the mixed methods approach first fulfils the intent of exploring the attributes of service quality constructs using qualitative data, and then validating the constructs and explaining the interplay among the constructs in the proposed framework using the quantitative data (Creswell, 2009, 2012) collected from the sample of students in EPHE. The following section presents the population and the samples used as data source for the study.

4.3 POPULATION AND SAMPLING

By 2015, there were 33 public universities in the country (MoE, 2015). Of these, 13 had been running some programmes since 2006 but had not finalized their process of establishment by the time the research was conducted. The other 11 were established very recently, undertaking infrastructure construction and service provision in parallel. Consequently, these 24 universities were excluded from the study as it was too early to deal with quality issues in these institutions. The remaining nine universities have served for more than a decade and were well established compared to the new ones.

HERQA had conducted quality audits in these well-established universities in 2007, with the exception of one university - Addis Ababa University. So, the qualitative and quantitative studies carried out to answer the research questions of this research included those audited public universities as the target population,

mainly because these universities had similar orientation and experience in education quality assessment and management. Out of the eight audited public universities, the one where the researcher works - Bahir Dar University - was selected as a convenient site to carry out the qualitative phase of the study and pilot the questionnaire. Since the pilot test had to be carried out on similar programmes of a comparable institution external to the study site, Bahir Dar University was excluded from the target population. The sampling procedures for selecting the individual participants/respondents for the qualitative and quantitative studies are presented in the following sub-sections.

4.3.1 Sampling of participants for the qualitative part of the study

As stated above, Bahir Dar University was selected as a convenient site to carry out the qualitative phase of the study and pilot the questionnaire developed from the findings of the qualitative study. In exploratory sequential design it is possible to take participants for qualitative phase from similar sites that are not necessarily part of the sample population (Creswell, 2008). This idea verifies the acceptability of carrying out the qualitative phase of the study in a different but similar research site from the sample population.

A total of 15 undergraduate students from Bahir Dar University participated in the qualitative phase of the study. These participants were selected employing a combination of "stratified purposeful sampling" and "criterion sampling" techniques (Hatch, 2002, pp. 97-98). First, four programmes - Economics, Electrical Engineering, Medicine and Psychology (see the quantitative sampling section), the years of study and gender were taken as strata for purposeful sampling. That means the selection of participants had considered students from four programmes, different batches and gender groups. These strata were considered in the selection process for the reason that literature (discussed in chapter two) highlighted the potential influences that these factors could have on students' perception of service quality in HE. This in turn provided opportunities to consider different perceptions in the process of exploring the attributes of service quality constructs.

Second, experience as student representative (class or student union representatives) and better academic performance at the university were considered as criteria of inclusion. These criteria were purposefully set because participants who served as student representative had a responsibility to address students' academic and administrative problems dealing with academic and administrative officers and this was

believed to have helped them to have better exposure to different academic and administrative services compared to other students.

Students with better academic standing were also believed to properly judge and describe the qualities of academic and support services rendered to them. In this regard, Creswell (2012, p. 218) also recommends the importance of interviewing participants who "are not hesitant to speak, who are articulate, and who can share ideas comfortably". Thus, 15 participants from four programmes and all batches were included taking into account their gender composition, academic performance and/or experience as student representative with the purpose of getting rich data on students' perspectives about service quality attributes and dimensions to the four service quality constructs in the EPHE context. The composition of participants is reported in chapter five. The next sub-section presents the sample population for the quantitative phase of the study.

4.3.2 Sampling for quantitative part of the study

Excluding Bahir Dar University from the eight old and audited public universities for piloting and qualitative study purposes, seven public higher education institutions remained as a target population for the quantitative study. Three (43%) out of the remaining seven universities were included in the sample population by employing the simple random sampling technique particularly using the lottery method, which provides equal chance of selection for each population member through pulling a rolled name of a university from the three paper cases/boxes each having rolls of names of the seven universities (Cohen, Manion & Morrison, 2007; Lewin, 2005; Lodico, Spaulding & Voegtle, 2010). The identified three institutions are represented using the following codes for ethical reason – University 1, University 2 and University 3. The numbers used as codes are given based on the order followed during data collection.

Since examining differences among programmes and universities in terms of quality service provision was an aspect of the study and since the pilot testing and the actual study had to be carried out in similar programmes, identifying at least four programmes offered in common in the selected three universities and in the university reserved for qualitative study and pilot testing was essential. Accordingly, 27 of the 199 programmes were identified satisfying the criteria – those offered in common in the universities selected for the pilot and main study. For manageability reasons four out of the 27 programmes were included in the

study using the systematic random sampling technique (Singh, 2007). Following the procedure of systematic sampling suggested by Singh (2007), first, a randomly ordered list of the 27 programmes was taken as a realistic population of programmes and they were assigned with numerals from 1 to 27. Taking seven as the quotient of programme population (27) and programme sample size (4), every 7th programme in the list was included in the sample population starting from the first unit in the list. The selected programmes were: Economics, Electrical Engineering, Medicine and Psychology.

The procedure used to select participants from the four programmes for the pilot and main studies was slightly different. As stated earlier, pilot testing of the questionnaire used to measure the dimensions of service quality constructs was carried out at Bahir Dar University. The selection of participants for the pilot test involved undergraduate students from the four programmes but excluded those who took part in the qualitative phase. Since assessing the construct validity of subscales in the questionnaire demands carrying out partial factor analysis, it necessitated taking at least five participants per item of factorable variables (Osborne & Costello, 2004). The largest category of variables in the questionnaire was perceived service quality that had 17 dimensions and 110 items. According to the criteria of factor analysis, the sample size for piloting the instrument was 550 students. This constituted 24% of the undergraduate students in the four programmes of the pilot site.

Participants were selected from the different batches of undergraduate students studying in the four programmes using proportionate stratified random sampling technique (Cohen et al., 2007; Lodico et al., 2010; Singh, 2007). According to Singh (2007), proportionate stratified random sampling involves dividing the population into mutually exclusive subgroups/strata, (i.e., four programmes and different years of study), and then taking a simple or systematic random sample in each subgroup/strata proportionally, i.e., 24% of the population size in each stratum.

For the final study that involved data collection from the four programmes of randomly selected three public universities, the above criteria requiring factor analysis was maintained to determine the sample size. But the number of participants per item was raised to 20 instead of five since the population size is large and a relatively large sample size is recommended to ensure adequate statistical power and attain reasonable stability in results when carrying out a confirmatory and exploratory factor analysis (Kline, 2005; Raykov & Marcoulides, 2006). The number of items in the larger category of factorable variables (perceived service

quality) was also reduced to 92 as a result of the pilot test. Thus, the sample size for the final study became 1840 and it constituted 17.5% of the target population. Participants were drawn from each batch of the four programmes in the respective universities employing the proportionate stratified random sampling technique (Cohen et al., 2007; Lodico et al., 2010; Singh, 2007).

Despite the plan, the actual number of participants involved in the study declined to 460 for the pilot and 1412 for the final study due to different reasons. Some groups of students, for instance 4th year engineering and 2nd year medicine students, were not available during data collection for they were away from the campus for internship and vacation, respectively. Among students found studying in the respective sample universities and programmes, some did not return the questionnaire (non-response), others were returned with a large number of missing items (5% and above) or filled it carelessly. This has made the return rate of the questionnaire 83.6% for the pilot and 76.7% for the final study. Consequently the ratio between the number of cases and variables/items for the final study was reduced to 15:1.Yet, it was still within the range of sample size necessary to ensure adequate statistical power - to have a good chance of rejecting a model if it is wrong (Loehlin, 2004; Raykov & Marcoulides, 2006; Siddiqui, 2013). The instruments used to collect data from the specified sample population are discussed in the next section.

4.4 INSTRUMENTATION AND DATA COLLECTION TECHNIQUES

On the basis of the nature of the problem and the selected research design, qualitative data were collected to examine the subjective and context specific attributes students attached to the constructs of service quality. The results of the qualitative study were used to develop a comprehensive data collection instrument that would be used to measure the dimensions of service quality constructs quantitatively and objectively. The details of the instruments designed to collect qualitative and quantitative data for the study are presented in the following sub-sections.

4.4.1 Instrument for the qualitative study: Interviews

An interview, in the context of a qualitative study, is “a form on which . . . an interviewer asks open-ended questions without response options and listens to and records the comments of the interviewee” (Creswell, 2012, p. 382). Literature in qualitative research reveals that interviews can be either “formal” or “informal”

depending on the degree of planned events involved in the process (Hatch, 2002, p. 95). Explaining the differences between the two, Hatch states that researchers conducting formal interviews, unlike the informal ones, ". . . have questions about certain topics in mind, but they are open to digressions, they expect the interview to move in the direction that the informant takes it, and they plan to create probing . . . questions based on the responses they receive" (Hatch, 2002, p. 95).

Hatch (2002, p. 94) also notes that formal interviews are classified as "structured", "semi-structured" or "in-depth interviews" based on the degree to which the interviews allow the participants to reflect their insights and perspectives. Decisions about the kinds of interviews to conduct for a study largely depend on the research purpose, research questions, and issues of feasibility (Hatch, 2002). Since quality is inherently subjective and one of the purposes of this research was to develop a context specific instrument to measure service quality, capturing the subjective perspectives of students about service quality through qualitative interviews was imperative (Creswell, 2012; Hatch, 2002). Yet the subjective perspectives of participants about service quality have to be examined and analysed within the available literature and proposed service quality framework. Hence, the qualitative study needs to frame the interview guide in light of the framework but in a way that gives some degree of freedom to participants' perspectives. As suggested by Creswell (2012) and Hatch (2002), this kind of qualitative study entails semi-structured interviews. Specifically, Hatch (2002, p. 102) states that:

> Guiding questions for studies using interviewing as the primary data source require researchers to develop questions based on their research purposes, knowledge of their informants, and hunches about the phenomena they are studying (which may or may not be informed by the theoretical and research literature in that area).

According to Hatch (2002), interview guides designed to conducted interviews with multiple informants but only once or without follow up interviews require more carefully designed and ordered set of questions. The questions also need to be open to let the participant reflect his/her perspective and yet be followed with probes to bring the discussion back to the issue at hand (Creswell, 2012; Hatch, 2002). On the basis of such recommendations the researcher developed a semi-structured interview guide consisting of questions organised in two sections (see Appendix E). The first section of the interview guide contained questions designed to collect information about the attributes and dimensions of service quality constructs. This

section was further organised into two sub-sections. The first sub-section was about encounter level service quality issues while the second sub-section dealt with overall/university level issues.

In the first sub-section of section one, there were nine questions designed to explore the attributes students use to describe quality academic and support services. The first question in this sub-section is a kind of question that Hatch (2002, p. 102) calls a "throw-away question" – one that simply required participants to think about the academic services rendered to them and identify those services rendered to their expectations, more than expectations or below their expectations. This question helps students to process the gap between expectation and actual delivery of academic services and identify the services rendered to their expectation or more or less. It mainly sets the mind of participants to the next question.

The second question was an "essential question" (Hatch, 2002, p. 102) that requires participants to describe the qualities of those services they perceived were rendered to their expectation or more. Probes like "what about instructors' qualities in . . . ?" followed to encourage informants to go more deeply into the topic or to shape the direction of the participants' answers to the five types of academic services -- teaching and learning, assessment and grading, academic advising, research advising and linking courses with industry/real life practice. Participants were also probed to describe the service rendering behaviours of those teachers perceived serving below expectation in order to get more but contrasting attributes to academic service quality. Generally, the intent of the second question and its probes was to gather data about the attributes students use to describe perceived academic service quality and its dimensions.

The third question required participants to express their feelings about instructors who have provided academic services to their expectation or more with the aim of exploring attributes used to measure satisfaction with the academic services. Question four required participants to describe what they have gained as a result of their exposure to academic services in pursuit of attributes and dimensions used to measure perceived gains. Question five asked participants to express what they would do or intended to do if they were asked to use the academic service again and which service they would like to reuse. Question five was designed to find out the attributes of loyalty dimensions with regard to academic service, i.e., behavioural actions and behavioural intentions.

In its first sub-section of section one, the interview guide also included four more questions (6th through 9th) that were designed to explore the attributes of the four constructs of support service quality from the views and experiences of participants. Question six first required participants to mention the support services rendered to them in the respective institutions. For ease of recall of support services and to prevent the possibility of forgetting important support services and to efficiently use the interview time, participants were provided with a "Show card" consisting of 21 possible services rendered in higher education institutions. The use of a "Show card" for an interview that requires participants to reflect on more than five issues is recommended by different scholars (Cohen et al., 2007; Singh, 2007).

After the participants identified the support services rendered in their institutions using the "Show card", they were asked to rate the provision of the identified support services as to their expectation, more than their expectation or below their expectation. Following the rating of service provisions, participants were requested to focus on services they believed were provided to their expectation or more and describe the attributes/qualities of those services. With the intention of getting attributes that distinguish the desirable qualities of support service from the undesirable ones, participants were encouraged to describe the attributes of those support services rated below expectation too. Thus, question six with its probes was used to determine the attributes and dimensions of perceived support service quality. Question seven demanded participants to reflect on their feelings about the support service providers who served them to their expectation or more. This question was intended to explore attributes of students' satisfaction to support services. Question eight asked participants to specify what they have gained from their exposure to support services to explore more attributes of perceived gains. Question nine required participants to express their intent to reuse the support services with the aim of describing attributes of students' loyalty to support services.

The second sub-section of the interview guide consisted of nine questions (from 10th to 18th) prepared to explore students' university wide perceptions of the attributes of the four service quality constructs. For example, question 10 required participants to express their overall feelings about the university to further explore attributes to satisfaction. Question 11 asked participants to express what they have gained as a result of their stay in the university so far. As an added means of getting more attributes to perceived gain construct, question 12 encouraged participants to mention if there are some more gains they would like to get from their stay in the university.

Questions 13 to 18 were designed to describe university wide attributes and dimensions of loyalty construct. These questions required participants to express the kind of relationship they intend to have with the university in the future, what they would like to do if they are asked to contribute something to the university in their capacity, if they have the intention to transfer to another university, where they would like to continue their further education, and their feelings and corresponding reactions to negative words of mouth about their institution.

The second section of the interview guide contained three major questions that deal with how the students decided to choose the university and specific programmes they would like to join as well as their evaluation about the objectivity or fairness of the university and programme placement processes. This would help to explore some student related characteristics that may explain possible differences in the students' perception of service quality constructs.

The development of the interview guide passed through the following steps: first the researcher developed the interview questions in English based on an extensive review of literature. To ensure its face and content validity, the interview guide was given to three professors together with the research questions, operational definitions of constructs and review of behaviours representing the constructs of service quality for their clarity. Two of the professors had experiences in qualitative research, particularly employing interviews, have earned their PhDs in the education field and had training in the national language – Amharic - in their first and second degrees. The third professor was from the educational measurement and evaluation field with an English language background. Based on the comments from these professors, the phrasing and organisation of questions were improved. Later, the first two professors translated the instrument into Amharic language and the third professor translated back into English to check for discrepancies (Cohen et al., 2007). Participation of experts or professors in the development and validation of the interview questions and in the translation of the instrument is highly recommended by scholars for they will have a good understanding of the intents of each question and can translate the instrument properly (Onwuegbuzie, Bustamante & Nelson, 2010). Finally, the interview guide passed through the ethical clearance process and approval was granted from the research ethics committee of the College of Education at UNISA satisfying the necessary criteria.

4.4.2 Instrument for the quantitative study: Questionnaire

A questionnaire is a set of questions or "a form . . . that participants in a study complete and return to the researcher" (Creswell, 2012, p. 382). Unlike the interview, a questionnaire requires the participant to "choose answers to questions and supplies basic personal or demographic information" (Creswell, 2012, p. 382). The author further explains that researchers can "develop their own questionnaire, modify an existing one, or use one that they have located in the literature" (Creswell, 2012, p. 383). Other sources also suggest that researchers can develop a questionnaire involving sample participants and/or experts through interviews, focus group discussions and expert judgments for problems that are new, less explored and/or subjective (Creswell, 2009; Onwuegbuzie et al., 2010).

On the basis of the above suggestions, the researcher developed a structured questionnaire with closed-ended questions based on interview results, literature and the assistance of three professors who participated in the face and content validation process. The questionnaire was designed to collect data on respondents' characteristics and measure the dimension of the four service quality constructs in the EPHE context more objectively.

The questionnaire was first developed in English. The development of the questionnaire also took into account the advice of authorities for setting good quality questions. That means, in the process of developing the questions, the researcher strived to avoid vague and technical words, reduced the use of double- or triple-barrelled questions, eliminated negative connotations or leading words, used words familiar to all participants, matched questions with response options and excluded personal or sensitive questions (Creswell, 2012; Singh, 2007).

As an integral part of the instrument development process, three professors (one from curriculum and two from the measurement and evaluation area) participated in making expert judgment on the face and content validity of the questionnaire. To facilitate the experts' judgment on the face and content validity of the questionnaire, the researcher provided them with the operational definitions of the constructs and a concise summary of the literature review about the behaviours that correspond with the respective service quality constructs together with the instrument. Changes in the wording of some questions, the merging of

other questions and the elimination of redundant questions were made based on the feedback from the three professors (see the details in chapter five).

The questionnaire was translated into Amharic involving the same professors who participated in the translation of interview questions and employing similar procedures of translation. The questionnaire passed through the ethical clearance process and approval was granted from the research ethics committee of the College of Education at UNISA satisfying the necessary criteria.

Finally, the questionnaire was pilot tested to assure its reliability and construct validity (see the report in chapter five). An improved version of the questionnaire was designed following the pilot test (see Appendix F). The following paragraphs present some details about the questionnaire at its pilot stage and the final version.

The questionnaire had four sections. The first section consisted of seven questions/items that dealt with students' personal data. The second section had ten items that addressed students' preferences for and experiences of university services before joining and right after joining the university. Students' goal orientation was also measured as one student-related factor using a five point rating scale consisting of nine items. The items in the first two sections were designed based on an extensive literature review and results from the interview. The intent of the items in these two sections was to collect data about students' characteristics that may affect their perceptions about service quality constructs. Items in these sections remained the same after the pilot test except for some rephrasing of a few items and the dropping of an item from the goal orientation subscale.

In the third section of the questionnaire there were 110 items designed to measure perceived service quality in terms of students' perception against 17 dimensions. Respondents were required to indicate the extent of academic and support service actually provided to them by most academic staff and support personnel in the respective universities using a five-point "Likert" type or "summated" rating scale (Singh, 2007, p. 75). The scale ranged from 1= "Not at all" to 5= "To a very great extent". Such scales are composite scales consisting of behavioural statements/items which try to "bring objectivity into subjective concepts" like service quality (Singh, 2007, p. 75).

Based on the data obtained from the pilot test and final study, item total reliability test and partial confirmatory factor analysis were computed to examine the subscales' internal consistency, construct validity and for the purpose of reducing items (Cohen et al., 2007; Kline, 2005; Pallant, 2007). As a result, the number of items in some of the perceived service quality dimensions/subscales were reduced and that, in turn, lowered the total number of items in the construct from 110 to 92. The items in each of the 17 dimensions ranged from three (for the dimensions of flexibility, industry-link, responsiveness, socialization) to 15 (for the dimension of tangibles). The Cronbach alpha reliability indices of the 17 dimensions ranged from .587 (for the dimension of flexibility) to .897 (for the dimension of tangibles) (see page 167) at the pilot stage and improved to a range from .722 to .910 for the final data respectively. Thus, the perceived service quality dimensions/subscales had acceptable reliability indices (Cohen et al., 2007, McMillan & Schumacher, 1997).

The fourth section of the questionnaire contained items that measure the students' perceived satisfaction, perceived gains and loyalty latent behaviours. Perceived satisfaction is measured by a composite scale or a set of three items referring to academic, support and overall services rendered to students in PHEIs. At the same time, these items were used as three dimensions of service quality as they were addressing encounter level and university wide satisfactions. Students were requested to express their level of satisfaction to the three services against a five-point satisfaction scale ranging from 1= "Not satisfied" to 5= "Completely satisfied". The Cronbach alpha reliability index of this subscale improved from .768 at a pilot stage to .797 for the final data and thus it was reliable (Cohen et al., 2007; McMillan & Schumacher, 1997).

Perceived gain was measured using 13 items organised in five dimensions – cognitive gain (three items), professional preparedness (two items), communication skills (two items), general education (two items), and social/interpersonal skills (four items). Students were requested to indicate their perceived gains as a result of their exposure to universities in a five-point rating scale ranging from 1= "Never" to 5= "Very much". The Cronbach alpha reliability indices of these scales ranged from .624 (professional preparedness) to .807 (personal/social skills) at the pilot stage and improved to .714 (communication skills) to .843 (personal/social skills) for the final data. This indicates that the subscales of perceived gains had acceptable reliability (Cohen et al., 2007; McMillan & Schumacher, 1997).

Originally nine composite scale type items were developed to measure the two dimensions of the loyalty construct. Behavioural intention had four items and behavioural action consisted of five items. Students were requested to indicate the extent of their intentions or actions to stay in contact or reuse the services of the university on a five-point rating scale ranging from 1= “Not at all” to 5= “To a very great extent”. Following the item total reliability analysis of the data from the pilot test, two items of behavioural action were discarded for they suppressed the Chronbach alpha reliability index. Thus, the total items used to measure loyalty dimensions were reduced to seven. The Chronbach alpha reliability indices of the two subscales at the pilot stage were .734 for behavioural intention and .756 for behavioural action. However, the principal component factor analysis conducted on the final data revealed that loyalty is a one factor construct with .863 Cronbach alpha reliability index. Thus, it was treated as a one factor construct with an acceptable reliable index (Cohen et al., 2007; McMillan & Schumacher, 1997). The details of the instrument development process as well as its reliability and construct validity tests are presented in chapter five.

4.5 DATA ANALYSIS AND INTERPRETATION

The data analysis techniques employed to answer the research questions are presented in the following two sub-sections. The first sub-section is devoted to the qualitative data analysis and interpretation techniques while the second is for the quantitative data.

4.5.1 Qualitative data analysis and interpretation techniques

The qualitative data obtained from interviews were analysed manually through thematic categorization. To facilitate the manual categorization of the qualitative data MSWord and MSExcel facilities of MSOffice were employed. The abduction reasoning approach that involves inductive and deductive reasoning was followed in the data analysis process. First, following the inductive approach, specific themes, behaviours or attributes were identified from the responses of participants. As suggested by Yeo (2008), word recurrence, repeated phrases, and examples of behavioural statements were closely observed in the treatment of interview data and exploration of attributes. Applying the notion of saturated response, attributes reported at least twice were included in the potential list of service quality features (Krathwohl, 1998; Miles & Huberman, 1994).

A three level of code structure was used to analyse the data. Following the suggestion of Creswell (2012, p. 251) the identified attributes or behaviours in the two major services (academic and support) were taken as 'minor themes' and they were classified under certain dimensions or 'major themes'. The major themes were further collapsed into four service quality constructs that could be taken as a third level or grand themes. The analysis and interpretation was carried out by constantly comparing the qualitative data to those attributes and dimensions of service quality synthesized from literature, i.e., using the proposed conceptual framework as a lens. In other words, service quality constructs, respective dimensions and specific behavioural statements identified from the literature review were used as a code structure to explore the attributes, classify them under a certain major thematic area – dimensions, and grand themes – and service quality constructs.

Specifically, from the contents of the interview transcripts of each participant, the researcher first identified text segments that describe the behaviours of service givers. These behaviours were coded as "attributes" of the service quality dimensions. Some examples of such attributes were: being available in the office to consult students, providing detailed feedback to students' performance, dedicating adequate time to consult students, being punctual for appointments, responding to students' requests promptly, adequacy of reference books, etc. Classifying the attributes by service type - academic and support - was part of the coding process.

After the attributes were exhausted the researcher grouped them together to form major themes or dimensions of service quality in consultation with the literature or the conceptual framework. Some examples of major themes include: accessibility, competence, friendliness, tangibles, satisfaction with support service, gains in knowledge, gains in personal/social skills, behavioural action, behavioural intention, etc. Then, informed by the literature, the dimensions were further grouped into grand themes such as perceived service quality, satisfaction, perceived gains and loyalty. Such use of literature and the conceptual framework in the analysis of major themes and grand themes shifted the analysis to the deductive approach. The attributes and dimensions identified at this stage served as the findings of the qualitative phase that partly answered the first research question – identifying the dimensions of the four service quality constructs.

Together with some inputs from literature, the identified attributes and dimensions were used to develop a questionnaire that measured the service quality dimensions objectively in the context of EPHE. This gave way to the quantitative phase of the study that helped to validate the identified preliminary findings from the qualitative phase through "triangulation" of "methods of data collection" (Creswell, 2012, p. 259) as well as to answer the remaining research questions. The details of the data analysis techniques for the quantitative phase are presented next.

4.5.2 Quantitative data analysis and interpretation techniques

The data analysis techniques employed for the pilot test are already reported in section 4.4.2. Here the focus will be on the data analysis techniques employed after the final data had been collected from the sample population. Different statistical techniques were employed to analyse the data. For instance, descriptive statistics were used to describe and provide estimations of central tendency of dependent and independent variables (Cohen et al., 2007; Tabachnick, & Fidell, 2013) such as service quality dimensions, student characteristics, perceived service quality, satisfaction, perceived gains and loyalty.

Factor analysis and item total correlation were carried out to determine the factor structure and reliability of the subscales (Cohen et al., 2007; Kline, 2005; Lodico et al., 2006; 2010; Pallant, 2007). This helped to refine the decisions on the dimensions of service quality constructs and answered the first research question (RQ 1) fully. Both confirmatory and exploratory factor analyses were employed to determine or re-specify the measurement and structural model fitting using AMOS version 18 (Byrne, 2010). This was intended to ensure the measurement and structural validity of the proposed service quality framework or explore the re-specified one (Byrne, 2010) and addressed RQ 2 and RQ 4.

After the structural model fitting was determined, Structural Equation Modelling (SEM) that embodies regression analysis in it was carried out using AMOS to establish the causal relationship among the dependant and independent variables in the specified structural model (Byrne, 2010; Ullman, 2013). In other words, SEM was used to analyse the direct, indirect and total effects of the independent variables on the dependent variables in the specified structural model to examine how much of the variance in the dependent variables, both latent and observed, was accounted for by the independent variables. These analyses answered research questions RQ 4.1 through to RQ 4.6. The effects of student background and

other characteristics that were of a nominal nature were examined using "Stat tools" (available from statwiki website: http://statwiki.kolobkreations.com/index.php?title=Main_Page) in the form of an invariance test to compare group differences for the measurement model (RQ 2.1) and all the paths in the structural model (RQ 4.7).

Correlation and regression analysis were employed to test assumptions necessary for structural equation modelling (Kline, 2011) as well as to study the relationships (Cohen et al., 2007; Singh, 2007) among the student characteristics and with service quality constructs (RQ3). An independent sample t-test was computed to examine whether variation in gender, residence, prior exposure to universities and students' value to service quality during university selection were associated with differences in their perception of the four constructs (Tabachnick, & Fidell, 2013). Similarly, one way ANOVA with Tuky's post hoc comparisons was also employed to see whether variations in programmes and institutions were associated with variations in the perception and provision of service quality (part of RQ3) (Tabachnick, & Fidell, 2013). Finally, one sample t-test was employed to examine the status (Cohen et al., 2007) of service quality in EPHEIs (RQ5).

4.6 VALIDITY, RELIABILITY AND GENERALIZABILITY OF THE RESEARCH

As the mixed methods approach combines both qualitative and quantitative approaches, the issue of validity, reliability and generalizability of the research can be addressed within the respective approaches (Creswell, 2009). The following sub-sections present the procedures followed to ensure the validity, reliability and generalizability of the research in the two approaches of the study.

4.6.1 Validity, reliability and transferability of the qualitative research

In a qualitative study, validity or credibility refers to the accuracy of the study (Cohen et al., 2007). That means, "the findings must describe accurately the phenomena being researched" (Cohen et al., 2007, p. 135). As the validity of the findings and the study are dependent on the validity of the data the issue of validity in a qualitative study also concerns the "accuracy and precision of the data" as well as "the appropriateness of the data to the research question being investigated" (Denscombe, 2007, p. 296).

Authorities in qualitative research suggest different strategies to achieve validity based on the nature of the problem, the research design selected and the kind of data gathering tools employed (Cohen et al., 2007). For instance, Creswell (2009, 2012) claims that validity in qualitative studies can be addressed through at least two of the following most frequently used "validation strategies": (1) building trust with participants and checking for misinformation that stems from distortions introduced by the researcher or informant, (2) triangulating among different data sources, methods or samples, (3) taking the entire written narrative or summary of the results back to participants to check its accuracy and record their reaction to the report, and (4) writing with detailed and thick description. Similarly, McMillan and Schumacher (1997, pp. 404-408) outlined four strategies (prolonged field work, verbatim accounts, low-inference descriptors and negative case research) as essential strategies to ensure validity. They also identified more strategies like multiple researcher, mechanically recorded data, participant researcher, member checking, and participant review which can be added as appropriate.

As indicated elsewhere, the aim of the qualitative phase of this research was to identify the subjective and context specific attributes and dimensions of service quality from the views of participants. The results were used to develop a questionnaire designed to measure the attributes and dimensions of service quality objectively in the context of EPHE. Thus, the validity of this phase needs to focus on making sure that the data obtained from the interviews actually represent the views of the participants and the interpretation is less distorted. In order to obtain the data that actually represent the views of the participants, the researcher started the interview by building rapport with participants (through clarifying the purpose of the research, communicating the confidentiality of their responses and listening to their concerns) and by clarifying the meaning of service quality and its nature. This step was essential to get the trust of participants and overcome possible misunderstandings and thereby minimizing distortions during data collection.

The second measure taken to get accurate and rich data was to record the interview using digital audio recorder in addition to taking field notes. Accordingly, during the interview, the researcher recorded the detailed and thick description of the setting, participants and their responses with the help of a digital audio recorder so as to enhance the validity of the study.

Moreover, as suggested by McMillan and Schumacher (1997), the researcher used verbatim accounts and low-inference descriptors to minimize potential misinterpretations of data during the analysis. Finally, on the basis of Creswell's (2009) recommendation, the results obtained from the interviews were triangulated with the result from the questionnaire to see the match between the findings from the two data sources.

Reliability in qualitative studies refers to dependability or consistency of approaches followed during the data analysis process across different researchers (Gibbs cited in Creswell, 2009), and assumes the possibility of replication (Cohen et al., 2007). That means, reliability requires the researcher to furnish adequate and relevant methodological information so as to enable others to replicate the study (Jensen, 2008). Jensen further argued that the transparency and relevancy of the methodological process is a key to increase the dependability of the study. Strengthening this idea, Lodico et al. (2006, p. 274) state that "good qualitative studies will provide detailed explanations of how the data are collected and analyzed."

To achieve reliability, Yin (2003) advises documenting the procedures followed and as many of the steps of the procedures as possible. Gibbs (cited in Creswell, 2009) also suggests the following reliability procedures: (1) checking and correcting possible mistakes made during transcription, (2) ensuring the consistency of definitions of codes during the process of coding by writing memos about the codes and their definitions, and (3) cross-checking codes developed by the researcher and another person (research assistant) for intercoder agreement.

This study followed the first two of Gibbs' suggestions and the advice of Jensen (2008), Lodico et al. (2006) and Yin (2003) to ensure the reliability of the qualitative results. The third suggestion of Gibbs was skipped because factor analysis was done at a later stage when it could serve the purpose better.

Transferability in qualitative study parallels the concept of external validity or generalizability used in the quantitative study (Denscombe, 2007; Lodico et al., 2006). Since generalizability entails statistical probability and relies on a large sample size, qualitative research which usually bases itself on a small number of participants and qualitative data could not help researchers to generalize the findings to a larger population. Instead qualitative researchers suggest transferability as an alternative way of addressing the issue (Denscombe, 2007). Thus, it is conceptualized in terms of ". . . the degree of similarity between the

research site and other sites as judged by the reader." (Lodico et al., 2006, p. 275). These authors further discern transferability from generalizability as follows:

> . . . transferability is not whether the study includes a representative sample; it is how well the study has made it possible for readers to decide whether similar processes will be at work in their own communities by understanding in depth how they occur at the research site (2006, p. 275).

Strengthening the above idea, Denscombe (2007, p. 299) also described transferability as ". . . an imaginative process in which the reader of the research uses information about the particular instance that has been studied to arrive at a judgment about how far it would apply to other comparable instances." In other words, the issue in transferability focuses more on the extent to which "the findings could be transferred to the other instances" rather than "their existence in other instances" (Denscombe, 2007, p. 299).

To increase transferability scholars in the area suggest some commonly used strategies. For instance, Jensen (2008, p. 885) advises qualitative researchers to (1) select participants who are "closely linked to the context being studied", and (2) clearly define "the contextual boundaries of the findings". On the basis of the first suggestion, Jensen (2008) claims that when relevant members of the group under study are selected as participants through purposeful sampling, the transferability of the findings is likely to increase. He also explains that providing "thick description of the context, participants, and research design" could serve to clearly describe the contextual boundaries of the findings and thereby increase the transferability of the study. In this regard, Lodico et al. (2006, p. 275), confirmed that ". . . richness of the descriptions included in the study as well as the amount of detail provided regarding the context within which the study occurred" are important indicators to judge the transferability of the study.

More specifically, providing appropriate background and other relevant information about the participants and the social context of the institution where the study is conducted can increase transferability because it helps the readers to think how the findings might apply to similar institutions (Denscombe, 2007).

In accordance with the above suggestions of authorities, the researcher attempted to include (1) relevant members of the target group interviewed to get rich data and details of their characteristics, (2) the kind of

institution where the research was carried out and description of its social context, (3) the research design followed and (4) the boundaries of the findings in the qualitative study. The last point refers to the context-specific and subjective views of participants presented in the analysis. It helps the readers to gauge the transferability of the findings. The next sub-section presents how the aspects of quality research discussed above are treated in the quantitative phase of the research.

4.6.2 Validity, reliability, objectivity and generalizability of the quantitative research

According to Cohen et al. (2007), validity in a quantitative study might be improved through careful sampling, appropriate instrumentation and appropriate statistical treatment of the data. This implies that validity is a concern that requires due attention during the research design, instrument development and administration, and data analysis, interpretation and reporting. Although the issue of validity needs to be attended to at all stages of the research, the discussion of validity in this sub-section is delimited to the accuracy and precision of the data obtained from the survey instrument - questionnaire - used to undertake the quantitative phase of the study.

Scholars in the area confirm that a pilot test improves the validity, reliability and viability of a data collection instrument (Cohen et al., 2007; Lodico et al., 2010). Accordingly, the questionnaire used to collect data to answer the research questions in this study was pilot tested and the feedback from the pilot was used to improve the (1) clarity of items, instructions and layout; (2) organisation of the items and constructs; (3) wordings and readability of the items; and (4) question types and their formats. In addition, the feedback helped to (5) identify omissions, redundant and irrelevant items; and (6) estimate the time taken to complete the questionnaire. According to Cohen et al. (2007), such measures improve the validity of the instrument. The pilot test was also carried out with a larger sample representative of the population because it is one of the requirements to further ensure the validity and reliability of the data obtained from the questionnaire. In this regard, Cohen et al. (2007) confirm that data can be valid if it is representative of the sample, the whole data set and the field; i.e. content, construct and concurrent validity need to be addressed in order for the data to be valid.

The content validity can be ensured by checking whether the content of the instrument is consistent with the relevant literature on the topic or through consultation with experts in the field (Singh, 2007). In line with

this suggestion the researcher rigorously consulted the review of attributes to the service quality dimensions and constructs presented in chapter two to ensure content validity. In addition, as described elsewhere, three professors were involved in assessing the face and content validity of the instrument.

Construct validity examines whether the instrument accurately measures the construct (Lodico et al., 2006) and this can be addressed by computing the convergence and discriminant validity of the instrument using factor analysis which clusters together similar attributes and separates them from others (Cohen et al., 2007; Lodico et al., 2006). To this end, factor analysis was carried out both at the pilot and final stage of the study (see the details in chapter five).

In addition, SEM was employed to examine the fitness of the measurement model to the data as an added measure to assure the construct validity of the instrument (Byrne, 2010). Scholars consider this as a "superordinate or overarching" type of validity that addresses facets of "content, concurrent, and predictive" validity (Lodico et al., 2010, p. 100). As indicated elsewhere, the results of the factor analysis and SEM were also triangulated with the results of the qualitative phase to ensure consistency (Creswell, 2009).

Reliability is another aspect that contributes to the quality of the research. It refers to the "consistency of scores [responses], that is, an instrument's ability to produce 'approximately' the same score . . . across different raters" (Lodico et al., 2010, p. 93). In other words, reliability examines whether the instrument is consistently measuring the same trait or attribute across all items on the instrument or subscale (Lodico et al., 2010, p. 93). Although there are different ways of ensuring reliability, the measure of reliability as an internal consistency of items using Cronbach alpha is recommended for instruments with multi-item scales (Cohen et al., 2007). Cronbach alpha provides "a coefficient of inter-item correlations, that is, the correlation of each item with the sum of all the other relevant items . . ." (Cohen et al., 2007, p. 148) which is alternatively called item total correlation. As indicated elsewhere, the internal consistency (reliability) of the instrument for this study was established using the alpha coefficient of reliability (see, chapter five for the details). Establishing the reliability of data and the consistency of findings strengthens the validity and generalizability of the study as well (Babbie, 2009).

Objectivity is another concern a researcher should address in his/her study. It refers to the extent to which research findings are undistorted by the biases of researchers and serve as a base for the validity,

reliability, and generalizability of empirical researches (Denscombe, 2007; Miller, 2008). Objectivity conveys a meaning that all the interpretations of data and the discussion of findings should be grounded in empirical evidence obtained from the data (Hatch, 2002). Minimizing or avoiding the researcher's influence on research subjects during data collection (Dunne, Pryor, and Yates, 2005), employing objective data collection instruments like multi-item rating scales (Singh, 2007), and the use of advanced statistical methods for data analysis and interpretation (Dunne et al., 2005) are the commonly suggested strategies to ensure objectivity in quantitative studies. Since a multi-item questionnaire was the main data collection instrument used for this study, it not only helped to collect objective data but also gave little or no opportunity to the researcher to influence the respondents during data collection. As described elsewhere, this phase of the study employed advanced inferential statistical methods to analyse and interpret the data. Therefore, the researcher attended to the requirements of objectivity sufficiently.

Generalizability is another main objective of quantitative researches. Alternatively it represents the external validity of the study and mainly refers to the possibility of applying findings from a research setting to other people and/or situation that the study's sample allegedly represents (Denscombe 2007; Donmoyer 2008; Lodico et al., 2010). Literature in the area shows that generalizability of a study largely depends on the sampling techniques, sample size and the statistical methods employed. For instance, Cohen et al. (2007) claim that generalizability of the data could be attained by employing probability sampling techniques while selecting sample subjects of a study. In this regard, Lodico et al. (2010, p. 29) also state that "random selection" of sample subjects "plays a key role" in ensuring generalizability. In addition to random selection of research subjects, Donmoyer (2008) emphasises the importance of having a sufficiently large sample size to ensure the generalizability of the findings. As stated elsewhere the sample size and the sampling technique employed for this study satisfied the above two criteria for generalizability. On the basis of Babbie's (2007) suggestion, the researcher also used different inferential statistics that can help to estimate the generalizability of findings obtained from a sample to the larger population at 95% level of confidence (or at $p<.05$). Thus, this study satisfied conditions of generalizability.

4.7 ETHICAL CONSIDERATIONS FOR THE STUDY

Authorities in the area suggest that educational research involving human participants should be carried out ethically, i.e., protecting their rights, welfare and dignity (Cohen et al., 2007; Creswell, 2012; Hutchinson,

2004). Different professional organisations including educational institutions within a particular discipline or profession set requirements and guidelines to make sure that researchers are not violating the rights, welfare and dignity of participants at every stage of a research undertaking - selection of a research problem, data collection, data analysis and reporting findings (Cohen et al., 2007; Creswell, 2009; Hutchinson, 2004). In this regard, Padgett (2008) suggests that ethical issues also arise when the researcher selects sample participants from a population in addition to data collection, analysis and dissemination of findings.

With the intent of addressing such ethical concerns, the College of Education at UNISA requires researchers to pass through the ethical clearance process prior to conducting the study. Accordingly, two ethical clearance certificates for the qualitative and quantitative phases of this research were granted by the research ethics committee of the College of Education at UNISA, satisfying the ethics requirements set by the university (see Appendices H & I).

As revealed in literature about ethical concerns, there are different ethical criteria or standards that researchers need to address in order to protect the rights, welfare and dignity of research participants. The apparent differences in the criteria could be attributed to variations in the nature of the problem studied, methodologies followed and the level of relationships between the researcher and participants (McMillan & Schumacher, 1997). The ethical issues most commonly emphasised in educational research include (1) granting confidentiality, anonymity or privacy, (2) being respectful to the research site and the participants, (3) refraining from deceptive practices, (4) assessment of risks, (5) granting data access and ownership, and (6) obtaining permission and informed consent (Cohen et al., 2007; Creswell, 2012; Hutchinson, 2004; McMillan & Schumacher, 1997). These requirements are also included in the ethical requirements of UNISA.

According to Ogden (2008, p. 111), granting confidentiality is “an established principle in research ethics codes . . . of conduct . . . fundamental to human dignity”. The author further explains that granting confidentiality also protects “the privacy of research participants”. This means “. . . information shared with researchers will not be disclosed in a way that can publicly identify a participant or source” (Corti, 2008, p. 197). Confidentiality extends to protecting data from leak and loss (Cohen et al., 2007; Creswell, 2009). Maintaining anonymity through the use of “pseudonyms” (Ogden, 2008, p. 16), or “codes for identifying

people (to keep the information on individuals separate from access to them)" and storing data in "password-protected files" (Cohen et al., 2007, p. 64) as well as discarding the data after the time limit of storage (Creswell, 2009) can ensure confidentiality and anonymity.

Accordingly, the researcher used codes or numbers in place of names of participants during the collection, storage and analysis of the data in the qualitative and quantitative phases of the study to maintain their anonymity and ensure confidentiality. The data in both phases were also stored in the researchers' office and password-protected personal computer to protect the data from leak and loss. Every measure taken to ensure confidentiality and anonymity was communicated to participants prior to their engagement in the research to boost their confidence and sense of security (Ogden, 2008). Based on the recommendations of Cohen et al. (2007) and McMillan and Schumacher (1997), the researcher also tried to establish good rapport with participants in both the qualitative and quantitative phases and managed to get their willingness, trust and confidence during data collection.

Creswell (2009, p. 89) also advises researchers to respect "the participants and the site for research" when collecting data. For Creswell this can be done by avoiding or minimizing disruptions to the normal activities of the institution and participants. In line with this suggestion, the researcher arranged the interview session with the participants for the qualitative phase of the study in the students' free time and on their respective campuses. Similarly, data were collected through questionnaires from the research sites for the quantitative phase with minimum disruption, using an hour of their instructional time to fill in the questionnaire.

Refraining from deceptive practices is another debated ethical concern that has to be respected while stating the research purpose as well as the data collection methods (Creswell, 2009). The author further explains that the researchers should avoid deception by communicating the research purpose that is not different from the actual unless it is necessary for obtaining the intended finding. This was respected in both the qualitative and quantitative phases of this research by clearly communicating the actual purpose of the study to the gatekeepers during the selection of participants and to the respective participants at the time of data collection.

Research ethics also demands researchers to make assessment of risks and protect participants from "physical and mental discomfort" and "if any of these risks is possible the researcher must inform the

subjects of these risks" (McMillan & Schumacher, 1997, p. 194). The nature of the research under consideration is unobtrusive and thus has no significant foreseeable risk for participants and institutions because it deals with the services rendered in the public higher education institutions without referring to particular individuals. However, mentioning the name of institutions when reporting the status of service quality might affect the image of the institution. To address this ethical concern and any other potential felt risks participants may anticipate, the researcher decided to maintain anonymity using codes instead of names of participants and institutions when analysing the data and reporting results.

According to Cohen et al. (2007, p. 76), "arrangements should be made during initial contacts to provide feedback to participants who request it. This may take the form of a written resume of findings". Fulfilling this ethical principle minimizes possible "misinterpretations and misuse of research" (MacMillan & Schumacher, 1997, p. 195). The authors further claim that "the researcher should provide participants opportunity to receive the results of the study in which they participated" (p. 195). Respecting the participants' right to know the results of the research and overcome potential misunderstanding and misuse, the researcher planned to communicate the findings of the study from the qualitative and quantitative phases in one of the following ways: providing a copy for the respective universities and programmes, attaching the soft copy of the report to the interested participants via email, or presenting the findings in the annual education conferences of the respective universities. Supporting this idea, Creswell (2009, p.92) recommends that "the researcher needs to provide those at the research site with a preliminary copy of any publications from the research."

For a research conducted in educational institutions like universities or school systems, permission for conducting the research should be obtained from the institution before data collection (McMillan & Schumacher, 1997). The permission can be obtained by approaching "gatekeepers" i.e., "individual who have an official or unofficial role at the site" who can help the researcher "locate people [participants and assistants], and . . . places to study" (Creswell, 2012, p.211). Accordingly, the researcher approached the vice presidents, deans and/or programme officers of the respective programmes in the selected universities and used them as gatekeepers to get permission and access research participants. The researcher submitted a letter of request for permission attached with the clearance certificate obtained from UNISA to the respective gatekeepers and secured their permission to carry out the study in the sites selected for the qualitative and quantitative phases (see Appendix J).

After explaining the purpose and procedure of data collection with the respective programme officers, the names, ID and telephone numbers of participants for the two phases were identified from the database. The programme officers were also consulted to identify a faculty member who could serve as an assistant researcher in the respective programmes and universities. Name and telephone addresses of instructors offering courses to the selected students were identified and approached by the support from the programme managers and selected assistant researchers. The identified instructors were approached and their cooperation requested to allow the researcher and his assistant access to students for an hour of a session to administer the questionnaires to selected students (for the quantitative phase). Participants identified for the qualitative phase were directly approached by the researcher using the names and telephone numbers obtained from the database with the help of programme officers.

In addition to obtaining permission from an institution to conduct a study, McMillan and Schumacher (1997, p. 194) suggest the need to "secure informed consent from subjects before they participate in the research". Informed consent serves as "the basis of an implicit contractual relationship between the researcher and the researched" and lays foundation on which other essential ethical considerations can be structured (Cohen et al., 2007, p. 53). To get participants' consent researchers are advised to communicate the research project, its purpose and its methodology to the participants before requesting them to sign the consent form (Cohen et al., 2007). Literature in the area specifically pointed out that when conducting interviews or administering questionnaires a researcher has to communicate to the participants in advance about the purpose of the study, the time it will take, that confidentiality is granted, that they are free to decline participation any time, names and contact details of persons to contact for questions that may arise are provided, the plans for using the results from the research, the availability of a summary of the study when the research is completed and finally have the participant complete an informed consent (Cohen et al., 2007; Creswell, 2009, 2012; Hutchinson, 2004). Guided by the above recommendations, the researcher conveyed all the requirements suggested above to participants in the qualitative and quantitative phases of the research. Particularly, the requirements were clearly stated in the interview protocol and the covering letter of the questionnaire (see Appendices F & G).

Generally, utmost efforts were made to fulfil the ethical requirements stated above and ensure participants' rights, welfare and dignity in all phases and stages of the research process.

4.8 CONCLUSION

In conclusion, this chapter discussed a number of important issues related to the research design and methodology. It covered issues regarding the research paradigm - pragmatism, the research approach - mixed methods and the research design – exploratory sequential (qual → QUAN) design - used to govern the study. The chapter also included discussions of the study population, the sample population, data collection instruments and data analysis techniques employed for the qualitative and quantitative phases of the research. The methods used to improve the validity, reliability and generalizability of the study were the other methodological issues discussed in the chapter for both the qualitative and quantitative phases. Lastly, ethical considerations that the researcher had attended during the qualitative and quantitative phases of the research were pointed out. Generally, the issues discussed in this chapter are evidence of the methodological rigor of the study and the efforts made to ensure the quality of the research. The next chapter presents the data analysis and discussion of findings for both the qualitative and quantitative phases of the study.

CHAPTER FIVE

RESULTS AND DISCUSSION

5.1 INTRODUCTION

Consistent with the purposes of the research, this chapter presents the results and discussion of results related to the measurement and the structural models of service quality in EPHE. It starts by analysing the qualitative and quantitative data in section 5.2. This section is further divided into five sub-sections that deal with the characteristics of participants involved in the qualitative and quantitative phases of the research (5.2.1), measurement of service quality constructs (5.2.2), the relationship between student characteristics and service quality constructs (5.2.3), structural model fit (5.2.4) and the current status of service quality in EPHE (5.2.5).

The other major section of the chapter deals with the interpretation of data and discussion of findings (section 5.3). This section is further organised by the thematic areas of the five major research questions. Accordingly, sub-section 5.3.1 discusses the findings on the dimensions used to measure service quality constructs. This discussion is followed by measurement model fit test interpretation in sub-section 5.3.2. The relationship between students' characteristics and service quality constructs is discussed in sub-section 5.3.3. Sub-section 5.3.4 discusses the structural equation modelling results of service quality in EPHE. It discusses the model fit and causal relations between the independent variables and the dependent variable included in the structural model. Sub-section 5.3.5 discusses the current status of service quality in the EPHE. The last section (5.4) presents the concluding remarks of the chapter.

The research process is presented in chapter four and some aspects of the process are also integrated with the characteristics of participants presented in sub-section 5.2.1 and analyses of subscales in sub-section 5.2.2.

5.2 QUALITATIVE AND QUANTITATIVE DATA ANALSES AND FINDINGS

5.2.1 Characteristics of participants

This sub-section presents a detailed description of the students who participated in the qualitative and quantitative phases of the study.

5.2.1.1 Characteristics of participants in the qualitative phase

Fifteen students participated for the qualitative phase of the study. Ten of them were males and the rest were females. Among them two were in their first year, five in their second, five in their third, two in their fourth, and one in his fifth year of study. In terms of their major area of study, five were from Economics, four from Engineering, three from Medicine and three from Psychology. Four of the participants were section representatives, two of them were members of the student unions (one from Economics and the other from Medicine programmes) and nine were among students with better performance from both gender groups.

Since perceptions about service quality may depend on how students had joined the university and had chosen their field of study, participants were asked to explain whether they had been placed in a university and programmes of their choice. They were also asked to explain about the criteria they had used to make the choices and the people they had consulted in their selection of a university and a programme of study. From the reports of the interviewees, it was found that nine of them joined the university of their choice but the other six reported otherwise. All of the participants reported that they joined a study programme of their choice.

As shown in Table 5.1, the criteria that students most frequently reported to decide on the university where they would like to study were found to be: quality of academic service (8), proximity to their home town (6), and reputation of the university (4). The other less frequently reported criteria were: the availability of an intended field of study, the climate of the place where the university is located and recommendations of peers.

Table 5.1

Frequency of themes that emerged on how participants decided to join the university and a programme they have chosen

No.	Themes emerged as criteria for informants		Frequency of mention of the theme
	University selection		
1	Quality of academic service	2,3,7,8,9,11,12,15	8
2	Proximity to home town	1,3,5,6,10,14	6
3	Reputation of the university	8,9,12, 13	4
4	Availability of intended field of study	5	1
5	Recommendations of peers	4	1
6	The climate of the place where the university is located	1	1
	Programme selection		
1	Own interest	1,2,3,5,8,10,11,15	8
2	Placement orientation	4,13	2
3	Job opportunity	7,14	2
4	Information from basic skill courses	6	1
5	Social desirability	9	1
6	Family interest	12	1

Students were also interviewed on who had been involved in their decision of where and what to study. The interview result disclosed that university selection was largely made by students' own decision (7) and yet there were a considerable number of students who consulted other people, mainly family members and relatives (5) or senior/former students (3). Similarly, when choosing the field of their study eight participants decided on their own, while five of the participants consulted their family and friends before reaching to a decision. The other two participants made a decision influenced by social desirability and family pressure irrespective of their own interest. It was with such composition of participants that the data necessary to develop the instrument for measuring dimensions of service quality constructs were gathered from the interview.

5.2.1.2 Characteristics of respondents in the quantitative phase

The characteristics of respondents consisted of their background, preferences and different experiences or exposures to universities. The details of these characteristics are presented in the sub-sections hereunder.

5.2.1.2.1 Background characteristics

Table 5.2
Background characteristics of participants ***(N=1412)***

Participants by:	Attributes	Frequency	Valid %
University	University 1	392	27.8
	University 2	432	30.6
	University 3	588	41.6
Gender	Male	1053	74.6
	Female	359	25.4
Year of study	1st year	430	30.5
	2nd year	260	18.4
	3rd year	308	21.8
	4th year	143	10.1
	5th year	256	18.1
	6th year and above	15	1.1
Area of study	Economics	221	15.7
	Medicine	542	38.4
	El. Engineering	562	39.8
	Psychology	87	6.2
Residence	Urban	1069	75.7
	Rural	343	24.3

As depicted in Table 5.2 there were 1412 respondents involved in the final study. Of these 392 (27.6%) were from University 1, 432 (30.6%) from University 2, and the remaining 588 (41.6%) from University 3. The distribution of participants by area of study revealed that 15.7% were from Economics, 38.4% from Medicine, 39.8% from Electrical Engineering and 6.2% from Psychology undergraduate programmes.

In terms of their years of study, 430 (30.5%) were in their 1st, 260 (18.4%) in their 2nd, 308 (21%) in their 3rd and the remaining 414 (29.3%) in their 4th and above year of study. 1053 (74.6%) of them were males, and the remaining 359 (25.4%) were females. The majority of the participants (75.7%) came from urban areas and the rest (24.3%) were from rural residences.

Table 5.3
Descriptive statistics of participants' entrance exam score to university and CGPA

Respondents' characteristics	Mean	Median	Mode	Std. Dev.	Min	Max	Range
University entrance exam score	63.37	63.14	63.14	9.83	35.00	100.00	65.00
University CGPA	3.12	3.12	3.1	.414	1.6	4.00	2.4

The university entrance exam scores of participants were processed from a different number of exams, i.e., five subjects for batches enrolled before 2009, and seven for those enrolled in 2009 and later. Their scores vary. To maintain consistency, the scores were converted into mean scores. Accordingly, the descriptive statistics reported in Table 5.3 shows that students' entrance exam scores range from 35 to 100 with a mean of 63.37, std. 9.83, median and mode 63.14. From the data it is possible to see that there was a wide range of performance among respondents in entrance exam scores and the scores were normally distributed. CGPA has similar characteristics to entrance exams.

5.2.1.2.2 Preferences and experiences of respondents

Table 5.4a
Participants by their preferences and experiences before and after joining a university

Participants':	Attributes	Freq.	%
Prior exposure to universities	None	877	62.1
	Visited the physical facilities	215	15.2
	Have awareness about services	204	14.4
	Stayed in a university for some days	75	5.3
	Studied in a university for some time	41	2.9
Prior information about services of different universities from formal sources	Almost none	277	19.6
	Insufficient	794	56.2
	Sufficient	341	24.2
Prior information about the services of own university from formal sources	Almost none	350	24.8
	Insufficient	773	54.7
	Sufficient	289	20.5
Prior Information about the services of own university from words of mouth	Nothing	60	4.2
	Extremely negative	28	2.0
	Negative	71	5.0
	Both negative & positive	626	44.3
	Positive	370	26.2
	Extremely positive	257	18.2
Information about own university from orientation programmes	Almost none	96	6.8
	Insufficient	651	46.1
	Sufficient	665	47.1
Information about own university from word of mouth after joining the university	Nothing	62	4.4
	Extremely negative	41	2.9
	Negative	114	8.1
	Both negative & positive	699	49.5
	Positive	350	24.8
	Extremely positive	146	10.3

Literature, discussed in chapter two, informs that the criteria students use to select a universities of their choice, and their experiences before and after joining a university have some relationship with their perception of service quality constructs. To verify this claim, data were collected on students' preference and experiences. The empirical evidence in Table 5.4a revealed that a greater proportion of students (62.1%) had no exposure to universities before joining their own university. The others (37.9%) had

exposure that varied from visiting university amenities to studying in a university for some time. As a result the data was recorded as 1 – students with no prior exposure, and 2 – students with prior exposure to universities.

Table 5.4b

Continuation

Participants':	Attributes	Freq.	%
Class attendance	A few of the classes	28	2.0
	Some of the classes	45	3.2
	Half of the classes	67	4.7
	Most of the classes	414	29.3
	Almost all of the classes	858	60.8
Participation in campus activities	Never	687	48.7
	Few	410	29.0
	Some	215	15.2
	Many	45	3.2
	Very many	55	3.9
Goal orientation	No clear goal	469	33.2
	Just to graduate	68	4.8
	Mastery	875	62.0
Value to service quality during university selection	Low value to service quality (value to proxy, availability of programmes, credibility)	679	48.1
	High value to service quality	733	51.9

Adequacy and type of information participants had about the services rendered in different universities and own university from formal and informal sources before joining a particular university was another concern that could affect students' perception of service quality constructs. In this regard, the empirical data in Table 5.4a clearly shows that a considerable number of participants (19.6%) got no information about the services of different universities from formal sources like radio, TV, newsletters, websites, etc while deciding on a university to study.

On the other hand, a relatively large number of participants (56.2%) had some information from formal sources though it was not that sufficient to make sound decisions. Only 24.2% reported that they had sufficient information about the services of different universities from formal sources. The information participants had about their own university from formal sources had a similar pattern. That is, some (24.8%) had no information, a larger number (54.7%) of them had insufficient and a considerable number of participants (20.5%) had adequate information.

In addition to the formal sources of information about university services, respondents used informal sources like word of mouth to inform themselves about the specific university they wanted to attend for their education. In this regard, participants were asked to express the kind of information they got about the services of their own university from word of mouth prior to joining the university. The data revealed that a few of them (4.2%) had no any information from such sources while a similar number of participants (7%) heard negative information about the services of their own university. A considerable number of participants (44.3%) had both negative and positive information while the remaining 44.4% had favourable information that conveyed positive aspects about the services of the institutions.

Students also seek information right after joining an institution about the services it renders. Usually such information could be obtained from formally organised orientation programmes as well as word of mouth. Recognizing this fact, participants were asked to express the extent and type of information they got from such sources. The data reveals that 6.8% of the participants didn't get information about the services of the university from orientation programmes; for the other 46.1% of participants the information obtained from this source was not that adequate. The remaining 47.1% of participants reported that the orientation programmes provided them with sufficient information about the services the university renders. With regard to word of mouth, the data in Table 5.4a shows that a negligible number of participants (4.4%) didn't get any information from such sources, whereas 11% of them received negative information about the institution. Almost half (49.5%) of the participants heard both negative and positive information. The remaining 35.1% had favourable information about the services of the university.

As discussed in sub-section 2.8.1.2, students' perception of the quality of services rendered in a specific university could also be affected by factors like class attendance, level of engagement in campus activities, the values/importance students attach to certain criteria while choosing a particular university for study and

their goal orientation. The empirical evidence obtained in these regards revealed that students vary in all of these characteristics (see Table 5.4b). For instance, the data on class attendance shows that 5.2% of students had poor class attendance, 4.7% attended half of the classes for their courses, a considerable number (29.3%) reported that they attended most of the classes and the remaining 60.8% attended almost all classes.

With regard to participation in different campus activities, almost half of the participants (48.7%) had not participated at all and a considerable number (29.0%) participated in a few activities. Those who participated in some activities constituted 15.2% and the remaining 5.1% participated in many campus activities.

In terms of the criteria students set to select a particular university for study, the data in Table 5.4b revealed that 48.1% of participants didn't consider quality service as a criterion to decide on a university of their preference. These participants placed greater value on factors like proximity, the presence of a field they wanted to study, weather conditions and the credibility of the institution rather than quality service. On the contrary, the remaining 51.9% of participants placed high value on service quality during university selection. Students' goal orientation matters a lot in their perception of service quality constructs (see sub-section 2.8.1.2). In this regard, the result shows that about 33.2% of students do not have a clear goal while a few (4.8%) were aimed only at finishing the programme. However, the great majority of participants (62%) had mastery goal orientation.

From the data presented so far it is possible to say that participants differ in their background, experiences, information, preferences, class attendance, involvement in campus activities and goal orientation. This entails studying the relationship with and the effects of such variables on the perception of participants to service quality constructs (see sections 5.4 & 5.5.3). The following section, however, deals with the measurement of service quality constructs.

5.2.2 Measurement of service quality constructs: Scale development and determination of service quality dimensions

As presented in chapter two, the constructs of service quality are measured in different ways by different researchers. The observed differences in measuring the constructs are attributed to a number of factors

such as variation in the nature of services (Sallis, 2002), and the understanding that the concept 'quality' is subjective and prone to cultural and context differences (Imrie et al., 2002). These realities entailed developing contextualized attributes that can be used to measure service quality constructs and determine their dimensions. This was one of the major objectives of the study.

Guided by literature and the proposed conceptual framework presented in chapter two (sections 2.4 through 2.7) and mixed methods qual-QUAN design discussed in chapter four (section 4.2.3), both qualitative and quantitative data were collected to generate context specific attributes and to identify the dimensions of service quality. First, students from a pilot site were interviewed to explore context specific attributes and dimensions necessary to measure the constructs of service quality in EPHEIs (see section 4.4.1). Second, these attributes were changed into scales and administered to a large sample size to determine its psychometric properties (see section 4.4.2). The results of the two processes are presented in the subsequent sub-sections.

5.2.2.1 Qualitative phase: Exploration of attributes and dimensions of service quality constructs

To explore the attributes for the four service quality constructs the researcher first followed an inductive approach. The transcripts of 15 interviews were read line by line and the behaviours participants reported as attributes to the respective service quality construct were identified. This process was repeated until the attributes associated with the services were exhaustively listed. In the process "Insert comment" facility of MSWord was used to code and list the attributes against the respective participant. This process resulted in a total of 1078 attributes.

All the attributes identified at this stage were considered as minor themes emerged from the data in the coding process. After the attributes were exhaustively identified, they were transported to MSExcel to categorise and re-categorise them based on the code structure presented in section 4.5.1. Constructs, respective dimensions and service types specified in the literature review and the conceptual framework of the study were used as a code structure of qualitative data analysis. The constructs were taken as grand themes while the dimensions were considered as major themes.

The grouping and regrouping of the identified attributes into service quality types, dimensions and constructs were carried out by constantly comparing the attributes to the service quality types, constructs

and respective dimensions synthesized from extensive review of related literature. Such constant comparison of the attributes to extensive review of literature in the development of instruments is recommended by scholars to achieve content validity of the variables/dimensions to be measured (Muijs, 2004). That means that at this stage the themes from the literature were used to analyse the data. This shifted the qualitative analysis from the inductive to the deductive approach.

Colours and numerals were also used to easily associate the attributes with the participants. In addition, separate columns in MSExcel spreadsheet were used to label each attribute by construct, dimension and service type. Another column named 'informant' was added to indicate who suggested the particular attribute using numerals and to decide the number of participants (frequency) who mentioned the particular attribute. As coding is an iterative process, the researcher examined and re-examined each attribute against the code structure until it was clearly represented by a service type and a dimension in a construct.

After each attribute was labelled in terms of service constructs, dimensions and service types, the 'sorting' facility of MSExcel was used to group and regroup the attributes by construct and then by dimensions. The attributes grouped under the respective dimensions were further examined to cross out repeated attributes and restate some that needed splitting, merging or rephrasing. This process resulted in a reduction of the attributes from 1078 to 318. This reduction of the attributes is also evidence of the recurrence of attributes – a necessary criterion to retain an attribute in a dimension.

A second round examination of the attributes within and across the dimensions resulted in a further refined set of attributes and reduced the number to 210. The attributes were re-examined again across the constructs for further refinement, merger and reduction of repeated attributes. This process further reduced the number of attributes to 144. At this stage, 17 dimensions and 118 attributes for perceived service quality construct, three attributes of satisfaction construct, 14 attributes of perceived gain construct and nine attributes of loyalty were identified satisfying the criteria set in chapter four - at least two attributes in a dimension.

After completing the grouping and regrouping of attributes, they were stated in the form of questionnaire items under the respective dimensions and constructs. Then the items were given to three professors of curriculum, measurement and evaluation at Bahir Dar University to check for validity. They checked for language clarity, repetitions within and across the dimensions and constructs, content and face validity.

Following their comments a number of improvements were made. For instance, one of the items of the "Friendliness" dimension which was stated as: "In my visit to most instructors for academic or research advising I found them welcoming and friendly" was restated to "To what extent are most instructors welcoming and friendly when you want to consult them for academic or research advising?"

Similarly, about seven attributes from the dimensions of perceived service quality construct were found repeated. The repeated ones were subjected to either deletion or merger. For example, statements: "most instructors are available in office hours to consult students" and "most instructors are easily accessible for appointment or discussion" were among the items developed to measure the accessibility dimension identified as similar in essence. Thus, the second was crossed out to avoid repetition. An item in the "Responsiveness" dimension that was stated as: "In this university solutions to problems are offered on time" was reported as a part of an item in "Organization and management" dimension that was stated as: "To what extent are most support services provided to students well organized and efficient (have clearly set procedures and requirements for the service, mechanisms are sought to avoid long queues, services are delivered right away)?" As a result, the item in the "Responsiveness" dimension was crossed out.

The attributes/items in the satisfaction, perceived gain and loyalty constructs were not reduced but comments related to clarity and face validity were obtained and the improvements were made accordingly. Through this process the total number of attributes to the four constructs was reduced to 136. Table 5.5 summarizes the identified number of dimensions and respective attributes of the four constructs of service quality.

Table 5.5
Summary of service quality constructs, respective dimensions and attributes

Construct	Dimension (s)	Attributes
Perceived service quality	17	110
Satisfaction	3	3
Perceived gain	5	14
Loyalty	2	9
Total	27	136

Following all those steps involved in the qualitative study the findings of dimensions used to measure the four service quality constructs were clearly identified and are presented under the respective constructs as follows.

5.2.2.1.1 Dimensions of perceived service quality construct

The findings from the qualitative study clearly show that perceived service quality in the context of EPHE is a multi-dimensional construct that can be measured using the following seventeen dimensions:

Accessibility is the first dimension that refers to the attributes related to the availability of academic and support service providers when students needed them as well as the convenience of service delivery time. The following are examples of participants' verbatim statements that describe the dimension. For instance, Participant 15 said, “Even though most instructors post their office hours, only a few were available during the specified time". On the contrary, Participant 3 said, “I had some experiences in consulting my instructors during office hours. I would say 95% of them were available in the office.” Similarly, Participant 6 reported:

> As I am representative of the students in my class I have visited most instructors to communicate the concerns of the class. I found them in office whenever I visited them. I have also rarely visited instructors for my own cases and I found them in their offices. They are regularly available in their consultation hours.

With regard to support service, students also reported issues of availability and service time convenience. In relation to availability, all participants reported that the necessary support services are available to students at the required time although there are a lot of service delivery problems. For instance, in her reflection on the quality of support services a participant said:

> The basic support services essential to run the academic functions are available to students at the time of need but the quality of the services needs a lot of improvement. For example, library is open for 24 hours although there is shortage of books and it is very much suffocated. There are air conditioners to overcome suffocation but almost all of them are out of order (Participant 10).

Similarly, Participant 1 reported that “In most cases the support services are available during service hours, although some service providers are not properly serving.” Participant 10 also shared this concern when she said, “The clinic service is provided only in working hours. It is unfair as there could be students who might get sick anytime in the evening or weekends. The clinic provides evening and weekend services only to emergency cases.”

From these data it is possible to see that accessibility is an aspect of service quality in EPHE. Participants have expressed it in terms of such minor themes as availability of academic and support service providers as well as convenience of service delivery time. Consistent with this finding, different researchers (Angell et al., 2008; Douglas & McClelland, 2008; Gbadamosi & De Jager, 2008; Pereda, et al., 2007) reported accessibility as a dimension of service quality in the HE context (see section 2.4).

Commitment is the second dimension expressed in terms of the amount of effort and time service providers dedicate to their job. It also refers to the level of details, rigor and care they consider while providing academic and support services. For instance, in his description of qualities of effective instructors, participant 8 said that “they [effective instructors] always deliver the courses by making appropriate preparation in accordance with the course guidebook or the curriculum”. Participant 1 also reported “. . . such instructors are very much dedicated to advise or guide students in their academic and personal/social problems”. They are “committed and proud of their teaching task” (Participant 10). Similarly, Participant 2 reflected the dedication of support personnel when he said, “Most library personnel do their level best to make books available to students”.

On the contrary the behaviours of less effective service providers were described by Participant 4 when he reports “Some instructors lack professional commitment. They come to class without adequate preparation, do not cover courses based on the specified schedule in the course guidebook, do not provide adequate feedback to students’ progress.” Expressing the care and rigor some instructors lack while carrying out their academic service, Participant 3 reported that “there are some instructors who download exams from the internet or repeat previous years' exams. Students who had access to the exams outperform others and that makes the assessment and grading unfair”. Similarly, Participant 7 said, “Some instructors were not committed to demonstrate us the practicals using the available facilities and resources”. For Participant 3, “Most instructors do not monitor and give feedback to our [students’] research or project activities while it is

in progress. They rather appear as one of the examiners during the defence session". Participant 14 also reported that ". . . even if there are few instructors who provide feedback to research or project activities, there comments are not that detailed and clear. There was a case where I found only question marks on pages, paragraphs and sentences as feedback." In the support services too, Participant 13 reported that "some of the support service personnel are not committed to the services they are supposed to render. For example, some librarians do not make proper search of requested books and usually tend to tell students that the book is unavailable while it was on the shelf."

Thus, commitment of service providers appeared to be an aspect of perceived service quality expressed in terms of dedication, the level of detail, rigor and care the service provider exhibits during service delivery. Consistent with this finding, Douglas and McClelland (2008) have identified commitment as a dimension of perceived service quality in the HE context.

Communication is the third dimension that deals with provision of adequate and on time information to students on course requirements. In this regard, Participant 14 said that "most instructors describe course requirements in the course guidebooks and properly explain them at the commencement of course offering". Participant 7 also reported similar quality of instructors when she said, "Effective instructors give us the necessary information about the course in advance". Of course, there are "some instructors who do not communicate the details of course contents in advance and that make it difficult for us to prepare ourselves for the lesson ahead" (Participant 12). With regard to the support provided during office hours, Participant 2 reported that "instructors may have consultation hours but I was not aware of what it means and what kind of service I can get from instructors during the consultation hours". Another aspect of academic service that participants reported as evidence of a communication problem relates to feedback on students' progress. In this regard Participant 9 said:

> . . . the assessment of effective instructors is based on what they have covered and it measures the students' performance properly. They provide feedback to students at every assessment. Even they call and discuss with the student who scored below 50% to know the problem of the student more closely and provide the necessary support. Others, on the other hand, simply post results at the end of the semester without providing detailed feedback.

Similarly, Participant 1 extended the communication concern to the support service when he reported that "support staffs are not providing students with the appropriate and necessary information about the different services available to students at the right time". A testimony that emerged from the interview analysis for the apparent communication problem in the support service wing is the confusion participants had with regard to the guidance and counselling service and student council. Almost all participants confused guidance and counselling with the student council because of lack of adequate information about the services. Moreover, the information provided to help students make decisions about their field of study was also reported with different perceptions. For instance, Participants 2 and 6 reported that they received adequate information from the formally organised programme introductions attended. On the contrary, Participant 5 said that "the orientation provided to new students was not that informative to help students decide on the area of study."

From such reports of participants, it seems clear that communication is a dimension of perceived service quality that deals with the provision of adequate and on time information to students on course requirements, support services available to students, academic progress and information essential to field selection. Corroborating this finding, the works of Douglas and McClelland (2008), and Lagrosen et al. (2004) also suggested communication as an aspect of perceived service quality in the HE context (see section 2.4).

Competence as the fourth dimension addresses instructors' proficiency in academic language, subject matter knowledge and pedagogical skills. In describing the qualities of effective instructors, for example, Participant 1 reported that "their teaching competence is excellent that they explain the contents very well, engage students in different activities such as debates and discussions". Participant 2 also strengthened this idea when he reported:

> . . . these [effective] instructors explain contents clearly and in an understandable way, . . . participate students during the lesson, . . . give us reasonably challenging tasks to enhance our learning . . . use different strategies that provide opportunities to follow up students' progress, e.g., class work, oral questions, brainstorming, reflections, group discussion, etc.

The above data implies that effective instructors are proficient not only in subject matter knowledge, pedagogical skills and academic language but also in employing a variety of assessment strategies that

promote learning. Participants 1 and 5 also reflected that effective instructors use a variety of assessment strategies like “quizzes, mid exams, group assignments and projects, final exams”.

Appropriateness of the service is another minor theme that emerged from the responses of participants in their effort to describe desirable qualities of instructors. For instance, Participant 8 said:

> “effective instructors provide us with appropriate directions on how to do the project activities, when we face difficulty we can ask them for further help and they provide us the necessary support. . . their suggestions are very minimal but helpful that encourages us to accomplish the project activities by our own.”

Participants who visited instructors for academic advice had a range of perceptions. While Participant 1 said, “Instructors are not providing the required academic advising service properly” other participants reported otherwise. For example, Participants 3, 4, 7, 11 and 15 reported that instructors visited for academic advice provided them with appropriate supports. For example, Participant 11 reported that “I frequently visited instructors during the consultation hours to ask questions. They answer my questions properly and they also advised me on how to study”.

With regard to the appropriateness of support services, most of the participants reported unfavourably. For instance, Participant 1 said that “there are a number of support services rendered to students but they are not properly provided”. Strengthening this position Participant 4 said, “Staffs working in the clinic do not have appropriate professional preparation. They prescribe the same medicine to different cases. Library personnel are not trained. They cannot properly shelf and locate books”. Participant 7 also reported “. . . the librarians are not well trained to provide the service; there are some librarians who do not know the books we requested. Even some do not understand what we want to get. They say the book is not available while it is there in the shelf”.

From the descriptions of participants it is clear that instructors’ proficiency in academic language, subject matter knowledge and pedagogical skills as well as appropriateness of academic advice, learning assessments, support to students in their research/project engagements, and support services address the competences of service providers. Thus, competence was identified as a dimension of perceived service

quality. Many researchers also identified it as a dimension of perceived service quality. The works of Angell et al. (2008), Douglas and McClelland (2008), Marzo-Navarro et al. (2005), Pereda et al. (2007), Smith et al. (2007), Sultan and Wong (2010), and Zafiropoulos and Vrana (2008) are cases in point.

Friendliness is the fifth dimension that refers to the welcoming qualities of academic and support service providers. It is usually expressed in terms of service providers' warmth, respectfulness and approachableness characteristics. In their description of qualities of service providers who served to their expectation or more, most participants reported a number of such qualities. For instance, Participant 1 said that "effective instructors are friendly, approachable and respectful to students and their ideas". Similarly, Participant 4 reported that "these [effective] instructors are like family to students, their approach to students is smooth and they have good intimacy with students". Participants 2 and 6 also reported that the best instructors are welcoming and receptive to students when they visit them in their offices for academic and research advising purposes. In this regard, Participant 11 said, ". . . their reception is so friendly and inviting. Their handling really encourages me to revisit them. They were welcoming."

Similarly, there were support service personnel who treated students politely and in a friendly manner. For instance, Participant 8 reported that ". . . they [support service personnel] have good feelings to students, they approach students friendly". Participant 6 also said that ". . . there are a considerable number of support service personnel who handle students with patience, love and respect". However, a large number of participants perceived that support service personnel are unfriendly, impolite and disrespectful to students. For instance, Participant 1 reported that ". . . the contact personnel in the support services are neither respectful nor polite to students". Participant 7 reported that "student handling is a very serious problem in all support services except those provided by private firms." These attributes purport that friendliness is a dimension that students valued in their description of service quality. Douglas and McClelland (2008), and Zafiropoulos and Vrana (2008) have also identified courtesy or friendliness as a dimension of perceived service quality in the HE context.

Empathy/understanding is the sixth aspect of perceived service quality that focused on service providers' understanding, consideration and attentiveness to the students. For instance, Participant 3 reported "effective instructors are keen to share the concerns of students". Participant 11 also said, ". . . they [effective instructors] share even our personal problems in addition to academic ones". Participant 9 also

reflected the caring relationship instructors have with students when he said, ". . . they call and discuss with the student who scored below 50% to know the problem of the student more closely and provide the necessary support". This expression has more to do with the instructors' considerateness and attentiveness to students' problems than the provision of feedback on progress.

On the contrary, instructors rated below students' expectations for their services were described as those who ". . . do not pay attention to students' concerns" (Participant 4), ". . . do not try to know and understand students" (Participant 12), ". . . do not read students' feelings of tedium, i.e., they do not worry whether students are attending or not. They continue teaching even if we feel exhausted" (Participant 9). Similarly, Participant 4 reported the absence of a caring relationship between the support service personnel and students when he said, ". . . they [clinic workers] do not listen to the patients. They rush to order medicine neither properly attending to the cases of the patient nor undertaking appropriate diagnosis".

These descriptions reflect the academic and support service givers' behaviours exhibited in terms of considerateness, paying attention to the needs, problems and complaints of students as well as the caring relationship service providers had with students. Such descriptions are used to represent a dimension of perceived service quality named 'empathy' in the works of Douglas and McClelland (2008), Smith et al. (2007), and Zafiropoulos and Vrana (2008).

Credibility as a seventh dimension mainly addresses the value, trustworthiness, believability or honesty of academic and support service providers. The interview result surfaced different descriptions that can represent the stated qualities. For example, Participant 5 expressed the value he had to his instructors when he said, "I use those [effective] instructors as my models not only to my academic career but also to my personal life". Participant 1 also expressed his credit to the effective instructors when he said, ". . . they are ethical and honest for they treat all students equitably".

In describing some instructors as behaving below expectations, Participant 3 reported that:

> they behave and do things in a way that are not expected from an educated person. . . . Sometimes we found their exam questions far below our expectation . . . They give assignment only because

they are required to do so. Usually, they don't mark the assignments. They simply assign the same score to all without marking.

From her report it seems clear that there are instructors who are not valued and trusted by their students because of their unprofessional and unethical behaviours. Similarly, the poor credit students gave to support service providers was reflected by the words of Participant 4. He said that there is a saying that goes “s/he who serves as a librarian, a proctor, or a ticker in the cafeteria can become a doctor in the clinic in this university”. This conveys that students have no trust in the service providers in the clinic. Such descriptions of participants refer to the credit students attached to the service providers. As stated earlier, it represents a dimension that conveys a fair treatment to students, the ethical and trusting relationships with students, the credit students gave to service providers, and the values service providers gave to students’ suggestions or feedback as well. Credibility was also identified as a dimension of perceived service quality in the works of Douglas and McClelland (2008), Gbadamosi and De Jager (2008), Pereda et al. (2007), and Zafiropoulos and Vrana (2008).

Flexibility is the eighth dimension that refers to the academic and service givers’ willingness to adjust the time and procedure of service provision at students’ convenience. It also deals with service providers’ willingness to provide services to students irrespective of the fixed schedule. In this regard, Participant 7 reported that “when we have work load/pressure we communicate our concerns to instructors and they postponed the submission date of tasks. Even they change activities by equivalent ones if we fail to get resources to do the given assignments.” Participant 6 also mentioned the flexibility that students enjoy when he states “instructors involve students in the decisions on the exam administration and assignment submission dates”. The same participant also notes that “some instructors are willing to consult students even outside of the fixed schedule”.

On the contrary, Participant 5 has expressed the rigidly of procedures the registrar follows to replace a lost ID or meal card when he said, “The registrar requires us to go through the long bureaucratic process to get ID or meal cards replacement”. Participant 9 also said, “A student has dropped out from the university because he was not allowed to change his area of study from Medicine to Engineering”. Providing services in the time convenient to students was another concern Participant 12 raised when he said, “We are forced to miss classes to get medical treatment in the clinic because the services are not available out of the

regular working hours". These descriptions indicate that students value the flexibility of service provision as an important service quality indicator. Consistent with this finding, the works of Douglas and McClelland (2008) and Hills et al. (2003) have identified flexibility as a dimension of perceived service quality.

Industry-link is the ninth major theme that deals with the different opportunities instructors created to relate courses with the real world or industry experience. In this regard participant 4 said:

> Some instructors use cases to relate the course with the real life experience. However, they have not exposed us to companies and practical experiences in the form of field work. . . . Other instructors gave some examples from real life experience and explain clearly in a way we can figure out how it can be applied in the real world.

Industry-link also encompasses the industry attachments or corporate collaboration the university establishes with organisations for students' skill development purposes. It also includes the field works/visits arranged for students to enhance their knowledge and skills. In this regard one of the Engineering students reported that:

> Instructors did not expose us to the world of work. They simply tell us how the course helps us to do things in the real world. The problem is that the university has no budget for field work or industry link. We have not visited companies. May be the instructors have not insisted the management strongly to get the budget for this purpose. I don't know the real cause of the problem. . . . no instructor demonstrated cases or systems working in the real world using videos. They usually bring some materials from the lab and show us in class or took us to the lab for practice (Participant 7).

A Medicine student reported similar concern when she said:

> . . . we don't have much opportunity to do courses practically because the programme in this university is new and there is shortage of the necessary facilities for practical activities. . . . So the practical part of the courses is not properly implemented for shortage of facilities and associated supplies. For instance, we only observe while the instructor operates on the cadaver. We are not practicing by operating directly as the cadaver is only one for a class (Participant 10).

Thus, it seems clear that students perceived industry-link as an important service quality indicator in the context of EPHE. The works of Angell et al. (2008) and Lagrosen et al. (2004) also identified this dimension as an important aspect of perceived service quality in higher education contexts.

Motivation is the tenth dimension that deals with the service providers' ability to inspire students during the provision of academic and support services. More specifically, it referred to the inspirational effects of instructors' service delivery on students' efforts, class attendance, use of consultation services and decisions to pursue further education in the area. For instance, Participant 10 said, "Because of the attractiveness of lesson presentations of effective instructors we usually attend their classes eagerly. Their classes were so entertaining, engaging and inspiring to every student". On the contrary, Participant 11 reported that "some instructors ask questions by name but they don't appreciate or motivate our attempts. Rather they criticize in a way that discourages the student". Similarly, the motivational effect of support service provision on students' participation in extracurricular activities and use of different support services were considered as attributes of this dimension. The works of Douglas and McClelland (2008) and Hills et al. (2003) support the inclusion of this factor as a dimension of perceived service quality in the HE context.

Responsiveness is the eleventh dimension of perceived service quality described in terms of prompt responses that academic and support service providers gave to students' requests. In this regard, Participant 4 said, ". . . staffs in the hospital do not provide the referral health service immediately; they demand students to come back some other day". The support staff as well as the management do not respond promptly to students' complaints related to "water supply" (Participant 1) and "dormitory sanitation" (Participant 7). The issue of providing services promptly is also a concern in the academic wing. For instance, Participant 6 said, "Instructors provide feedback to students' learning progress and research activities at the right time". On the contrary, Participants 2 and 13 reported: ". . . delays in providing feedback to students". Such descriptions of students imply that responsiveness in the provision of academic and support services is an aspect of quality service to which students have paid attention. Different researchers have also identified responsiveness as a dimension of service quality (Douglas and McClelland, 2008; Lagrosen et al., 2004; G. Smith et al., 2007; Zafiropoulos and Vrana, 2008).

Organisation and management was identified as the twelfth dimension that refers to the planned and structured nature of course delivery and course materials, efficient and effective use of instructional time.

For instance, a considerable number of interviewees reported that “effective instructors usually come to class well prepared” (Participants 2, 8, 9, 10 & 14) and “deliver courses in a well organised way” (Participant 6).

According to Participants 3 and 12, “conducting class regularly, not missing classes” is a quality they expect from effective instructors to manage the courses in the planned time. In this regard, many participants acknowledged the importance of covering the courses, following the planned course guidebook and using the instructional time effectively (Participants 1, 2, 3, 6, 8, 12 and 15). For instance, Participant 8 said, “The best instructors manage the instructional time properly and finish the course as planned in the course guidebook.” Capitalizing on the importance of time management and course coverage Participant 3 complained that “some instructors took much time on the first few chapters of a course and rush to cover the remaining chapters towards the end of the semester without providing enough details”.

Organisation and efficiency of support service delivery is also an aspect of this dimension valued by participants. Specifically, it emphasises the presence of clearly set procedures and requirements for services, mechanisms sought to avoid long queues and delivering services right away. In this regard, Participant 2 said, “Socialization and orientation programmes are provided to new students though not well organised and informative.” Similarly, Participant 13 reported that:

> . . . except the procedures we need to follow to choose an area of study and undertake the registration, there is no student guide or handbook that can help us know the service types, requirements and procedures we need to follow to get the different services available in the university.

According to the reflections of participants, the institution does not attend to service inefficiencies to make improvements. Participant 10 said, “The University provides health service to students but they don’t start the service on time; as a result we have to wait long lining in a long queue to get the service”. Participant 15 also said:

> “We have to wait for hours lining in a long queue to collect our money [for non-café students] from the cashers. Sometimes we were required to come back next day to get the service after waiting

long time. The worst thing is this problem occurs every month and no one cares about what the students are facing".

The reported expressions indicate that organisation and management are major themes that address issues related to the planned and structured nature of course delivery and course materials, efficient and effective use of instructional time, and organisation and efficiency of support service delivery. Corroborating this finding, the works of Douglas and McClelland (2008), Marzo-Navarro et al. (2005), and Sultan and Wong (2010) also suggest organisation and management as a dimension of perceived service quality in the HE context.

Reliability is the thirteenth dimension that conveys a meaning related to consistency, dependability and reliability of academic and support services. It also deals with adherence to communicated requirements, the provision of relevant and up-to-date contents, punctuality with regard to appointments, and fulfilling promises. Most participants reported punctuality as a quality of effective instructors (Participants 1, 2, 3, 7, 10, 11 & 13). Another quality of effective instructors mentioned by a considerable number of participants relates to the relevant and up-to-date contents instructors provide to the student. In this regard, Participant 1 said, ". . . I rely on the knowledge of effective instructors because they have deep understanding of contents and included relevant and up-to-date contents in the course." On the contrary, the way those instructors rated as ineffective handle the course makes students lose confidence in their knowledge. In this regard, Participant 5 said, ". . . the ineffective instructors lack self-confidence and are not willing to accept questions". Supporting this idea, another participant reported, ". . . even if they invite students to ask questions, they do not feel comfortable when asked. So it is difficult to rely on the knowledge of these instructors" (Participant 9).

Participant 4 also mentioned the inconsistencies observed in some instructors' teaching practice when he said, "Some instructors are not consistent in their teaching because sometimes they teach nice but most often their approach is boring". Objectivity in grading was another point raised by participants as an issue of reliability. In this regard, Participant 4 said, ". . . those instructors rated as ineffective are not objective in their assessment. They do it carelessly and even they change grades if students ask them to change."

Observed irregularities in the provision of support service in the clinic, library, and cafeteria have been reported as reliability concerns by most of the research participants. Participant 1 also reflected on management's failure in fulfilling promises when he reported:

> . . . based on students' appeal for improved services in the dormitories, cafeteria, clinic, library, industry attachment and study tours, the management promised a lot but did not fulfil the promises as expected. Even if there are efforts made to improve some of the services (e.g. cafeteria) and supplies (e.g. water), they are not persistent. The service problems reoccur after some time.

Such attributes addressing the issues of consistency, dependability and reliability of academic and support services, adherence to communicated requirements, the provision of relevant and up-to-date contents, punctuality to appointments, and fulfilling promises indicate that reliability is a major theme that students raised as a descriptor of service quality. Researchers such as Douglas and McClelland (2008), Gbadamosi and De Jager (2008), Lagrosen et al. (2004), G. Smith et al. (2007); Sultan and Wong (2010), and Zafiropoulos and Vrana (2008) also identified reliability as a dimension of perceived service quality in the HE context.

Socialization is the fourteenth aspect of perceived service quality that referred to the induction programmes, events and extra-curricular activities organised by the institution, programmes or student unions with the purpose of helping students to socialize, adjust to the demands of programmes and campus life and behave in a way acceptable by the university society. For instance, Participant 1 said, ". . . although there is orientation program for freshman students, it mainly focused on placement issues. Activities that help students socialize and adjust to the new environment are not sufficiently provided".
Most of the participants strengthened this idea and reflected that there is little or no attention to socialization activities in the university. It is only a few clubs and the student union that organise some events that could help students to socialize, but not with the staff. In this regard, one of the participants reported that:

> the gender club organises workshops to inform students about HIV/AIDS prevalence and its prevention mechanisms . . . . . Gender office together with Gender Club also provides life skills and assertiveness trainings to female students that would help to develop skills necessary to cope with

> the demands and expectations of university life in addition to the opportunity it created to socialize with other students. . . . . Student union also organises welcoming parties to freshman students and there were events included in the party that communicate important messages about university life (Participant 3).

The above examples of service descriptions indicate that socializing activities are valued by participants as an indicator of service quality in the context of EPHE. Researchers like Angell et al. (2008), Douglas and McClelland (2008), and Hills et al. (2003) also considered socializing as a dimension of perceived service quality in the HE context.

Safety and security is the fifteenth perceived service quality dimension that refers to the presence or absence of unnecessary or threatening behaviours that the service providers exhibit to students. Such behaviours that came out from the participants' descriptions of ineffective service providers include: making assessments difficult or tricky, behaving arrogantly, remaining distant from students, perceiving students questions as challenges, needling for minor misbehaviours, and harassing or disrespecting students. For instance, Participant 11 said:

> ". . . they [ineffective instructors] communicate threatening statements to students as a means of expressing their authority and securing respect from students. They tell us that their exam is difficult to score a passing mark unless we work hard. To hear such statement at the beginning of a course is threatening rather than encouraging. Moreover, these instructors make annoying criticisms against a student who tried to ask or answer a question. . . . I myself wanted to ask questions in class for concepts I want to be clear, but I hesitate to do so in fear of discouraging criticisms. The class of such instructors is so tense in fear of criticisms that follow questions or answers. These instructors are usually distant from students with the intention of getting [unnecessary] respect from students".

Strengthening the above behaviour of ineffective instructors, Participant 1 also reported that "these instructors tease at students when they make mistakes in answering questions". Participant 9 also said, ". . . they are aggressive and they want to hide their weaknesses by being distant from students".

On the contrary, there are instructors who make students feel free to express their ideas in class or in the office hours. For instance, Participant 5 reported that "effective instructors make us free in their classes. Students who would like to ask questions are free to ask." Participant 7 also said, "We feel comfortable to ask/consult and approach them freely". Participant 6 said, "In the process of discussing on the thesis/project components we feel free to challenge the suggestions or comments of the advisor if we have justifications."

With regard to safety in campus life, Participant 6 also reported that "I feel safe and secured in the campus because there are regulations that govern students' conduct and cases are handled accordingly, if any." Such descriptions from the participants indicate that safety and security is an important factor that is worth attention in the provision of academic and support services in HE. Douglas and McClelland (2008), Gbadamosi and De Jager (2008), and Pereda et al. (2007) also reported safety and security as a dimension of perceived service quality in the context of HE.

Usefulness, in the context of this research, refers to the perceived contributions of academic services (assessments, courses offerings, research/project or academic advising) and support services to the attainment of the required knowledge, professional skills and overall development of students. The attributes that explain this dimension emerged from the descriptions of qualities of instructors who served up to the expectation of students or below.

In this regard, participants reflected on the usefulness of course contents, assessments and research/project advising services to the attainment of the intended knowledge and skills. For instance, Participant 1 reflected his concern with the usefulness of contents learned when he said, "Since the contents of most courses are copied from texts of the advanced world we sometimes find it difficult to apply the knowledge gained from such course to the local context".

With regard to usefulness of assessments, Participant 6 said, "Assessments of effective instructors facilitate learning in addition to measuring students' performance. They set the level of analysis we are expected to engage in, inform the method of learning we need to adapt to develop the required knowledge and skills." On the contrary, Participant 4 reflected his disappointment on the assessment of less effective instructors when he reported, "Assessments of less effective instructors were disappointing because they

were not measuring students learning. They use tricky questions that unnecessarily challenge students rather than measuring the required learning."

Participant 8 also reflected on the usefulness of projects offered by effective instructors when he said, "The projects we have done so far were very important because we learned from doing the projects more than what we have known from the theory."

Analysis of the anticipated causes for participants' perceived gain also revealed the aspects of academic and support services that contributed to the reported gains in knowledge, professional skills and overall development. For example, participants reflected on the usefulness of the academic and support services in their descriptions of perceived gains. In this regard, Participant 1 conveyed the usefulness of courses attended when he said, ". . . from the lessons and examples discussed in class I have gained professional knowledge and skills that make me to some extent ready to the world of work." Similarly, Participant 6 said, "I developed adequate knowledge base as a result of the courses attended. However, I am not sure whether I have the required professional skills because I have not been exposed to the world of work so far and tested myself". These descriptions imply that students seem to consider the contributions of courses to their professional knowledge and skills as an important determinant of service quality.

Almost all participants reported that living together with a number of students in dormitories, readings in the library, and engagements in different extra-curricular activities contributed to their social and personal skills. Thus, support services are perceived useful as they contribute to the overall development of students. The connection between perceived service quality and perceived gain seems evident from the above description as well.

In sum, usefulness appeared to be one of the dimensions of perceived service quality and implies fitness of the services to the purpose of the institution. Douglas and McClelland (2008) also identified this factor as a dimension of perceived service quality in the HE context. Similarly, a recent work of Martínez-Argüelles, Blanco, and Castán (2013) reported usefulness as one of the aspects of perceived service quality in the virtual learning environment because students valued the contributions of activities carried out throughout courses (e.g., practicals, assignments, exercises, debates, etc) to the purpose - learning.

Tangibles is the seventeenth dimension or major theme which emerged from different attributes of the physical aspect of service quality. One of the attributes that emerged from the description of participants to services rendered in the pilot site was adequacy of resources, supplies, equipment and facilities. In this regard, participants reported "critical shortage of water supply" (Participant 9), "inadequate number of lockers in dormitories" (Participant 2), "inadequate access to internet service" (Participant 2), "critical shortage of books in the library" (Participant 5), "inadequate equipments in the clinic" (Participant 7) and "adequate supplies and equipments in the workshops" (Participant 6).

Accessibility or availability of facilities and services was another attribute identified as a minor theme from the participants' report to the interview complemented by a "show card". In this regard, participants reported that "there are no toilets around classes and libraries or they are not accessible to students. We have to go to dormitories whenever there is a need to use toilet" (Participants 13). On the other hand, the availability of supermarkets, transport service, dormitories, dining services, canteens, printing and binding services, clinic, sport and entertainment services to students is perceived positively by almost all participants.

Appropriateness, conduciveness or quality of living and study places/facilities and services was another attribute identified from the interview analysis for physical aspects of service quality. For instance, a Medicine student reported that "instructors in the programme could not support lessons with demonstrations and practical activities because there is no appropriate laboratory established for the programme". Participant 2 also said that ". . . libraries are not conducive to study because they are not well ventilated". Similarly, Participant 6 said, "Classrooms are not suitable to attend lessons because they are not soundproof". On the contrary, proximity of service centres (supermarkets, classrooms, clinic, library, canteens) to residence quarters or campus was another quality perceived positively by most participants.

Quality of consumables was another attribute of tangibles identified from the interview analysis. Almost all participants reported that the food quality in the cafeteria and canteens is poor. For instance, Participant 14 said that "I used the campus café only for the first semester. I suffered from health problem because of the poor quality of the food served there. Since then I use canteens. Food quality in canteens is relatively better."

Neatness or attractiveness of study and living places as well as the dressing of academic and support staff was another attribute associated with tangibles that emerged from the analysis. In this regard, the greater majority of participants reported that sanitary problems in the cafeterias, canteens, dormitories and toilets are apparent. With regard to dressing, participants vary in their perceptions. For instance, Participant 4 said, "The dressing of the service providers in café is not appealing, they don't cover their hair". On the contrary, Participants 10 and 15 reported that "the appearance of the service providers in café is neat and appealing". Still, Participants 5, 7 and 8 reported their concern with the attractiveness and neatness of dormitories. For example, Participant 5 said, "Dormitories lack sanitation" and another participant also reported that "lockers in the dormitories are old and damaged, and lack of enough space in the dormitory altogether makes it unappealing place to living in" (Participant 8).

Tangibles, as a dimension of perceived quality, emerged from the above attributes. Thus, it is a major theme that refers to the adequacy, accessibility and suitability of supplies, facilities and services; convenience of service locations to students; quality of consumables; neatness, attractiveness and conduciveness of living and study places/facilities; as well as dressing of academic and support staff. Many researchers have identified tangibles as one of the dimensions of perceived service quality. For example, the works of Angell et al. (2008), Gbadamosi and De Jager (2008), Kumar et al. (2009), Marzo-Navarro et al. (2005), Pereda, et al. (2007), G. Smith et al. (2007), and Zafiropoulos and Vrana (2008) are cases in point.

In sum, the qualitative analysis result revealed that perceived service quality is a construct composed of seventeen dimensions. As presented in Table 5.5, the identified seventeen dimensions have attributes ranging from 4 to 17. The attributes in each dimension also addressed academic and support services as well as the physical, sensual and psychological aspects of the service production process discussed in chapter two, section 2.3. The next sub-section deals with the dimensions of the second construct of service quality – Satisfaction.

5.2.2.1.2 Dimensions of satisfaction construct

With the aim of identifying attributes that describe students' satisfaction with the HE services, participants were asked to express their feelings about the services and service providers who served to their

expectation or below. The participants reflected both negative and positive feelings that can be summarized into three major themes or dimensions: satisfaction with academic services, satisfaction with support services and satisfaction with the entire university service.

Some of the expressions that address participants' feelings about academic services include: "I feel happy with the services of those instructors who served me to my expectation or more" (Participant 1), "I am very much satisfied with the academic services of most of the instructors" (Participant 3), "I am happy with the services of competent instructors" (Participant 5), "I have a good feeling, I appreciate them and I eagerly attended the classes of such instructors. . . I can say that most students are happy with these instructors" (Participant 4). Thus, satisfaction with the academic service is a major theme that emerged from the above descriptions of participants.

Similarly, participants reported both positive and negative feelings about the support service. In this regard, Participant 5 said that ". . . I am happy for receiving the support service because I got the services as expected. They were supportive to my study. . . . I am satisfied with the services." Participant 8 also said, "I am happy by the support services provided." On the contrary, Participant 14 reported that "the support services are not that satisfactory." Hence, satisfaction or dissatisfaction with the support service was identified as the second major theme to describe satisfaction of students.

Feelings about the overall university service are similar. Some participants reported positive feeling. For instance, Participant 3 said, "I have positive feeling to the university. My feeling is to the extent of recommending the university to others", whereas Participant 7 communicated her dissatisfaction with the university when she said, "I wish I can shorten the days of my stay in this university. I don't want to re-join the university." These descriptions are also indicators for the third major theme of satisfaction referring to university level satisfaction in addition to the encounter level satisfactions.

Thus, satisfaction is a construct composed of satisfaction with academic service, support service and university wide service. In this regard, Boshoff and Gray (2004) argue that since overall satisfaction considers all encounters and experiences with the services in the organisation, it is likely to be multidimensional in nature. In my study, the identified three themes were used as attributes and dimensions of satisfaction at the same time.

5.2.2.1.3 Dimensions of perceived gain

The attributes generated from the interviews with participants on what they have gained from their exposure to academic and support services as well as overall exposure to university life were categorised into five major themes or dimensions. The first dimension was consistent with what Dilnesaw (2007), Ory and Braskamp (1988), Pike & Kuh (2005), and Tam (2006) termed as 'gain in cognitive development'. Participants expressed this gain in terms of developments in basic knowledge in the field; critical thinking, problem solving and reasoning; and self-learning skills acquired from engagements in academic activities. For instance, Participant 2 said, ". . . I have changed in many ways, i.e., in knowledge, attitude, and in my thinking." Participant 3 also reported that "from the services of the 95% instructors I have gained the basic knowledge in the field of Economics. My thinking skills have also improved in terms of applying principles and theories to understand, analyse and solve economic and business related problems."

In addition to the gain from different course activities, Participant 14 has also reported that "I usually make efforts by my own to gain knowledge. I read books to enhance my understanding of the contents outlined in the course guidebooks. This helped me to know more on contents and develop the ability to learn independently." From these descriptions it is clear that participants have perceived that they have gained knowledge in the field, critical thinking ability, problem solving skills and independent learning skills from the academic service.

The second dimension was labelled professional preparedness as is in the case of Tam (2006) and refers to students' gain in professional/vocational knowledge and skills. Participants had mixed perceptions in this regard. For example, Participant 3 reported that:

> I feel that I am inadequate to work as professional because I had no exposure to the world of work. Most of the courses were theory laden with little or no practical attachments. I wish I had some exposure to the real world experiences, read more books and equip myself better with professional knowledge and skills.

Sharing this concern, Participant 8 also said that "I am not sure about my preparedness to work as a professional." On the contrary, Participant 11 reported that:

> . . . as a medicine student I am required to demonstrate professional skills to promote to the next year of study. Thirty percent of the assessments require medicine students to demonstrate professional skills expected at each level. Thus, it is mandatory to demonstrate the expected skills to advance to the next year of study. Hence, I feel that I have developed the professional skills expected from a 3rd year student.

Similarly, Participant 12 confidently said, "I am well prepared to carry out my professional responsibilities." Thus, professional preparedness has surfaced as one of the gains participants have perceived, acquired or lost as a result of the quality of academic services delivered. The works of Tam (2004, 2006) also regarded this factor as a dimension of reported gain in the context of HE.

The third dimension was communication skill which refers to students' ability to express themselves, write reports, attend seminars and communicate with people. Perceptions of participants about the acquisition of this skill vary. For instance, Participant 3 said:

> . . . unfortunately, I had no adequate opportunities that could enhance my communication skills except the Sophomore English Course. Even that course was entirely focusing on the principles of writing and had no contribution to develop other communication skills. I have a serious problem in this regard. I feel ashamed of when I try to make presentations in class or provide tutorial to students. It forced me to quit presentations as a result of high frustration. This was mainly because I had no exposures and experiences in the university which can help me develop communication and presentation skills. Assignments and projects are given to group of 10 and only one student presents the work and because of that we had no adequate opportunities to practice presentations and develop communication skill. There are no many seminars and workshops from which we can gain some presentation and communication skills.

Similarly, Participant 8 said that "communication and presentation skills are not emphasised in the courses and I had no enough opportunity to improve these skills. Specifically, the writing skill course and the lab reports have developed my writing skill to some extent." On the other hand, Participant 9 reported that "since dealing with a patient requires good communication skill, there were courses like handling patients, psychology, and sociology that had contributed to the development of my communication skills." Participant

11 also said, “My communication skill has improved because of the oral assessments in addition to some of the courses included in the programme for this purpose.” Communication skill was also reported as a dimension of perceived gain by Dilnesaw (2007), Li, et al. (1999), and Pike & Kuh (2005).

The fourth dimension was named ‘general knowledge’ which is similar to what Ory and Braskamp (1988) labelled as “general education” and refers to the broader perspectives students developed as a result of reading, consulting different sources and attending general courses. In this regard, Participants 6 said that “I got general knowledge from the common and supportive courses included in the programme.” Participant 13 has also reported that “. . . in addition to the exposures to common courses, I read newsletters in the library, visit different websites, discuss social and political issues with friends. These engagements helped me a lot to broaden my perspective about the world.” Such descriptions of gains by participants show that acquisition of general knowledge is an aspect of gain achieved as a result of exposure to university life. The works of Brennan et al. (2010) confirmed that HE provides opportunities for the development of wider perspectives and world views in addition to the academic and professional developments.

The fifth dimension, which Ory and Braskamp (1988) labelled as “personal/social skills”, refers to the students’ development in interpersonal and personal skills resulting from their exposure to the university life. Almost all participants believed that living together in a dormitory with students having different backgrounds, living independently of parents, attending to and/or participating in different on-campus co-curricular activities, trainings organised for students by different units, and university life by itself contribute to the development of different social and personal skills. The social skills reported include: tolerance of differences, overcoming peer pressures, dealing with conflicts, developing leadership skills, and assuming responsibilities. The personal skills include skills like self-management, time management, money management and self-confidence. For example, responding to what she has gained from the support service, Participant 7 reported that:

> I have gained awareness about HIVAIDS, its prevalence and prevention strategies from trainings offered by anti HIV/AIDS club. Gender office together with gender club has also trained female students on relevant life skills, assertiveness and leadership skills. Life in the university in general and in dormitories in particular reinforced me to develop different social and personal skills. For example, I learned living together with students from different cultural background, working or

> studying in team, dealing with social and personal problems, tolerance to challenges and differences. My participation in academic commission representing students also helped me to develop experience in expressing myself to people with confidence and in an organized way.

Participant 10 also said:

> Support services and life in the university has helped me in many ways. I developed social and life skills such as living with people, dealing with differences, leading life independently, managing money, facing challenges and solving problem. As I am a representative of my class, I learned to shoulder responsibilities, developed self-confidence, developed leadership skills like exercising democratic approach to make decision with my classmates. My communication with students and university management as a representative of the class also improved my speaking skills.

Thus, the above descriptions indicate that gain in social and personal skills was an area valued by participants. As stated in chapter two, Brennan et al. (2010) recognized such personal/social skills as an important gain from higher education that made a strong contribution to the students' holistic development. Dilnesaw (2007), Ory and Braskamp (1988), Pike and Kuh (2005), and Tam (2006) have also used this factor as a dimension of perceived gain.

Thus, perceived gain in this study is described in terms of the five dimensions identified. Concurrent to this finding, the works of Dilnesaw (2007), Pike and Kuh (2005), and Tam (2006) used similar factors as dimensions of perceived gain (see section 2.6). As presented in Table 5.5, the attributes used to describe each dimension of reported gain in the current study range from two to four. The next section deals with the dimensions of the last construct – loyalty.

5.2.2.1.4 Dimensions of loyalty

Loyalty as the fourth construct of service quality had attributes categorised under two major themes/dimensions—behavioural actions and behavioural intentions.

The attributes in the **behavioural action** dimension addresses commitments students had to reuse services, say positive things about the university, recommend the university to others, tolerate minor problems which occurred while delivering services, and defend the university against wrong perceptions. In replying to the question that asks participants to report services they would like to reuse, they reported different preferences. For example, Participant 1 said, "I want to be taught again and again by those instructors whom I rated competent." Participant 3 also said, "I want to use internet service, female students' support service and tutorial service frequently because they have important contributions to my academic and social developments." On the other hand, Participant 15 reported that:

> Café, dormitory, library are a must to use services because I have no other alternatives. I would say most of the services do not encourage reuse because of poor service quality. The services I attended frequently and with interest were those organised by students like co-curricular or club activities.

These expressions indicate that participants are committed to reuse services once they are satisfied with them or if they perceived that they have benefited from them. Responses for what participants would advise to other students about the university also show mixed perceptions. For instance, Participant 7 said:

> I had negative information about the university from my brother, a former student of this university. He told me that the university is known for its demanding nature expressed in terms of the number of students who received academic dismissal. That information actually reinforced me to face the challenge by joining the university instead of changing my decision. After joining the university, I realized that the programme I am studying demands students to work hard. I really liked it. So, I advise students to join this university if they want to get knowledge and be competent. Of course, they must be ready to work hard.

On the contrary, a participant from the same programme has quite the opposite perception and said that "I don't advise other students to join this university because the quality of academic service is below my expectation." (Participant 8). From these descriptions it is possible to infer that students recommend the university to others or not depending on how they perceived the quality of services provided. The students' recommendations by themselves are words of mouth that communicate either positive or negative ideas to others about the university.

Behavioural action could also be expressed by the position students have for or against the negative words of mouth communicated about the university. In this respect, Participant 1 said that "I myself often communicate negative things about the university. If I heard people communicating negative words of mouth about this university, I don't defend for the university rather I agree with them." Participant 11 reported on the same question saying, "I will explain the shortcomings and strengths objectively instead of communicating negative qualities blindly."

The attributes stated above refer to behavioural actions participants have done or can do in response to the services provided, satisfactions obtained and perceived gains. The identified dimension and its attributes concur with the suggestions of Douglas et al. (2008), Fisher (2001), Lin and Tsai (2008), Ehigie and Taylor (2009), and Yu and Kim (2008) discussed in chapter two, section 2.7.

Behavioural intention, as the second dimension of loyalty, was described in terms of intentions to continue studying in the same university even if there are opportunities to be transferred to another institution, intention to continue further education in the same university, intention to remain in touch with the university after graduation, willingness to contribute to the university after graduation.

In response to the question of intention to transfer to another university, participants expressed different positions. For instance, Participant 2 confirmed that "If I got the chance to transfer to other university, I would like to join [University A - another university] because I found University B – the current university] below my expectation particularly in its academic services." Participant 11, on the other hand, said, "I had no and I have no/any plan to change the university so far because I gained what I wanted to."

With respect to intention to continue further education in the same university, participants reported different intents. For instance, a participant replied that ". . . I would like to join University A because I expect a better service from there in terms of resources access, facilities and education quality. University B will be my second choice" (Participant 8). Participant 11 also said that:

> I have a plan to study my further education abroad. If I have to study locally it depends on the quality of the services provided. So far University A is better compared to others for further study in my field of study and thus it will be my preference.

These descriptions indicate that retention is an aspect of loyalty that is worth attention by service providers. Institutions cannot retain their students unless they win the perceptions of students by providing better academic and support services as compared to their competitors. That means retention is affected by the students' perceptions of the quality of services rendered.

Participants were also asked about the type of relationship they would like to establish with the university after graduation and whether they are willing to support the university if requested. In response to these questions, participants reflected different positions. For instance, Participant 13 said:

> I would like to continue my attachment with the university by all possible means. I would like to be a member of the university alumni and contribute something in my capacity. At least I can give feedback about the courses in the programme to improve their relevance to the world of work.

Participant 9 also said:

> I would like to have relationship with the university in some way and would like to contribute to its betterment. If I have the capacity, I would like to fulfil laboratory materials, equip the library with new books . . . contextualize the curriculum to fit Ethiopian context.

On the contrary, Participant 1 said, ". . . I have no any intention to continue my relationship with the university after graduation. However, I am willing to contribute, in my capacity, particularly in improving students' access to internet and books in the library."

Thus, the described minor themes surfaced as descriptors of behavioural intention from the interview analysis and identified as a dimension of loyalty construct. The work of Terblanche and Boshoff (2010, p. 2) described such intents as "attitudinal loyalty" which is normally exhibited by a long-lasting "emotional bond" with a service and "strong customer preferences" for the service. The identified attributes of behavioural intention dimension were consistent with the discussion in chapter two, section 2.7.

Finally, the identified attributes under the four constructs and respective dimensions together with inputs from literature were included in the questionnaire designed to measure the dimensions of service quality

constructs objectively and collect background and non-background characteristics of students. Using the questionnaire, quantitative data were collected from a large sample size to test the psychometric properties of the instrument as well as to confirm whether the hypothesized measurement and structural models of service quality in HE context fit with the data or to explore alternative models. This marked the end of the qualitative phase and the beginning of the quantitative phase of the study. Details of the quantitative phase of the study are presented in subsequent sub-sections.

5.2.2.2 Quantitative phase: Validating the instrument and testing the measurement and structural models of service quality

The quantitative phase of the study involved two sub-phases. The first was piloting the subscales developed to measure the dimensions of service quality constructs and student related characteristics based on qualitative results and literature review. This sub-phase specifies psychometric properties of the subscales from the pilot data and partially examines the structural validity of the instrument. The second sub-phase determines the psychometric properties of the final data obtained through the refined subscales. It also confirms or explores the measurement and the structural models for service quality and determines the causal relations among the observed and latent factors in the structural model. These two sub-phases are presented in the subsequent sections.

5.2.2.2.1 Reliability and factor analysis of the sub-scales from the pilot test

After the questionnaire for measuring service quality dimensions and student characteristics had been organised in the way it was presented in the methodology chapter (see section 4.4.2), it was pilot tested on 550 students. As suggested by Creswell (2012), data cleaning was carried out using visual inspection, frequency distribution and standard deviation. Visual inspection was carried out to exclude carelessly and incompletely filled questionnaires, to inspect for scores outside the accepted range and missing data. In addition to the visual inspection, frequency distribution was also used to check for data that were out of the accepted range. Standard deviation together with visual inspection was used to identify and exclude disengaged respondents. Following the data cleaning process, 460 (83.6%) of the questionnaires were found to be usable to examine the psychometric properties of the subscales. After imputing the missing values item total correlation and Chronbach's alpha estimates of reliability were examined for each of the

subscales in the questionnaire. This was followed by partial confirmatory factor analysis to ensure construct validity.

Table 5.6
Reliability indices of the dimensions of service quality constructs for the pilot and final data

Dimensions	Pilot test				Alpha final data
	Original number of items	Items deleted	Final number of items	Alpha (α)	
Accessibility	6	2	4	.732	.790
Commitment	6	-	6	.794	.841
Communication	5	-	5	.720	.812
Competence	8	1	7	.821	.851
Friendliness	4	-	4	.825	.843
Empathy	5	1	4	.706	.799
Credibility	6	-	6	.807	.844
Flexibility	4	1	3	.587	.722
Industry-link	5	2	3	.704	.788
Motivation	6	-	6	.710	.855
Responsiveness	4	1	3	.754	.818
Organization and mgt	4	-	4	.736	.812
Reliability	12	2	10	.870	.905
Socialization	4	1	3	.806	.841
Safety and security	8	3	5	.698	.857
Usefulness	6	1	5	.801	.833
Tangibles	17	2	15	.897	.910
Satisfaction	3	-	3	.768	.797
Cognitive development	4	1	3	.717	.791
Professional preparedness	2	-	2	.624	.803
Communication skills	2	-	2	.697	.714
General knowledge	2	-	2	.756	.778
Personal/social skills	4	-	4	.807	.843
Behavioural intention	4	-	4	.734	.826
Behavioural action	5	2	3	.756	.882

As shown in Table 5.6, the reliability indices of the dimensions of perceived service quality range from .587 (for the dimension of flexibility) to .897 (for the dimension of tangibles) after reducing the items that suppress the reliability of the subscales. Through this process a total of 18 items were eliminated from different dimensions of perceived service quality and this reduced the number of items in the construct from

110 to 92. Finally, 17 dimensions of perceived service quality construct stand out with a number of items ranging from three (for the dimensions of flexibility, industry-link, responsiveness and socialization) to 15 (for the dimension of tangibles).

The reliability index of satisfaction was .768 and the three items used to measure satisfaction were retained. Among the 14 items used to measure the perceived gain construct, one item was discarded for it suppressed the reliability of the cognitive subscale and the remaining 13 items constitute the five dimensions of the construct. These are cognitive gain (.717), professional preparedness (.624), communication (.697), personal/social development (.807) and general knowledge (.756). The items in each dimension range from two to four.

Loyalty was another construct of service quality measured in terms of nine items classified into two dimensions -- behavioural actions (five items) and behavioural intentions (four items) (see sections 2.7 and 5.3.1). All the four items of behavioural intention were retained for they had good internal consistency with a subscale reliability index of .734.

However, the item-total reliability analysis of items of behavioural action showed that two items suppressed the sub-scale reliability index and were eliminated. Thus, the behavioural action items were reduced to three and its subscales reliability index was .756. As discussed in chapter four (section 4.4), all subscales had acceptable reliability indices for they are greater than .65 (Lodico, Spaulding, & Voegtle, 2010).

Partial confirmatory factor analysis was carried out with each dimension of the four constructs after checking internal consistency of items. The result showed a reasonably good fit to the data because the model fit indices satisfied the minimum thresholds expected (see section 4.5.2 and Appendix A). However, the model fitting to dimensions or constructs having three items was considered as a perfect fit to the data because the number of sample moments (9) and the number of parameters (9) were equal which resulted in zero degree of freedom (Byrne, 2010). As a result the probability level cannot be computed for the indices (Byrne, 2010). The maximum likelihood estimations, however, showed that those constructs or dimensions with only three items were heavily loaded on the respective items and testified the construct validity of items used to measure the respective dimensions or constructs (Byrne, 2010;. Raykov & Marcoulides, 2006)

Based on the results from the pilot test the final version of the questionnaire was set and data were collected from the research sites to further determine the construct validity of the instrument (measurement model fit) as well as to test the hypothesized structural/conceptual model (Raykov & Marcoulides, 2006). The examination of the measurement and structural model fits was preceded with further examination of the psychometric characteristics of the instrument based on the final data. The following sub-section presents it in detail.

5.2.2.2.2 Reliability and factor analysis of sub-scales from the final data

After carrying out similar data cleaning procedures a total of 1412 (76.7%) usable questionnaires were found for the final study. Further inter-item, item total correlations and factor analysis were carried out to determine the psychometric properties of the data obtained from the sample population using the refined sub-scales under the four service quality constructs.

To ensure the reliability of the data from the respective subscales, inter-item and item total correlation analyses were carried out. Inter-item analysis was used to identify and retain items that have significantly positive (at $\alpha = .05$ level two tailed) Pearson correlation greater than or equal to .2 with other items (Pallant, 2007). Item-total correlation coefficients were observed to identify and eliminate the items that suppress the reliability estimate of a subscale (Cohen et al., 2007). In addition, principal component or maximum likelihood factor analysis with and without rotation was employed to check whether the items will result in similar structural patterns which coincide with the dimensions in the four subscales. This was done to ensure the construct validity of the instrument – the extent to which the subscales actually measure the dimensions and constructs included in the hypothesized framework (Lodico et al., 2010). These psychometrics analyses results of the subscales in the four constructs of service quality are presented in the following sub-sections.

Table 5.7a

Factor component matrix and alpha reliability for items used to measure dimensions of PSERVQAL

	Factor Loadings														
Item No. in the sub-scale	Accessibility	Commitment	Communication	Competence	Friendliness	Empathy	Credibility	Flexibility	Industry link	Motivation	Responsiveness	Org & mgt	Reliability	Socialization	Useful-ness
1	.789	.715	.677	.717	.805	.820	.775	.754	.800	.714	.864	.817	.712	.864	.772
2	.804	.759	.805	.757	.817	.849	.813	.850	.892	.795	.883	.863	.797	.899	.815
3	.809	.776	.803	.707	.851	.726	.816	.803	.822	.792	.824	.817	.743	.850	.742
4	.739	.752	.737	.748	.826	.776	.700	-	-	.794	-	.701	.771	-	.793
5	-	.770	.760	.647	-	-	.765	-	-	.744	-	-	.731	-	.756
6	-	.709	-	.759	-	-	.629	-	-	.728	-	-	.733	-	-
7	-	-	-	.761	-	-	-	-	-	-	-	-	.749	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	.719	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-	.717	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-	.692	-	-
Eigenvalues	2.469	3.350	2.873	3.721	2.722	2.522	3.400	1.936	2.113	3.483	2.205	2.572	5.430	2.278	3.012
%Variance Explained	61.715	55.830	57.453	53.152	68.047	63.051	56.659	64.526	70.434	58.043	73.500	64.304	54.30	75.945	60.233
α	.790	.841	.812	.851	.843	.799	.844	.722	.788	.855	.818	.812	.905	.841	.833

5.2.2.2.2.1 *Sub-scales of perceived service quality dimensions*

Except for the five items of the "safety and security" dimension, the inter-item correlations of the items in the service quality construct revealed coefficients ranging from .200 to .699. All the five items of the safety and security dimension had a correlation coefficient below the threshold of .2 (Pallant, 2007) and thus they were excluded from the analysis. This has reduced the number of dimensions of perceived service quality construct from 17 to 16.

Examination of item total correlations shows that no item in the 16 dimensions suppressed the respective sub-scale reliability (Chronbach alpha) and as a result all items were retained. The reliability indices (α) of the subscales range from .722 (flexibility) to .910 (tangibles) and thus they were well above the minimum threshold .65 (Lodico, Spaulding & Voegtle, 2010).

To determine the construct validity and examine whether the dimensions were composed of one or more components, principal and maximum likelihood factor analysis techniques with or without rotation were employed again (Kline, 2011). Whenever principal component factor analysis resulted in more than one component that is difficult to give meaning for the identified components, maximum likelihood estimation was employed to overcome the problem (Kline, 2011). That means, principal component analysis was carried out for all subscales under perceived service quality construct prior to employing the maximum likelihood technique.

Table 5.7a shows the principal component analysis result of items in the respective 15 dimensions of perceived service quality construct. The factor analysis of items in each dimension resulted in a one-factor solution (see the names of the factors/dimensions in Table 5.7a) with eigenvalue ranging from 1.936 to 3.721, i.e., exceeding the minimum threshold 1.

Table 5.7b Continuation

Oblimin factor structure matrix and alpha reliability for items of tangibles dimension

Item	Factors of Tangibles (α=.**910**)	
	Appropriateness of Tangibles	Accessibility of Tangibles
10	.880	
12	.873	
11	.685	
13	.651	
15	.601	
14	.600	
9	.592	
8	.555	
1	.478	
4		.849
5		.795
6		.595
7		.566
3		.447
2		.392
Eigenvalues	6.715	1.084
% variance explained	44.764	7.223
Total variance explained	51.988	
α	.881	.801

The items in the respective dimensions also loaded heavily on the dimensions and accounted for more than 50% of the variance in the respective dimension. The loadings for items of the tangibles dimension are presented separately in Table 5.7b because it has two components, unlike the other dimensions of perceived service quality.

Principal component analysis with direct Oblimin rotation was employed on the items of the tangibles dimension and a two factor solution was obtained which accounted for about 52% of the variance in tangibles. The first factor was labelled by the researcher as 'Appropriateness of tangibles' in which students perceive the quality or appropriateness of the tangibles available in their respective universities. Nine items loaded on this factor with factor loading values ranging from .478 to .880. It accounted for 45% of the total variance in students' perception on tangibles. The other six items loaded with greater than .35 loadings on

the second factor designated as 'Accessibility of tangibles' and refers to the accessibility of resources in the universities. This factor contributed only 7% of the variance in the students' perception on tangibles. The observed correlation between the two factors (.579) was found to be far less than the threshold .85 and testifies to the existence of two factors (Kline, 2011). The eigenvalues for the two factors were 6.715 and 1.084 respectively and the internal consistency of the subscales (.881 and .801) and the overall tangible scale (.910) were strong.

The observed reliability and factor analysis result testifies that all the items in the respective dimensions were internally consistent and structurally valid to measure the dimensions of perceived service quality construct. Since the items in the respective dimensions have such an acceptable level of reliability indices and structural validity, the composite scale scores were used as measures of the respective perceived service quality dimensions.

5.2.2.2.2.2 *Satisfaction sub-scale*

Table 5.8
Factor component matrix and alpha reliability for items used to measure satisfaction

Item	Factor loadings
1	.829
2	.850
3	.852
Eigenvalue	2.135
% of variance	71.183
α	.797

Three items that can stand as dimensions on their own were used to measure satisfaction. The three items had inter-item correlations coefficients ranging between .551 and .556 and thus all items were retained. Principal component analysis was used to examine structural validity of the factor. The results testified that the three items heavily loaded on one factor and accounted for about 71% of the variance in satisfaction at

eigenvalue 2.135. The reliability of the scale was also found to be .797 and thus the scale satisfied both the internal consistency (Lodico et al., 2010) and construct validity (Kline, 2011) criteria.

5.2.2.2.2.3 *Perceived gain sub-scale*

The inter-item correlation coefficients among the items of perceived gain construct ranged from .357 to .671 and all the items were retained. Principal component analysis with Oblimin rotation was run to extract the factors of perceived gains. The factor analysis resulted in a two factor solution but making meaning out of the identified factors was difficult.

Table 5.9
Factor component matrix and alpha reliability for items used to measure dimensions of perceived gain

Item	Factors of perceived gain				
	Personal/ social	Cognitive	General knowledge	Professional preparedness	Communication skills
13	.782				
12	.781				
10	.750				
11	.637				
1		-.784			
2		-.772			
3		-.588			
9			.850		
8			.686		
5				-.770	
4				-.714	
6					-.807
7					-.697
Eigenvalues	6.655	1.108	.908	.642	.528
% variance explained	51.196	8.522	6.984	4.939	4.060
Total variance explained				75.702	
A	.843	.789	.778	.803	.714

Informed with theory, the researcher decided to run principal component analysis with Oblimin rotation forcing it to extract five factors (Byrne, 2010; Kline, 2011). As a result, five meaningful factors were identified consistent with the theory (see section 2.6). The first factor was labelled "personal/social skills" (Ory & Braskamp, 1988) and four items were heavily loaded on this factor with loading values ranging from .637 to .782. This factor contributed about 51% of the variance in students' perceived gains.

The second factor was labelled as "cognitive development" (Dilnesaw, 2007; Ory & Braskamp, 1988; Pike & Kuh, 2005; Tam, 2006) and described perceived developments in students' thinking skills. Three items were loaded on this factor with values ranging from -.588 to -.784 and the factor contributed to about 9% of the variance in perceived gains. Items 9 and 10 were loaded on a factor named "development in general knowledge" (Ory & Braskamp, 1988) with loading values of .686 and .850 respectively. This factor contributed about 7% of the variation in perceived gains. The fourth factor, labelled as "professional preparedness" (Tam, 2004, 2006), was composed of two items with loadings -.714 and -.770 and contributed 5% of the variance in perceived gains. The fifth factor labelled as "communication skills" (Dilnesaw, 2007; Li et al., 1999; Pike & Kuh, 2005) was constructed from two items with loadings -.807 and -.697 and the factor contributed 4% of the variance in perceived gains. The total variance explained by the five factors was about 76%. The reliability indices of the five factors were also .714 and above. Accordingly, the composite score of the items loaded on the respective five factors were used as measures of the dimensions of perceived gain.

5.2.2.2.2.4 Loyalty sub-scale

As shown in Table 5.10, seven items constituted this scale. Since the inter-item correlation among these items ranged from .391 to .579, all of them were retained. Theoretically, these items were designed to measure two components of loyalty construct, behaviour action and behavioural intention (see section 2.7). To verify this, principal component analysis was run and using the rule of thumb of maintaining loadings with an eigenvalue of greater than 1, only a one factor solution was obtained from the analysis. Since the result was contrary to the theoretical presumption, the researcher forced the factor analysis to generate two factors applying principal component analysis and maximum likelihood factor analysis with Oblimin rotation subsequently.

Table 5.10
Factor component matrix and alpha reliability for loyalty items

Item	Factor loadings
1	.723
2	.681
3	.713
4	.792
5	.763
6	.770
7	.760
Eigenvalue	3.874
% of variance	55.336
α	.863

The results of the two analyses, however, failed to meaningfully load the seven items on the expected two factors. As a result the researcher decided to consider the one factor solution obtained from the first analysis and hence the composite score of the seven items, with loadings ranging from .681 to .792, was taken as measures of loyalty construct. These items, as a single factor solution, contributed to about 55% of the variance in students' loyalty to their institution with eigenvalue 3.874. The reliability analysis of the scale (α=.863) also indicates that the scale had strong internal consistency. Hence, loyalty was a single factor construct both structurally valid and reliable. The next sub-section examines the fitness of the hypothesized measurement model to the data.

5.2.2.3 Measurement model fit

From the results of scale validity and reliability analyses the researcher identified 16 dimensions of percieved service quality, five dimensions of perceived gain, three dimensions of satisfaction (items taken as dimensions) and loyalty as a single factor construct (measured in terms of seven items). Taking the identified dimensions of the four constructs into account and informed by the conceptual framework discussed in chapter two (section 2.9), the researcher constructed the hypothesized measurement model using AMOS version 18 as shown in Figure 5.1.

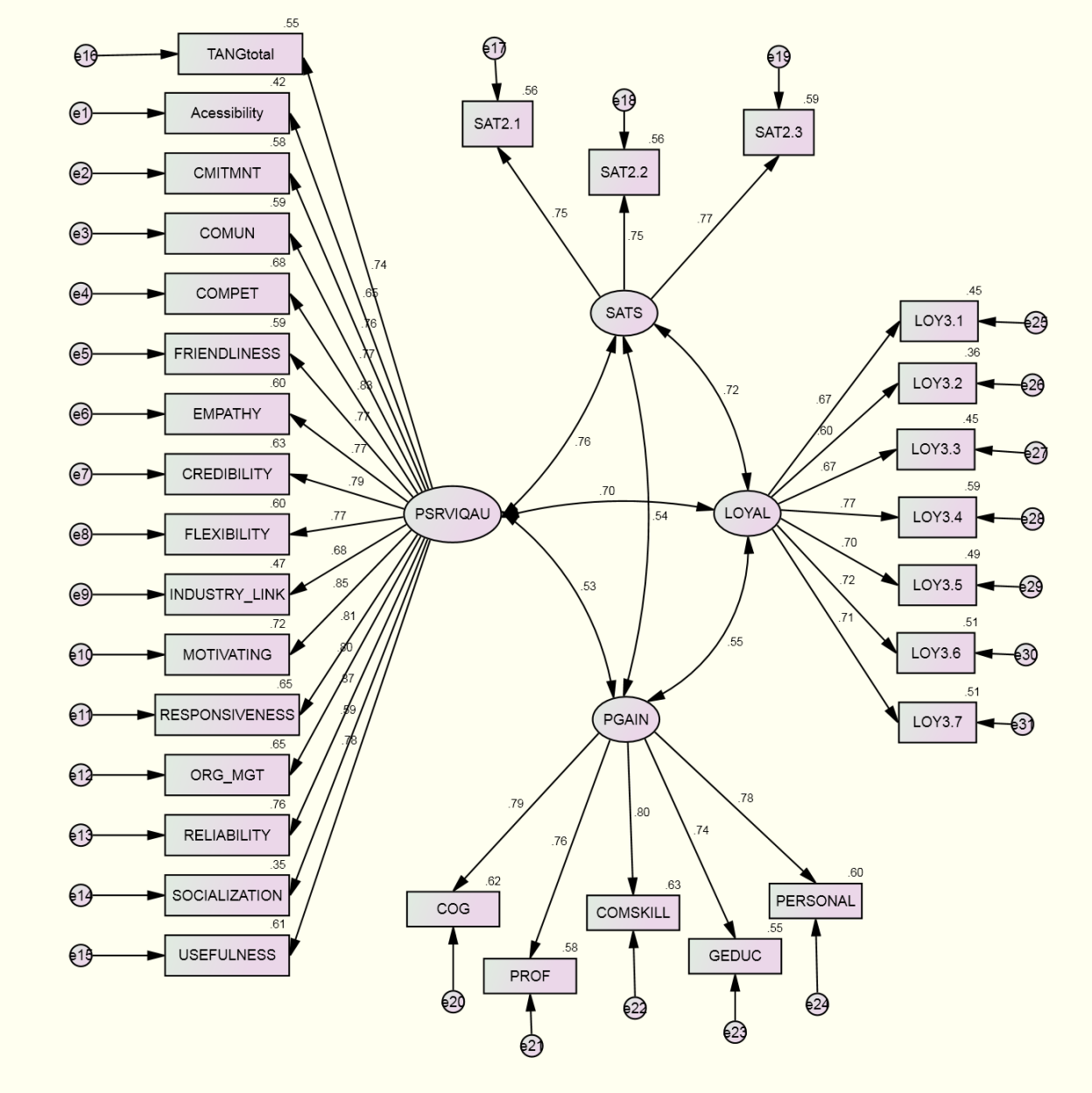

Figure 5.1. Initial service quality four factors measurement model

In this model, four factors are hypothesized as: (1) Perceived service quality - PSERVQAL (with accessibility, commitment, competence, communication, friendliness, empathy, credibility, flexibility, industry-link, motivating, organisation and management, reliability, responsiveness, socialization, usefulness and tangibles as indicators), (2) satisfaction - SAT (with satisfaction to academic service, satisfaction to admin service, and overall satisfaction as indicators), (3) Perceived gain - PGAIN (with cognitive development, professional preparedness, communication skills, general knowledge and

personal/social skills developments as indicators), and (4) Loyalty – LOYALTY (with a subscale having seven items of behavioural intentions and actions as indicators).

Based on the recommendations of authorities in the area (Kline, 2011; Ullman, 2013), the identifiability, normality and multicollinearity assumptions were checked before proceeding to confirmation of model fitting. The AMOS output for the model indicated that the model was over identified with 1488 distinct sample moments, 204 distinct parameters to be estimated and df. = 1284. With regard to normality the distributions of the data for each dimension were examined using histograms IBM SPSS FREQUENCIES. None of the observed variables/dimensions was significantly skewed or highly kurtotic. The skewness and kurtosis test was also carried out to all dimension/indicators using SPSS 20. The result shows that all the skewness values fall between -.298 to .599 and proved that the distribution is fairly normal or symmetrical (Kline, 2011; Lodico et al., 2010; Ullman, 2013). The kurtosis values also fall between -1 and 1 except Loyalty item 2 (-1.113). This indicates that the data is not considerably kurtotic even if there are some kurtotic issues. Scholars also suggest that ML method can be employed with minor deviations from normality in parameter estimations or model test (Kline, 2011; Lodico et al., 2010; Raykov & Marcoulides, 2006).

Since the raw scores of items were converted into a composite score to measure dimensions of service quality constructs, it was essential to re-examine the inter-dimension correlation or multicollinearity property before proceeding to model fitting. The data in Tables 5.11a and 5.11b show that the inter-correlation among dimensions within and across constructs fall within the acceptable lower (.200) and upper (.850) limits at .05 level (Kline, 2005; 2011; Pallant, 2007). In addition, using 25 different dimensions in the measurement model, 25 regressions were carried out taking one of them as a dependent variable and the other 24 as independent variables to test for multicollinearity. The regression result shows that the variance inflation factor (VIF) of the 25 different regressions fall within the range of 1.627 and 4.044. Since the highest VIF is far less than the threshold (i.e., 10) we can safely say that there was no multicollinearity concern (Kline, 2011). Hence, all the assumptions were satisfactorily met to run the model fit test.

Table 5.11a

Pearson inter-item correlation coefficient to the measured variables of service quality constructs

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Accessibility	1													
2	CMITMNT	.673**	1												
3	COMUN	.626**	.712**	1											
4	COMPET	.578**	.697**	.699**	1										
5	FRIENDLINESS	.551**	.612**	.609**	.688**	1									
6	EMPATHY	.525**	.574**	.609**	.656**	.709**	1								
7	CREDIBILITY	.527**	.622**	.601**	.690**	.598**	.642**	1							
8	FLEXIBILITY	.492**	.552**	.575**	.639**	.608**	.637**	.642**	1						
9	INDUSTRY_LINK	.410**	.473**	.493**	.533**	.495**	.491**	.507**	.524**	1					
10	MOTIVATING	.514**	.617**	.631**	.667**	.645**	.651**	.670**	.667**	.639**	1				
11	RESPONSIVENESS	.507**	.588**	.599**	.615**	.647**	.640**	.602**	.656**	.596**	.740**	1			
12	ORG_MGT	.442**	.585**	.591**	.661**	.558**	.558**	.662**	.622**	.592**	.694**	.658**	1		
13	RELIABILITY	.524**	.641**	.636**	.704**	.641**	.637**	.675**	.663**	.590**	.764**	.730**	.731**	1	
14	SOCIALIZATION	.326**	.385**	.437**	.428**	.399**	.455**	.426**	.446**	.451**	.529**	.471**	.471**	.551**	1
16	USEFULNESS	.447**	.576**	.573**	.637**	.534**	.567**	.617**	.582**	.533**	.646**	.595**	.662**	.720**	.496**
17	TANGIBLES	.435**	.487**	.517**	.564**	.534**	.570**	.563**	.565**	.550**	.604**	.594**	.605**	.664**	.527**
19	SAT2.1	.339**	.458**	.440**	.509**	.414**	.377**	.496**	.437**	.372**	.478**	.415**	.543**	.526**	.330**
20	SAT2.2	.364**	.379**	.422**	.443**	.422**	.441**	.409**	.448**	.360**	.486**	.454**	.437**	.498**	.375**
21	SAT2.3	.370**	.385**	.430**	.454**	.370**	.408**	.463**	.427**	.371**	.479**	.415**	.488**	.500**	.392**
23	COG	.244**	.328**	.311**	.362**	.270**	.275**	.421**	.325**	.315**	.349**	.316**	.440**	.388**	.317**
24	PROF	.223**	.303**	.323**	.346**	.252**	.284**	.361**	.294**	.305**	.348**	.305**	.400**	.369**	.299**
25	COMSKILL	.209**	.288**	.289**	.312**	.260**	.292**	.341**	.322**	.307**	.353**	.307**	.389**	.348**	.299**
26	GEDUC	.229**	.286**	.311**	.302**	.271**	.281**	.315**	.291**	.257**	.347**	.296**	.333**	.322**	.321**
27	PERSONAL	.194**	.253**	.278**	.285**	.235**	.232**	.330**	.303**	.205**	.304**	.264**	.379**	.326**	.283**
29	LOYALTY	.441**	.488**	.504**	.503**	.458**	.470**	.486**	.479**	.439**	.540**	.487**	.517**	.567**	.441**

Table 5.11b Continuation

		16	17	19	20	21	23	24	25	26	27	29
16	USEFULNESS	1										
17	TANGIBLES	.663**	1									
19	SAT2.1	.518**	.499**	1								
20	SAT2.2	.440**	.560**	.551**	1							
21	SAT2.3	.456**	.559**	.556**	.596**	1						
23	COG	.446**	.396**	.427**	.265**	.297**	1					
24	PROF	.397**	.357**	.373**	.261**	.293**	.686**	1				
25	COMSKILL	.388**	.376**	.351**	.276**	.310**	.600**	.596**	1			
26	GEDUC	.362**	.377**	.333**	.291**	.309**	.525**	.511**	.662**	1		
27	PERSONAL	.377**	.340**	.368**	.274**	.323**	.614**	.568**	.611**	.622**	1	
29	LOYALTY	.537**	.580**	.486**	.477**	.536**	.418**	.387**	.381**	.388**	.412**	1

* p < .05, **p < .01

After ensuring that the required assumptions are met, confirmatory factor analysis was run using the maximum likelihood estimation method through AMOS 18 to determine the model fit and examine the existance of significant covariance among the four latent factors. Specifying a cutoff point to the commonly used fit indices was essential to make decisions on the model fit. In this regard, there seems little agreement among authorities in the area. The disagreement was not only on the type of fit indices used to judge the model fit, but also on the cut-off points for the respective indices. The suggestion of cut-off points summarized in Table 5.12 testifies to this fact.

Since the instrument was used for the first time and the model is complex, the researcher decided to use the relaxed cut-off points. Hence, relative chi-square (CMIN/DF) < 5 (Schumacker & Lomax, 2004), Goodness of fit (GIF) > .90 (Byrne, 1994 cited in Moss, 2009; Loehlin, 2004), Comparative fit index (CFI) > .90 (Loehlin, 2004) and RMSEA < .05 with PCLOSE > .5 (Byrne, 2010) were considered as threshold to model fit judgment as indicated in Table 5.12.

Table 5.12
Summary of model fit indices and respective cut-off points

Criteria	Strong criteria	Relaxed criteria
Relative chi-square (CMIN/DF)	< 2 (Ullman, 2001 cited in Moss, 2009), <3 (Kline, 2005)	<5 (Schumacker & Lomax, 2004)
GFI (Goodness of fit)	>.950 (Byrne, 2010)	>.90 (Byrne, 1994 cited in Moss, 2009; Loehlin, 2004)
CFI (Comparative fit index)	>.950 (Byrne, 2010))	>.93 Byrne, 1994 cited in Moss, 2009), >.90 (Loehlin, 2004)
RMSEA (Root Mean-Square Error of Approximation), PCLOSE (Closeness of fit)	<.05 , >.50 (Byrne, 2010)	<.05 , >.50 (Byrne, 2010)

The summary of the model fit analysis indicated in Table 5.13 revealed that the measurement model had a relative chi-square (CMIN/DF) 6.715 which is higher than 5, GFI (.865) lower than .90, a relatively good CFI (.916) which was slightly higher than the cut-off point .90, and a RMSEA (.064) that exceeded the threshold of .05 with p=.000. Since the identified model satisfies only one of the four criteria, it fits the data poorly.

Table 5.13
Summary of selected AMOS outputs for model fit indices of the initial measurement model

Criteria	Obtained values	Threshold
Relative chi-square CMIN/DF	6.715	<5
GFI (Goodness of fit)	.865	>.90
CFI (Comparative fit index)	.916	>.90
RMSEA, PCLOSE	.064, .000	<.05 , >.50

In order to improve the model fit, scholars recommend examining the dimensions and deleting statistically non-significant paths (with CR between -1.96 and 1.96 at p <.05), adding paths to the model (when the regression weights imply significant parameter change) or covary the errors of the parameters with large values using modification indices (M.I.) as long as it is meaningful and informed with theory (Byrne, 2010; Ullman, 2013).

Since all the paths in the model were statistically significant at .05 level, there was no path subjected for deletion. Instead, examining the meaningfulness of parameter changes with higher M.I. values was taken as an alternative to improve the model.

Table 5.14
Summary of selected AMOS outputs for error covariances for parameters in the initial measurement model

Covariances			M.I.	Par Change
e20	<-->	e17	32.205	.188
e21	<-->	e20	85.989	.545
e23	<-->	e20	46.367	-.422
e23	<-->	e21	34.463	-.275
e23	<-->	e22	57.164	.349
e29	<-->	e30	51.260	.151
e27	<-->	e28	33.178	.095
e25	<-->	e26	45.213	.185
e2	**<-->**	**e1**	**198.178**	**3.038**
e3	**<-->**	**e1**	**101.466**	**1.877**
e3	**<-->**	**e2**	**144.666**	**2.800**
e4	<-->	e2	56.129	2.018
e4	<-->	e3	48.975	1.627
e5	<-->	e4	37.296	1.212
e6	**<-->**	**e5**	**130.625**	**1.597**
e10	<-->	e9	38.033	.960
e11	<-->	e4	39.593	-.852
e11	<-->	e10	49.670	.815
e12	<-->	e17	32.167	.224
e12	<-->	e1	49.475	-.982
e12	<-->	e5	35.029	-.761
e12	<-->	e6	42.714	-.802
e15	<-->	PGAIN	33.614	.994
e15	<-->	e5	36.299	-.980
e15	<-->	e13	32.217	1.562
e16	<-->	SAT	73.060	.992

Covariances			M.I.	Par Change
e16	<-->	PSERVQUAL	87.480	-4.063
e16	<-->	e19	32.696	.849
e16	<-->	e18	36.547	.886
e16	<-->	e2	48.729	-4.493
e16	<-->	e14	41.140	3.203
e16	<-->	e15	65.045	4.247

The data in Table 5.14 shows that four error covariances (e2<-->e1, e3<-->e2, e6<-->e5, and e3<-->e1) can result in huge parameter changes. The researcher examined the dimensions and their respective items to decide on meaningfulness of the error covariances. According to Byrne (2010), the error covariances reflect a systematic, rather than a random measurement error in item response associated with either the items or the respondents. Byrne claims that the error covariances are derived from respondents' bias or a high degree of overlap in item content. After studying the dimensions and respective items, the researcher covaried e2<-->e1, e6<-->e5, e20 <--> e21, e3<-->e2 and e3<-->e1 one after the other for they are similar in essence though stated in different ways. After allowing these errors to covary, the re-specification was re-run and resulted in the M.I. Table 5.15.

Table 5.15
Summary of selected AMOS output to error covariances and regression weights for the initial measurement model

			M.I.	Par Change
Covariances:				
			M.I.	Par Change
e29	<-->	e30	50.690	.150
e16	**<-->**	**SAT**	**67.498**	**.940**
e16	<-->	PSERVQAUL	81.404	-3.904
e16	<-->	e15	52.220	3.725
Variances:				
	M.I.	Par Change		
Regression Weights:				
			M.I.	Par Change
Tangibles	**<---**	**SAT2.3**	**56.909**	**1.486**
Tangibles	**<---**	**SAT2.2**	**62.148**	**1.610**

The observed highest M.I. for covariances and the regression weights indicate that the tangible dimension (e16) was cross loading on both PSERVQAL and satisfaction. This implies that tangibles can be used to measure satisfaction in addition to PSERVQAL. Consistent with this finding Ahmed and Masud (2014) also reported a positive, significant and direct influence of tangibles on overall student satisfaction. Thus, a regression line was drawn from satisfaction to tangibles to address the cross loading (see figure 5.2).

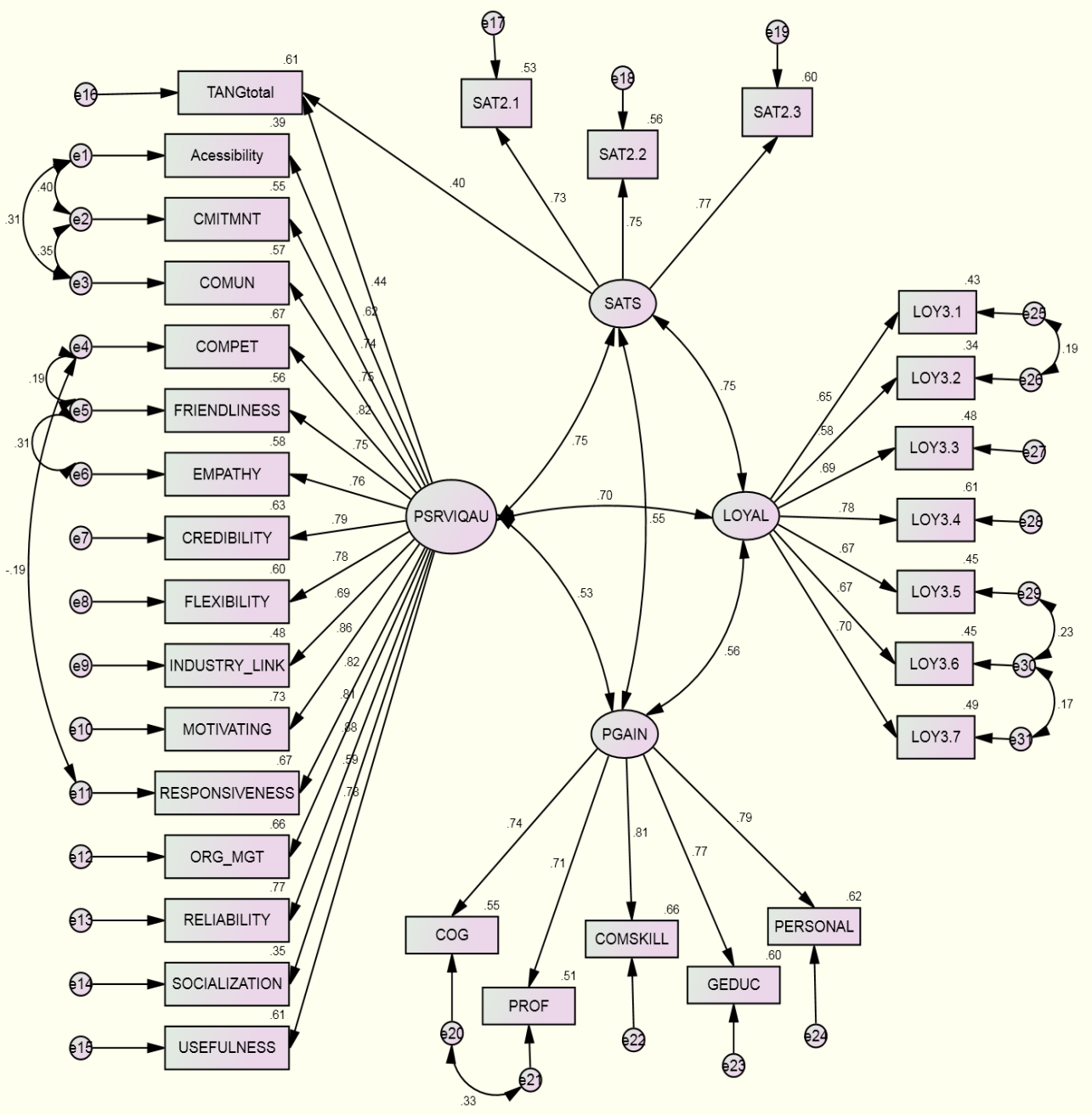

Figure 5.2. Re-specified service quality four factors measurement model

This resulted in meeting the minimum threshold for model acceptance except for RMSEA. With the intention of making improvements on RMSEA, further modifications were carried out by covarying e29 <--> e30, e5<-->e4, e25<-->e26, e11<-->e4 and e30<-->e31 subsequently until an acceptable measurement model fit, presented in Figure 5.2, was obtained. The improvement in the fit indices of the re-specified model from the initial is summarized in Table 5.16 below.

Table 5.16
Summary of selected AMOS output on fitness indices of initial and re-specified measurement models

Fit indices	**The Initial model**	**Re-specified model**	**Threshold**
Relative chi-square (CMIN/DF)	6.715	4.398	<5
GFI (Goodness of fit)	.865	.915	>.90
CFI (Comparative fit index)	.916	.951	>.90
RMSEA, PCLOSE	.064, .000	.049, .743	<.05 , >.50

As it has been indicated in the table, compared to the first model the re-specified model had CMIN/DF (4.398 vs. 6.715), GFI (.915 vs. .865), CFI (.951 vs. .916), and RMSEA & PCLOSE (.049, .743 vs. .064, .000). This implies that the model fit improved to an acceptable level after allowing some errors to covary and introducing a regression path from satisfaction to tangibles.

The maximum likelihood estimates for regression weights and standardized regression weights for the paths in the re-specified model are presented in Table 5.17. The probability (p) values for each path from the latent factors to the respective dimensions and the respective standard regression weights (that range from .40 to .88) indicated that the loadings of each latent factor on the respective dimensions or observed variables are relatively high and significant at $p < .05$ level (Byrne, 2010; Ullman, 2013).

Table 5.17

Selected AMOS output for re-specified model: Non-standardized and standardized ML parameter estimates

			Regression weight				
Parameters			Estimate	S.E.	C.R.	P	Std. regression weight (loading)
USEFULNESS	<--	PSERVQAUL	1				0.78
SOCIALIZATION	<--	PSERVQAUL	0.572	0.024	23.462	***	0.60
RELIABILITY	<--	PSERVQAUL	2.122	0.056	38.032	***	0.88
ORG_MGT	<--	PSERVQAUL	0.861	0.025	34.24	***	0.81
RESPONSIVENESS	<--	PSERVQAUL	0.681	0.02	34.308	***	0.82
MOTIVATING	<--	PSERVQAUL	1.335	0.037	36.58	***	0.86
INDUSTRY_LINK	<--	PSERVQAUL	0.633	0.023	27.831	***	0.69
FLEXIBILITY	<--	PSERVQAUL	0.644	0.02	32.205	***	0.78
CREDIBILITY	<--	PSERVQAUL	1.246	0.038	33.014	***	0.79
EMPATHY	<--	PSERVQAUL	0.828	0.026	31.383	***	0.76
FRIENDLINESS	<--	PSERVQAUL	0.841	0.028	30.56	***	0.75
COMPET	<--	PSERVQAUL	1.412	0.041	34.486	***	0.82
COMUN	<--	PSERVQAUL	1.001	0.032	30.904	***	0.75
CMITMNT	<--	PSERVQAUL	1.124	0.037	30.31	***	0.74
ACCESS	<--	PSERVQAUL	0.652	0.027	24.534	***	0.62
LOY3.1	<--	LOYALTY	1				0.66
LOY3.2	<--	LOYALTY	0.959	0.045	21.277	***	0.58
LOY3.3	<--	LOYALTY	0.862	0.04	21.703	***	0.69
LOY3.4	<--	LOYALTY	1.126	0.047	24.121	***	0.78
LOY3.5	<--	LOYALTY	0.976	0.045	21.528	***	0.67
LOY3.6	<--	LOYALTY	1.023	0.047	21.611	***	0.67
LOY3.7	<--	LOYALTY	1.095	0.049	22.173	***	0.70
PERSONAL	<--	PGAIN	1				0.79
GEDUC	<--	PGAIN	0.525	0.018	29.612	***	0.77
COMSKILL	<--	PGAIN	0.553	0.018	30.629	***	0.81
PROF	<--	PGAIN	0.473	0.018	26.92	***	0.72
COG	<--	PGAIN	0.675	0.024	28.468	***	0.74
SAT2.1	<--	SAT	1				0.73
SAT2.2	<--	SAT	1.036	0.04	25.761	***	0.75
SAT2.3	<--	SAT	1.106	0.042	26.31	***	0.77
Tangibles	<--	PSERVQAUL	1.528	0.118	12.986	***	0.44
Tangibles	<--	SAT	6.262	0.567	11.049	***	0.40

The covariances/correlations among the latent factors were another point of interest in the determination of the measurement model (Kline, 2011; Lodico, Spaulding and Voegtle, 2010). As shown in Table 5.18,

there were statistically significant covariances/correlations among perceived service quality, perceived gain, satisfaction and loyalty at .05 alpha level for both the initial and re-specified models. When we compare the magnitude of the covariances between the initial and re-specified model we found much more similarity than differences in magnitude among the latent factors, i.e., the re-specification has not resulted in a major change in the data (Byrne, 2010). The correlation/covaraince coefficients among the latent factors in the re-specified model range from .53 to .75. This implies that there were significant correlations among the latent factors but all the correlations were under .85 which makes the model free from multicollinearity concerns (Kline, 2005; 2011).

Once the acceptable model is specified, the next stage was to check whether the model is invariant to different groups of participants – gender, residence, programmes, and institutions. The groups were compared for differences in the paths included in the measurement model using AMOS and a "stats tool" available from statwiki website (http://statwiki.kolobkreations.com/index.php?title=Main_Page). The result (see sections C1 and C2 of Appendix C)–shows that there were no significant differences between the different groups at .05 alpha level for at least one of the paths from the latent variables to the respective dimensions or items in the re-specified measurement model (Byrne, 2010).

Table 5.18

Summary of covariances and correlations for the initial and re-specified measurement models

Covariances			Initial model					Re-specified model				
			Estimate	S.E.	C.R.	P	Correlations	Estimate	S.E.	C.R.	P	Correlations
PSRVIQAU	<-->	PGAIN	4.616	0.312	14.793	***	0.53	4.647	0.317	14.667	***	0.525
PSRVIQAU	<-->	SAT	1.731	0.1	17.288	***	0.759	1.683	0.099	17.058	***	0.752
LOYALTY	<-->	SAT	0.428	0.028	15.551	***	0.719	0.425	0.027	15.483	***	0.748
LOYALTY	<-->	PGAIN	1.256	0.089	14.052	***	0.552	1.257	0.09	13.912	***	0.56
PGAIN	<-->	SAT	1.092	0.08	13.714	***	0.541	1.09	0.079	13.814	***	0.547
PSRVIQAU	<-->	LOYALTY	1.792	0.111	16.15	***	0.697	1.774	0.111	15.926	***	0.703
e2	<-->	e1	…	…	…	…	…	3.378	0.252	13.401	***	0.404
e6	<-->	e5	…	…	…	…	…	1.629	0.151	10.774	***	0.311
e21	<-->	e20	…	…	…	…	…	0.733	0.079	9.231	***	0.331
e3	<-->	e2	…	…	…	…	…	3.139	0.27	11.642	***	0.352
e3	<-->	e1	…	…	…	…	…	2.21	0.211	10.493	***	0.308
e29	<-->	e30	…	…	…	…	…	0.18	0.024	7.474	***	0.232
e5	<-->	e4	…	…	…	…	…	1.386	0.204	6.803	***	0.189
e25	<-->	e26	…	…	…	…	…	0.191	0.03	6.309	***	0.193
e11	<-->	e4	…	…	…	…	…	-0.891	0.135	-6.621	***	-0.19
e30	<-->	e31	…	…	…	…	…	0.134	0.025	5.465	***	0.166

In general, the measurement model analysis resulted in a valid service quality measurement model that fits the data well after the re-specification. Hence, service quality in EPHE can be measured as a four factor model using the four constructs specified in the conceptual framework with some modifications made in the re-specified model. The next sub-section presents the relationship between student characteristics and the constructs of service quality.

5.2.3 Relationship between student characteristics and the constructs of service quality

As discussed in chapters two and three, students' background (institution, gender, year of study, programme, entrance exam score, CGPA and residence), experiences (exposures to universities and information about universities), goal orientation, values/criteria students used to select universities of their choice, class attendance and involvement in campus activities were considered as important factors that could have some relationship with students' perception of service quality, satisfaction, perceived gain and loyalty (see sections 2.8 and 3.6).

Accordingly, seven background variables and ten non-background student related factors were empirically studied to examine their relationship with service quality constructs. Of the 17 student factors, 11 had a scale or ordinal nature and entailed computing Pearson correlation to see their relation with each other and with service quality constructs. The other six variables were nominal and required computing independent sample t-test or one way ANOVA to examine whether the variation in such student variables had some association with students' perceptions of service quality constructs (see section 4.5.2). An independent sample t-test was computed for such dichotomous variables as gender, residence, prior exposure to universities and use of service quality as criteria during university selection. One way ANOVA was employed for variables with more than two categories such as institutions and programmes.

The examination of the relationship or association of background and non-background student characteristics with the four service quality constructs was intended to identify which variables to include and which ones to exclude in the structural model of service quality in addition to answering RQ3. The analysis presented in subsection 5.2.3.1 reveals the correlations between some student variables and service quality constructs without considering the interaction effects of the variables. The associations of constructs with variation to those student characteristics measured by nominal type items are presented in

subsections 5.2.3.2 and 5.2.3.3. The interaction effects among the correlates are treated when the structural model test and analysis of causal relations or effect are computed using AMOS in subsections 5.2.4.2 and 5.2.4.3.

5.2.3.1 Correlations between some student characteristics variables and service quality constructs

In this section the analysis examines how student variables are related to the students' perceptions of the four service quality constructs. In this regard, Table 5.19 presents the correlation among eleven background and non-background student characteristics variables and with four service quality constructs. The result revealed that prior information from formal sources about the services of different universities, prior information students had about the services of their own university from formal and informal sources, information about their own university from formal and informal sources after admission have statistically significant positive but weak relation with the four service quality constructs at $p<.05$ (Lodico et al., 2010).

Similarly, class attendance, participation in different campus activities, and students' goal orientation also have statistically significant positive but weak or slight relation with the four service quality constructs at .05 alpha level (Lodico et al., 2010). University CGPA was another background variable that had statistically significant but negligible positive relation with perceived service quality ($r = .062$, $p<.05$), perceived gain ($r = .053$, $p<.05$) and loyalty ($r = .077$, $p<.05$). Although CGPA had a positive relation with satisfaction, it was not statistically significant at $p < .05$.

Table 5.19

Pearson correlation among student characteristics variables and with service quality constructs

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Year of study	1														
2	Entrance score	.079**	1													
3	University CGPA	-.078**	.471**	1												
4	Prior info. Srv. Dif. Un. from formal	-.092**	-.068*	.005	1											
5	Prior info. Srv. own. Un. from formal	-.086**	-.052	.036	.551**	1										
6	Prior info. Srv. own. Un. informal before joining	-.045	.033	.112**	.157**	.223**	1									
7	Info. Srv. own. Un. Orientation prog.	-.124**	.014	.079**	.186**	.178**	.126**	1								
8	Prior info. Srv. own. Un. informal after joining	.010	.095**	.094**	.105**	.124**	.254**	.261**	1							
9	Class attendance	-.019	.050	.100**	.009	.009	.098**	.149**	.106**	1						
10	Participation in campus activities	.149**	-.145**	-.059*	.141**	.179**	.036	.029	.104**	-.052	1					
11	Goal orientation	-.094**	.151**	.129**	-.060*	-.056*	.089**	.061*	.078**	.254**	-.171**	1				
12	PSERVQAUL	**-.088****	**-.023**	**.062***	**.197****	**.204****	**.193****	**.262****	**.235****	**.113****	**.158****	**.072****	1			
13	SATISFACTON	**-.161****	**-.019**	**.049**	**.131****	**.136****	**.160****	**.209****	**.213****	**.084****	**.115****	**.085****	.683**	1		
14	PGAIN	**-.007**	**.034**	**.053***	**.088****	**.092****	**.161****	**.170****	**.132****	**.162****	**.086****	**.196****	.492**	.455**	1	
15	LOYALTY	**-.100****	**-.035**	**.077****	**.166****	**.211****	**.198****	**.234****	**.219****	**.124****	**.151****	**.099****	.646**	.592**	.483**	1

**. Correlation is significant at the 0.01 level (2-tailed), *. Correlation is significant at the 0.05 level (2-tailed), N=1412

Keys

4. Prior information about services of different universities from formal sources

5. Prior Information about the services of own university from formal sources

6. Prior Information about the services of own university from word of mouth

7. Information about services of own university from orientation programmes

8. Information about services of own university from word of mouth after joining

Year of study on the contrary has a statistically significant but weak negative relation with perceived service quality (r = -.088), satisfaction (r = -.161) and loyalty (r = -.100) at p<.05, but its negative relation with perceived gain was not statistically significant at p < .05. The next sub-section presents the associations between some of the student related variables with the service quality constructs.

5.2.3.2 Independent t-test for gender, residence, exposure and value to service quality

As specified in section 4.5.2 of chapter four, independent sample t-tests were computed to examine whether differences in gender, residence, prior exposure to universities, values/criteria students used during university selection resulted in differences in the students' perception of the four service quality constructs. The next sub-sections present the independent t-test results of the four service quality constructs by the four dichotomous student variables.

5.2.3.2.1 Differences in service quality constructs by gender

Table 5.20
Independent sample t-test for mean differences between male and female students in their perception of the four service quality constructs (equal variance assumed)

Construct	Gender	Mean	Mean difference	t	Sig. (2-tailed)
Perceived service quality	Male	228.63			
	Female	228.33	.306	.088	.930
Satisfaction	Male	7.53			
	Female	7.69	-.164	-1.068	.286
Perceived gains	Male	41.18			
	Female	41.24	-.055	-.093	.926
Loyalty	Male	19.86			
	Female	19.77	.085	.225	.822

N (Male) = 1053, N (Female) =359, df = 1410, *P<.05 (2-tailed)

The result in Table 5.20 revealed that there were no statistically significant mean differences between male and female students in their perception of perceived service quality (t = .088, p = .930), satisfaction (t = -1.068, p = .286), perceived gain (t = -.093, p = .926) and loyalty (t = .225, p = .822) with df = 1410.

5.2.3.2.2 Differences in service quality constructs by residence

Table 5.21
Independent sample t-test for mean differences between urban and rural students in their perception of service quality constructs

Construct	Residence	Mean	Mean difference	t	Sig. (2-tailed)
Perceived service quality	Urban	228.14			
	Rural	229.85	-1.702	-.482	.630
Satisfaction	Urban	7.58			
	Rural	7.54	.042	.273	.785
Perceived gains	Urban	41.45			
	Rural	40.41	1.036	1.708	.088
Loyalty	Urban	19.80			
	Rural	19.94	-.141	-.367	.714

N (Urban) = 1069, N (Rural) =343, df = 1410, *P<.05

Residence was another background variable examined for its potential contribution to the difference in the perception of students to service quality constructs (see sections 2.8 and 3.6). The result obtained from independent t-test presented in Table 5.21 revealed that there were no statistically significant mean differences between students coming from urban and rural areas on their perception of the service quality constructs at p < .05 (Tabachnick & Fidell, 2013).

5.2.3.2.3 Differences in service quality constructs by prior exposure to universities

With regard to prior exposure to universities, the computed independent sample t-test result shown in Table 5.22 revealed that mean difference between students without exposure and those who have some exposure to universities on perceived service quality, satisfaction and loyalty were not statistically

significant at p < .05. However, the two groups had statistically significant mean difference (-1.133) on their perceived gain at t=-2.113, p=.035.

Table 5.22
Independent sample t-test for mean differences between students with no prior exposure and with exposure to universities in their perception of service quality constructs

Construct	Prior exposure to universities	Mean	Mean difference	t	Sig. (2-tailed)
Perceived service quality	With no exposure	227.71			
	With exposure	229.95	-2.240	-.717	.473
Satisfaction	With no exposure	7.58			
	With exposure	7.55	.035	.257	.797
Perceived gains	With no exposure	40.77			
	With exposure	41.90	-1.133	-2.113	.035*
Loyalty	With no exposure	19.58			
	With exposure	20.24	-.660	-1.944	.052

N (with no exposure) = 877, N (with exposure) =535, df = 1410, *P<.05

5.2.3.2.4 Differences in service quality constructs by value to service quality during university selection

Table 5.23 shows that the mean score of students who considered service quality as a criterion to choose universities significantly differ (-1.395) from those who used other criteria (like proximity, availability of programmes for study, weather conditions or peer suggestions). The t-test results show that differences between the two groups are evident only in perceived gain (t = -2.683, df = 1410 and p =.007), and not in relation to perceived service quality, satisfaction and loyalty (Tabachnick & Fidell, 2013).

Table 5.23

Independent sample t-test for mean differences between students with low value and high value to service quality during university selection on their perception of service quality constructs

Construct	Value to service quality during university selection	Mean	Mean difference	t	Sig. (2-tailed)
Perceived service quality	Low value	226.15			
	High value	230.79	-4.638	-1.531	.126
Satisfaction	Low value	7.51			
	High value	7.62	-.111	-.830	.407
Perceived gain	Low value	40.47			
	High value	41.87	-1.395	-2.683	.007*
Loyalty	Low value	19.64			
	High value	20.02	-.377	-1.144	.253

N (Low value) = 679, N (High value) =733, df = 1410, *P<.05

The next section deals with the analysis of variance for the remaining two student variables with three or more groups – students under the four programmes and three institutions.

5.2.3.3 ANOVA for programmes and institutions

As the literature analysed in chapter two suggests, perception of service quality constructs may be associated with the nature of the programme (See section 2.8). To examine this fact empirically, one way ANOVA was computed for the four programmes included in the study (see section 4.5.2). The result in section B1 of Appendix B revealed that students in the four programmes do have significant differences in their perception of perceived service quality (F=8.786, p=.000), gain (F = 6.409, p = .000) and satisfaction (F = 12.507, p = .000), but not to loyalty (F = 1.370, p = .250) (Tabachnick & Fidell, 2013).

Literature presented in chapter two also claims that service quality is likely to vary from institution to institution and must be studied at an institutional level (see section 2.8). With the intention of examining this claim empirically, one-way ANOVA was computed to see if there were mean differences among the three

institutions included in the study in terms of students' perception of perceived service quality, satisfaction, perceived gains and loyalty. The result (see section B2 of Appendix B) clearly indicated that there were statistically significant differences among the three institutions on the four service quality constructs at .05 alpha level (Tabachnick & Fidell, 2013).

Generally, from the analyses of the relationship between student variables and service quality constructs, it was found that among the 17 student variables treated only entrance exam score, gender and residence had no statistically significant relation or association with the four service quality constructs. Prior exposure to universities and students' value of service quality during university selection had statistically significant association only with perceived gain. The nature of programmes was also found to have significant association with all constructs but not with loyalty, whereas institution and all other student related variables had statistically significant association or relation with the four constructs of service quality.

Hence, in order to further examine the roles of student characteristics in the explanation of service quality in the HE context, those student-related variables which have significant correlation or association with at least one of the four constructs were included in the structural model fitting examination to determine their effect. The others which have no any significant relationship or association with the service quality constructs like entrance exam score, gender and residence were excluded from the structural model fitting process. The next sub-section deals with the structural model fit aspect of the study.

5.2.4 Structural model fit

One of the major objectives of this study was to examine how well the proposed structural model for service quality in PHE fit to the data. In other words, it examines the causal relationships among the observed and latent variables in the proposed service quality structural model. Statistically speaking, structural modelling or path analysis determines how much of the dependent variables in the model, both latent and observed, is accounted for by the independent variables. This again entails answering a series of questions related to the paths in the hypothesized structural model (stated under the path analysis section).

Informed with the conceptual framework in chapter three, considering the analysis in the measurement model and the relationships between the service constructs and student related characteristics analysed in

the previous sections, the researcher developed a structural model for service quality in HE using AMOS as shown in Figure 5.3.

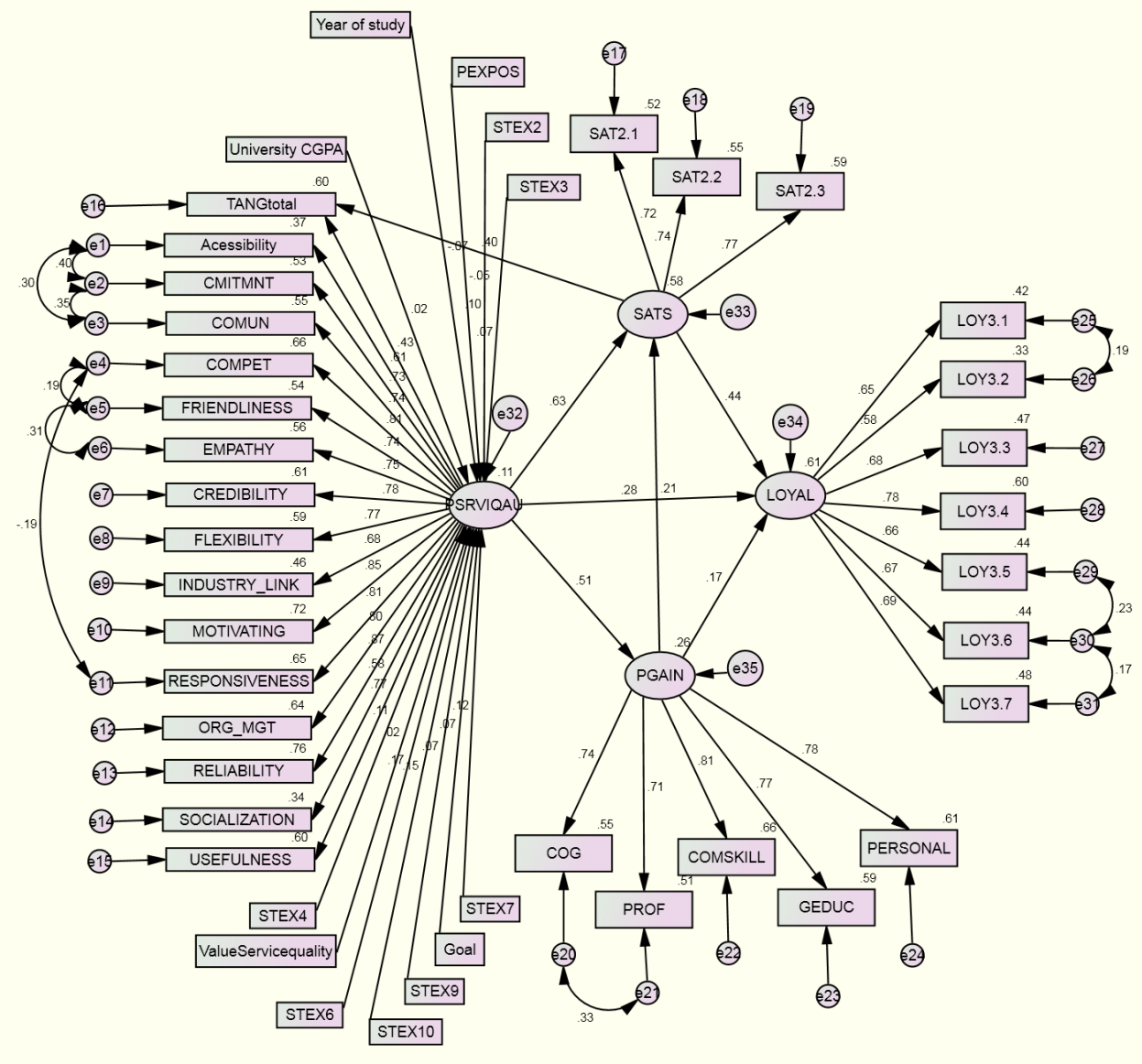

Figure 5.3. Initial hybrid of measurement and structural model for service quality

The model comprises of a hybrid of the measurement and structural model for the four service quality constructs and twelve student-related variables tested for their significant relation or association with service quality constructs. The student-related characteristics include: year of study (BG3), CGPA (BG7), prior exposure to universities (EXPOS), prior information about different universities from formal sources

(STEX2), prior information about own institution from formal sources (STEX3), prior information about own institution from informal sources (STEX4), information about own institution from orientation programmes (STEX6), information about own institution from informal sources after joining the institution (STEX7), student's goal orientation (Goal), Class attendance (STEX9) and participation in campus student activities (STEX10). Analysing the structural model requires first checking multivariate assumptions, analysing the model fit and then carrying out the path analysis (Byrne, 2010; Kline, 2011; Ullman, 2013).

5.2.4.1 Multivariate assumptions

The multivariate assumptions of linearity and multicollinearity of relations in the structural model were examined. To test the assumption of linearity, curve estimation was done for the six relationships among the latent factors and 12 relationships among the student characteristics and perceived service quality (Kline, 2011). The results show that all the relationships were sufficiently linear to be tested using a covariance based structural modelling algorism. Sixteen linear regression analyses were carried out among sixteen variables (four latent and twelve student characteristics variables) to test multicollinearity. The analysis involved running 16 linear regressions for 15 independent variables taking the 16^{th} variable as a dependent variable. The variance inflation factor (VIF) values of all sixteen regressions were less than three. That means, no multicollinearity is evident among all the observed and latent variables in the structural model as the VIF values are far below 10 (Kline, 2011).

5.2.4.2 Model fit

Following tests of multivariate assumptions, structural equation modelling analysis was carried out using AMOS 18 to test the service quality structural model fit to the data. The results in Table 5.24 revealed that all the fit indices (GFI = .867, CFI = .899 and RMSEA = .051, p = 086) except the relative chi-square (CMIN/DF= 4.717) didn't satisfy the threshold values for a good model fit. That means the proposed model fits the data poorly.

Table 5.24

Summary of selected AMOS outputs for fit indices of the initial service quality structural model

Criteria	Obtained values	Threshold
Relative chi-square CMIN/DF	4.717	<5
GFI (Goodness of fit)	.867	>.90
CFI (Comparative fit index)	.899	>.90
RMSEA, PCLOSE	.051, .086	<.05 , >.50

Two measures were taken to improve the model fitting. First, paths with nonsignificant regression coefficient at .05 level (or -1.96 < C.R. < 1.96) were excluded from the model (Byrne, 2010).

Table 5.25

Selected AMOS output of unstandardized and standardized estimates for the initial structural model

			Estimate	S.E.	C.R.	P	Standardized estimate
PSERVQAUL	<---	BG3	-0.139	0.054	-2.563	0.01	-0.068
PSERVQAUL	**<---**	**BG7**	**0.165**	**0.194**	**0.849**	**0.396**	**0.022**
PSERVQAUL	**<---**	**EXPOSE**	**-0.319**	**0.167**	**-1.917**	**0.055**	**-0.051**
PSERVQAUL	<---	STEX2	0.44	0.145	3.032	0.002	0.095
PSERVQAUL	<---	STEX3	0.31	0.145	2.146	0.032	0.068
PSERVQAUL	<---	STEX4	0.279	0.073	3.829	***	0.106
PSERVQAUL	**<---**	**ValueS.quality**	**0.144**	**0.158**	**0.911**	**0.362**	**0.024**
PSERVQAUL	<---	STEX6	0.825	0.138	5.964	***	0.166
PSERVQAUL	<---	STEX10	0.432	0.08	5.419	***	0.148
PSERVQAUL	<---	STEX9	0.227	0.094	2.415	0.016	0.065
PSERVQAUL	<---	Goal	0.217	0.09	2.413	0.016	0.066
PSERVQAUL	<---	STEX7	0.34	0.077	4.422	***	0.123
PGAIN	<---	PSERVQAUL	0.469	0.026	17.747	***	0.514
SAT	<---	PSERVQAUL	0.145	0.008	18.919	***	0.634
SAT	<---	PGAIN	0.053	0.007	7.085	***	0.21
LOYALTY	<---	SAT	0.498	0.053	9.339	***	0.441
LOYALTY	<---	PGAIN	0.048	0.008	5.783	***	0.17
LOYALTY	<---	PSERVQAUL	0.072	0.01	7.093	***	0.28

As shown in Table 5.25 the paths with nonsignificant regression coefficients were: CGPA (BG7), prior exposure to universities (EXPOS) and value to service quality. After deleting those paths, the analysis was re-run to examine the changes in fit indices of the modified model. Unfortunately, only CFI = .905 was

improved while the others declined from the previous result (CMIN/DF = 5.060, GFI = .870, 05 and RMSEA = .054, p = 000). This entailed taking the second measure, i.e., using modification indices (M.I.) to further re-specify the model (Byrne, 2010).

Table 5.26
Modification indices of the structural model after excluding the paths with nonsignificant regression coefficients

			M.I.	Par Change
Covariances: (Structural model)				
STEX9	**<-->**	**Goal**	**91.136**	**.208**
STEX10	**<-->**	**Goal**	**41.344**	**-.167**
STEX6	**<-->**	**STEX7**	**96.484**	**.177**
STEX6	<-->	STEX9	31.364	.080
STEX4	**<-->**	**STEX7**	**91.068**	**.324**
STEX3	<-->	STEX10	45.319	.126
STEX3	<-->	STEX6	44.742	.073
STEX3	<-->	STEX4	69.981	.173
STEX2	<-->	STEX6	48.667	.075
STEX2	<-->	STEX4	34.690	.120
STEX2	**<-->**	**STEX3**	**428.471**	**.244**
BG3	<-->	STEX10	31.425	.233
e35	<-->	Goal	41.513	.421
e33	<-->	BG3	33.710	-.132
e12	<-->	e17	32.708	.226
e15	<-->	e35	38.522	1.129
e16	<-->	e14	30.445	2.594
e16	<-->	e15	53.257	3.613
Variances: (structural model)				
			M.I.	Par Change
Regression Weights: (structural model)				
			M.I.	Par Change
PGAIN	**<---**	**Goal**	**41.513**	**.485**
SAT	**<---**	**BG3**	**33.710**	**-.059**
SAT2.1	<---	COG	40.759	.049
COMPET	<---	CMITMNT	30.020	.098
USEFULNESS	<---	COG	35.717	.163

The M.I. indices shown in Table 5.26 indicate covariances with large M.I. indices (STEX2**<-->**STEX3, STEX6**<-->**STEX7**,** STEX9<-->Goal, STEX4<-->STEX7 and STEX10<--> Goal) that need to be considered in the re-specification process. Such variables pertaining to student characteristics were set to

covary/correlate freely one after the other by carefully observing the magnitude of M.I. at each stage and the meaningfulness of the correlations.

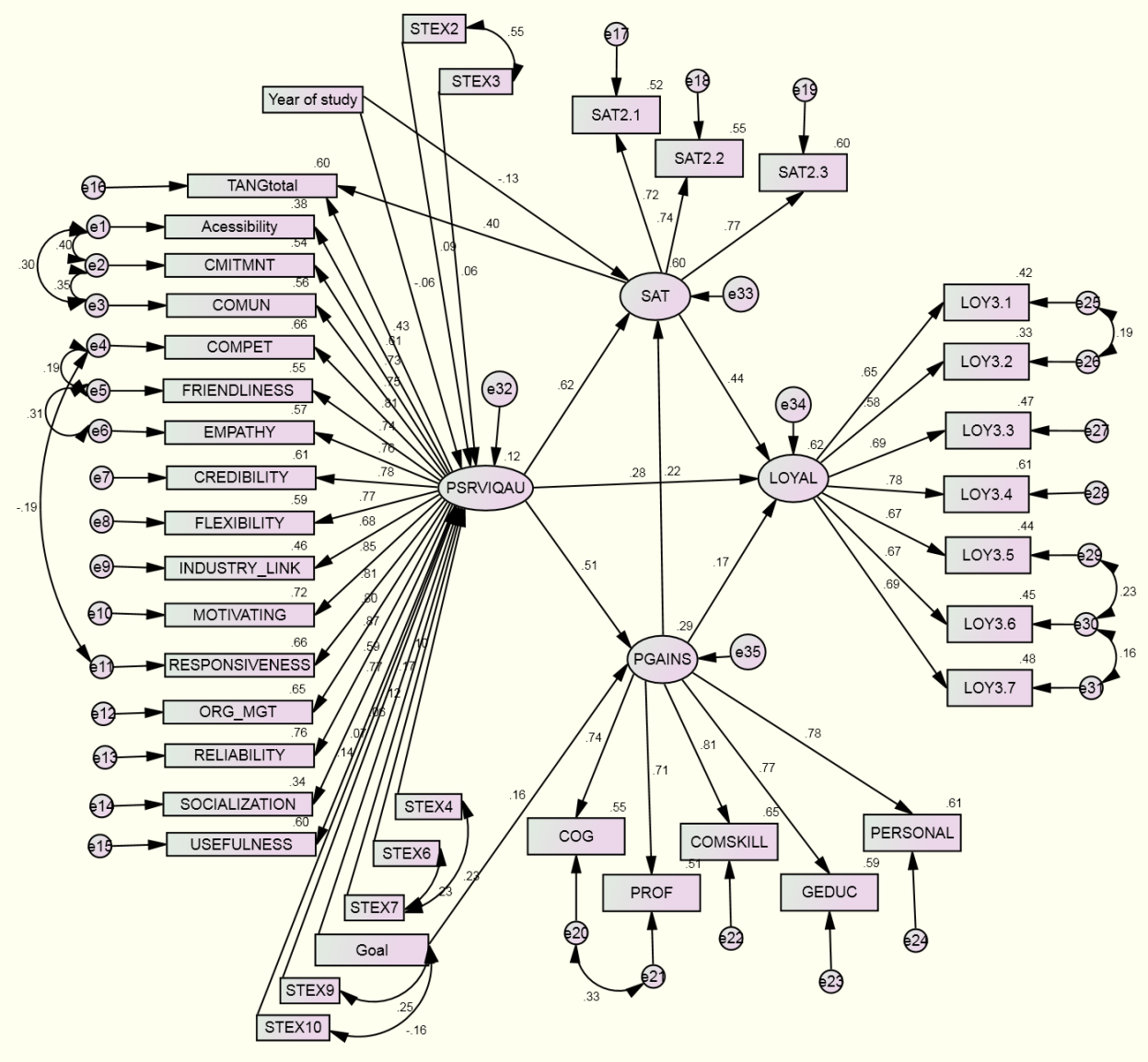

Figure 5.4. Re-specified hybrid of measurement and structural model for service quality

For example, the correlation between STEX2 and STEX3 is logical because it implies that an increase in the amount of information students get from formal sources about different universities results in an increase in the amount of information the students can have about their own institution from similar sources. Similarly, it is logical to see a strong correlation between the type of information a student may get from informal sources about the specific university before (STEX4) and after (STEX7) joining the institution.

Table 5.27
Summary of selected AMOS outputs for model fit indices of the re-specified service quality structural model

Criteria	Obtained values	Threshold
Relative chi-square CMIN/DF	3.856	<5
GFI (Goodness of fit)	.901	>.90
CFI (Comparative fit index)	.934	>.90
RMSEA, PCLOSE	.045, 1.000	<.05 , >.50

Following the re-specification, the indices of the final or re-specified structural model were improved to an acceptable level (CMIN/DF=3.856, GFI=.901, CFI = .934 and RMSEA = .045, p=1.000) as shown in Table 5.27. The standardized estimates coefficients shown in Table 5.28 also confirmed that all the path coefficients in the re-specified model are significant at p < .05 level. The path coefficients common to the initial and re-specified models have very minimal differences that fall below .0081. This minimal difference implies that the re-specification has not brought a major change in the data.

Generally, the final structural model is valid enough to explain the hypothesized structural factors or causal relationships between and among the observed and latent factors in the model. The following sub-section provides details about the causal relations between the independent and dependent varaibles in the final/re-specified model.

Table 5.28
Selected AMOS outputs for unstandardized and standardized regression weights of the re-specified service quality structural model

			Unstandardized				Standardized
			Estimate	S.E.	C.R.	P	Estimate
PSERVQAUL	<---	STEX2	.410	.145	2.834	.005	.088
PSERVQAUL	<---	STEX3	.291	.144	2.014	.044	.063
PSERVQAUL	<---	STEX10	.416	.079	5.238	***	.142
PSERVQAUL	<---	STEX9	.237	.094	2.514	.012	.067
PSERVQAUL	<---	STEX7	.349	.077	4.532	***	.124
PSERVQAUL	<---	STEX6	.837	.138	6.047	***	.167
PSERVQAUL	<---	STEX4	.274	.073	3.779	***	.103
PSERVQAUL	<---	Goal	.196	.089	2.188	.029	.059
PSERVQAUL	<---	BG3	-.127	.054	-2.334	.020	-.062
PGAIN	<---	PSERVQAUL	.458	.026	17.595	***	.506

			Unstandardized				Standardized
			Estimate	S.E.	C.R.	P	Estimate
PGAIN	<---	Goal	.488	.075	6.496	***	.163
SAT	<---	PSERVQAUL	.142	.008	18.712	***	.622
SAT	<---	PGAIN	.055	.007	7.450	***	.218
SAT	<---	BG3	-.060	.010	-5.843	***	-.128
LOYALTY	<---	SAT	.498	.053	9.433	***	.442
LOYALTY	<---	PGAIN	.048	.008	5.807	***	.170
LOYALTY	<---	PSERVQAUL	.072	.010	7.113	***	.280

5.2.4.3 Path analysis/causal relations

After confirming the model fit, the researcher analysed the direct, indirect and total effects of the independent variables on the dependent variables in the re-specified structural model to examine how much of the variance in the dependent variables, both latent and observed, is accounted for by the independent variables (Kline, 2011; Ullman, 2013). In other words, the path analysis answers the following research questions: (RQ4.1) Does PSERVQAL have a direct effect on loyalty, satisfaction and perceived gain? (RQ4.2) Does PSERVQAL have an effect on loyalty mediated by satisfaction and perceived gain? (RQ4.3) Does satisfaction have a direct effect on loyalty? (RQ4.4) Does perceived gain have a direct effect on satisfaction and loyalty? (RQ4.5) Does perceived gain have an effect on loyalty mediated by satisfaction? And (RQ 4.6) do background and other student characteristics have an effect (direct and indirect) on PSERVIQUAL, satisfaction, perceived gain and loyalty? The following sub-sections provide answers to these questions.

5.2.4.3.1 Direct effect

As dipicted in Figure 5.4 and Table 5.29 the paths from PSERVQAL to: SAT (β =.62, p<.05), PGAIN (β =*.51*, p<.05*)* and LOYALTY *(*β =*.28,* p<.05 *)* have higher and positive path/regression coffiecents indicating that PSERVQAL significantly predicts SAT, PGAIN and LOYALTY (Kline, 2011; Ullman, 2013). The path coefficeint also indicates that perceived service quality has a stronger direct effect on satisfaction and perceived gain than loyalty.

The path coefficient from PGAIN to SAT (β =.22, p<.05) also confirms that when students' perceived gain is high, they tend to have higher satisfaction. The paths that link satisfaction and perceived gain to loyality (β =.45, p<.05 and β =.17, p<.05 respectively) indicate that both satisfaction and perceived gain that resulted from greater perceived service quality are significant pridictors of loyalty (Kline, 2011; Ullman, 2013). Compared to perceived gain, satisfaction has a relatively stronger effect on loyalty.

With regard to the paths from student related factors to service quality constructs, the respective β coefficients show that prior information about universities from formal sources (STEX2) (β = 0.09), prior information about own institution from formal sources (STEX3) (β =0.06), prior information about own institution from informal sources (STEX4) (β = 0.10), information about own institution from orientation programmes (STEX6) (β = 0.17), information about own institutions from informal sources after joining the institution (STEX7) (β = 0.12), student's goal orientation (Goal) (β = 0.06), class attendance (STEX9) (β = 0.07) and participation in campus activities (STEX10) (β = 0.14) had a direct positive predictive power on perceived service quality (PSERVQAUL) at .05 sig level (Kline, 2011; Ullman, 2013).

Table 5.29

Summary of direct, indirect and total effects of background and other student factors on PSERVQAUL, PGAIN, SAT and LOYALTY

Effect		BG3	STEX2	STEX3	STEX4	STEX6	STEX7	Goal	STEX9	STEX10	PSERVQAUL	PGAIN	SAT	LOYALTY
Direct	PSERVQAUL	-0.062*	0.088*	0.063*	0.103*	0.167*	0.124*	0.059*	0.067*	0.142*	...	...	...	...
	PGAIN	...	...	...	...	...	...	0.163*	...	...	0.506*	...	...	...
	SAT	-0.128*	...	...	...	...	...	...	...	...	0.622*	0.218*	...	...
	LOYALTY	...	...	...	...	...	...	...	...	...	0.28*	0.17*	.442*	...
Indirect	PSERVQAUL	...	...	...	...	...	...	...	...	...	...	...	...	...
	PGAIN	-.0.031*	0.044*	0.032*	0.052*	0.084*	0.063*	0.03*	0.034*	0.072*	...	...	...	...
	SAT	-0.045*	0.064*	0.046*	0.075*	0.122*	0.091*	0.079*	0.049*	0.104*	0.11*	...	...	...
	LOYALTY	-0.099*	0.061*	0.044*	0.071*	0.115*	0.086*	0.084*	0.047*	0.098*	0.409*	0.096*	...	...
											(0.430*)**			
Total	PSERVQAUL	-0.062*	0.088*	0.063*	0.103*	0.167*	0.124*	0.059*	0.067*	0.142*	...	...	...	...
	PGAIN	-0.031*	0.044*	0.032*	0.052*	0.084*	0.063*	0.193*	0.034*	0.072*	0.506*	...	...	...
	SAT	**-0.173***	0.064*	0.046*	0.075*	0.122*	0.091*	0.079*	0.049*	0.104*	**0.732***	0.218*	...	...
	LOYALTY	-0.099*	0.061*	0.044*	0.071*	0.115*	0.086*	0.084*	0.047*	0.098*	0.69*	**0.266***	0.442*	...
R^2											.12	.29	.60	.62

* Sig. at p<.05 level (two tailed), ** Is the indirect effect of PSERVQAL on LOYALTY when the path from PGAIN to SAT is removed

Keys:

BG3: Year of study

STEX2: prior information about universities from formal sources

STEX3: prior information about own institution from formal sources

STEX4: prior information about own institution from informal sources

STEX6: information about own institution from orientation programmes

STEX7: information about own institution from informal sources after joining the institution

STEX9: class attendance

STEX10: participation in campus activities

On the other hand, the result in Figure 5.4 and Table 5.29 revealed that years of study had significant but negative (β = -0.06) direct effect on perceived service quality at .05 sig. level. Year of study (BG3) also had a negative direct effect on satisfaction (β = -0.128) at .05 sig. level. Goal orientation (β = 0.163) is another factor that had positive predictive power on PGAIN at .05 sig. level (Kline, 2011; Ullman, 2013).

The reported R^2 values for perceived service quality, satisfaction, perceived gain and loyalty in the final model clearly convey that the nine student characteristics (one background and eight non-background variables) altogether predicted only 12% of the variance in perceived service quality (Kline, 2011). Similarly, 60% of the varience in students' satisfaction is acounted for by perceived service quality, perceived gain and years of study (Kline, 2011). Perceived service quality together with goal orientation explains 29% of the variance in perceived gain. Percieved service quality, satisfaction and perceived gain altogether predict 62% of the variance in loyalty (Kline, 2011). The next sub-section also examines the indirect effects of independent varaibles on the dependenat varaibles involved in the structural model.

5.2.4.3.2 Indirect effects

The structural model dipicted that satisfaction and perceived gain mediate the relationship between percieved service quality and loyalty. Perceived gain also mediates percieved service quality and satisfaction. Satisfaction in turn mediates perceived gain and loyalty. The effects of these mediating variables and their significance level were evaluated using tests of indirect effect and bootstrap respectively (Byrne, 2010; Kline, 2011; Loehlin, 2004).

The result presented in Table 5.29 shows that perceived gain serves as a mediating latent factor between perceived service quality and satisfaction with a standardized coefficient of .011, $p<.05$ (Kline, 2011). The standardized indirect effect coefficeint of perceived service quality on loyalty through the mediation of both satisfaction and perceived gain was 0.41, $p<.05$ (Kline, 2011). Similarly, the standardized indirect effect coefficient of perceived gain on loyalty mediated through satisfaction was 0.10, $p<.05$ (Kline, 2011).

The indirect effects of the student characteristics was also a point of interest in the path analysis. As indicated in Table 5.29, all the student background and non-background variables included in the model had a significant indirect effect on perceived gain mediated by perceived service quality at .05 level. Except for year of study (with significant negative indirect effect -0.03, p<.05) the rest had a significant positive indirect effect ranging from .03 to .08 standardized coefficients at p<.05. Perceived service quality also served as a mediating latent factor between the nine student characteristics and satisfaction with standardized coefficient ranging from -0.05 to 0.12 at .05 level (Kline, 2011).

Perceived service quality also served as a mediator factor between the nine student characteristics and loyalty with some exception to year of study and goal orientation. Year of study had a significant indirect effect on loyalty mediated by both perceived service quality and satisfaction with the standardized coefficient of -0.10 at .05 sig level. Goal orientation also predicted loyalty indirectly mediated by PSRVIQAU and PGAIN with a standardized coefficient of 0.08 at 05 sig. level. The other seven student characteristics had an indirect effect on loyalty mediated through PSRVIQAU only. Their standardized coefficients ranged from .04 to .12 at .05 sig. level (Kline, 2011). The sum of direct and indirect effects gives the total effect of independent variables on the dependent variables (Kline, 2011; Ullman, 2013). This is examined in the next sub-section.

5.2.4.3.3 Total effect

As a result of the significant positive effects, the mediating latant factors had on the causal relationship between the indepepndant and dependant latent factors, the standardized total effect of PSERVQAL on SAT (.73, p<.05), PSERVQAL on LOYALTY (.69, p<.05), PGAIN on LOYALTY (.27. p<.05) had shown increments in the magnitude of the effects.

Of the nine student characteristics only two, i.e., year of study and goal orientation, had shown greater total effects on the dependent variables than the direct and indirect effects. For instance, the total effect of year of study on SAT increased to -.17, p<.05 with the mediator PSERVQAL than the direct (-.13) or indirect (-.04) effect. Goal orientation also had a stronger total effect on PGAIN (.19, p<.05) when mediated through PSERVQAL than its direct (.16) or indirect (.03) effect. Hence,

the mediators discussed above made a significant contribution to the observed total effects (Kline, 2011; Ullman, 2013). The effects of student background characteritics such as programme and institution on the structural model – mulit-group moderation - are examined in the next sub-section.

5.2.4.3.4 Multi-group moderation

Group differences in regression coefficients of the paths in the structural model were the other concern in this study. These were intended to see the effects of nominal type student related variables on the four service quality constructs. As it has been reported in section 5.4.2, programmes and institutions were found to have some association with the service constructs while gender and residence had no significant associations. Based on this finding, the analysis of group differences for regression coefficients was delimited to respondents from different programmes and institutions. The unstandardized regression coefficients of groups were compared using "stats tool" that involves z-test to determine significant path differences in the structural model between groups (http://statwiki.kolobkreations.com/index.php?title=Main_Page).

As the result in Section D1 of appendix D shows, the z-values of almost all the paths from the student characteristics variables to perceived service quality, satisfaction and perceived gain for students grouped under six pairs of programmes (Psych vs. Econ, Psych vs. Medicine, Psych vs. Engineering, Econ. vs. medicine, Econ vs. Engineering, Medicine vs. Engineering) indicated that there were no significant differences between students in the six pairs of programmes except the path from goal orientation to perceived service quality. While the effect of goal orientation on perceived service quality is non-significant for Psychology students (-.081, $p = .789$), it was found to be significant and greater for Engineering students (.602, $p < .05$) at $z = 2.013$, $p < .05$ (Kline, 2011; Palma & Sepe, 2016).

The result also clearly revealed that there were no statistically significant differences in the regression coefficients of all paths involving the four latent variables between Psychology and Economics, Psychology and Medicine, Psychology and Engineering, Economics and Engineering students. Significant differences in some paths of the latent factors were observed between Economics and Engineering as well as between Medicine and Engineering students. For instance,

the effect of satisfaction on loyalty is significant and stronger among the Economics students (.956) than Engineering students (.324) at $z = 3.296$, $p < .05$. On the contrary, the effect of perceived service quality on loyalty is significant and stronger among Engineering students (.108, $p < .05$) than Economics students (-.007, $p = .808$) at $z = 3.511$, $p < .05$ (Kline, 2011; Palma & Sepe, 2016).

Significant differences in the effects of perceived service quality on satisfaction, satisfaction on loyalty and perceived service quality on loyalty were also observed between Medicine and Engineering students. As the effect size indicates, the effect of perceived service quality on satisfaction was stronger among Medicine students (.159) than Engineering students (.123) at $z = -1.988$, $p < .05$. Moreover, the effect of satisfaction on loyalty was found to be stronger among Medicine students (.583) than Engineering students (.324) at $z = -2.158$, $p < .05$. On the contrary, the effect of perceived service quality on loyalty was found to be stronger among Engineering students (.108) than Medicine students (.045) at $z = 2.603$, $p < .05$ (Kline, 2011; Palma & Sepe, 2016).

Differences in the regression coefficients of the paths in the structural model were also examined by comparing three pairs of institutions as well (University 1 vs. University 2, University 2 vs. University 3, and University 1 vs. University 3). The result in Section D2 of Appendix D revealed that the effect size of all the paths from student characteristics variables to the respective latent factors had no significant difference between the three pairs of institutions except the path: STEX6 ---> PSERVQAL. For this path, the information students obtained about the services of own institution from orientation programmes (STEX6) had no significant effect on perceived service quality (.038, $p = .731$) among University 2 students while it was significant and strong (.472, $p < .05$) among University 1 students at $z = 2.245$, $p < .05$ (Palma & Sepe, 2016). Significant differences between University 2 students and University 1 students were observed in five paths. For instance, the effects of perceived service quality on perceived gains and on loyalty as well as the effect of perceived gain on satisfaction were stronger among University 2 students than University 1 students. On the other hand, the effect of perceived service quality on satisfaction was found to be stronger among University 1 students than University 2 students. The same holds true for the effect of satisfaction on loyalty.

The comparison between University 2 and University 3 also revealed differences in two paths. The effect of satisfaction on loyalty (.627, $p < .05$) was found to be stronger among University 3 students than those in University 2 (.279, $p < .05$) at $z = 2.947$, $p < .05$. On the other hand, the effect of perceived service quality on loyalty was stronger among University 2 students (.117, $p<.05$) than University 3 students (.047, $p < .05$) at $z = 2.873$, $p < .05$. University 1 and University 3 differ only in one path -- PSERVIQUAL ---> PGAINs, i.e., the effect of perceived service quality on perceived gains is stronger among University 3 students (.509) than University 1 students (.365) at $z = 2.368$, $p < .05$ (Kline, 2011; Palma & Sepe, 2016).

After the analysis of the causal relationships among the variable and constructs of the structural model the researcher examined the current status of service quality in EPHE to answer the final research question (RQ5). The following section presents the findings in this regard.

5.2.5 Status of service quality in Ethiopian Public Higher Education

One sample t-test was computed for each dimension of the service quality constructs to examine the current status of service quality in EPHEIs.

The results in Table 5.30 revealed that the mean scores of all the dimensions of perceived service quality were less than the respective test values. The respective negative mean differences and t-values of these dimensions confirm that the obtained mean was significantly lower than the test values at .05 alpha level and df =1411 (Cohen et al., 2007; Tabachnick, & Fidell, 2013). This is to mean that students perceived that EPHE institutions were providing service in all dimensions to a little extent or not at all.

On the contrary, the mean scores of perceived gain dimensions were higher than the respective test values. The positive mean differences and t-values convey that the observed mean scores were significantly greater than the test values at .05 alpha level, df =1411, except the mean score of general knowledge. Although the mean difference of general knowledge was positive, it was not statistically significant ($t = 1.213$, $p = .062$ and $df = 1411$) (Cohen et al., 2007; Tabachnick, & Fidell,

2013). The result implies that students perceived at least some extent of gain in cognitive, professional, communication, general knowledge and personal/social skills developments.

Table 5.30
Summary of one sample t-test for the dimensions of service quality constructs

Dimensions	Mean	Std.	Test value	mean difference	t	Sig. (2-tailed)
Perceived service quality						
Accessibility	9.50	3.31	12	-2.461	-27.939*	0.000
Commitment	15.36	4.79	18	-2.644	-20.741*	0.000
Communication	12.79	4.2	15	-2.214	-19.802*	0.000
Competence	18.97	5.42	21	-2.030	-14.061*	0.000
Friendliness	9.50	3.56	12	-2.461	-26.380*	0.000
Empathy	9.63	3.43	12	-2.366	-25.935*	0.000
Credibility	17.05	4.97	18	-0.949	-7.176*	0.000
Flexibility	7.54	2.62	9	-1.465	-21.036*	0.000
Industry link	7.08	2.90	9	-1.925	-24.962*	0.000
Motivating	15.28	4.92	18	-2.724	-20.805*	0.000
Responsiveness	7.23	2.62	9	-1.769	-25.338*	0.000
Organization & management	10.82	3.35	12	-1.183	-13.288*	0.000
Reliability	26.45	7.63	30	-3.547	-17.474*	0.000
Socialization	8.13	3.03	9	-0.868	-10.752*	0.000
Usefulness	13.73	4.03	15	-1.270	-11.829*	0.000
Tangibles Total	39.47	11.07	45	-5.532	-18.784*	0.000
Perceived gain						
Cognitive gain	9.58	2.55	9	0.578	8.525*	0.000
Professional preparedness	6.31	1.86	6	0.307	6.201*	0.000
Communication skills	6.05	1.91	6	0.047	0.932*	0.000
General Knowledge	**6.06**	**1.91**	**6**	**0.062**	**1.213**	**0.062**
Personal/social skills	13.20	3.57	12	1.202	12.642*	0.000
Satisfaction						
Satisfaction to academic services	2.59	0.98	3	-0.405	-15.607*	0.000
Satisfaction to admin services	2.42	0.98	3	-0.582	-22.302*	0.000
Overall satisfaction	2.56	1.02	3	-0.441	-16.309*	0.000
Loyalty	19.83	6.19	21	-1.165	-7.069*	0.000

N=1412, df = 1411, *Sig. <.05

The mean scores of the three dimensions of satisfaction were again less than the respective test values. The negative mean difference and t-values indicated that the difference is statistically significant at .05 alpha level and df = 1411. The result implies that students are dissatisfied with the academic, support and overall services of the EPHE institutions. The mean score of loyalty was

also found to be significantly less than the test value (t = -7.069, df = 1411) at .05 alpha (Cohen et al., 2007; Tabachnick, & Fidell, 2013) implying that students are disloyal to the EPHE institutions.

Thus, most of the service providers of EPHE institutions are providing academic and support service far below students' expectations. They render services only to a little extent or not at all. As a result, students are dissatisfied with the academic, support and overall services. This in turn resulted in disloyalty to the institutions. Despite such poor performances in the three constructs, students perceived that they have developed in their cognitive ability, professional preparedness, communication skills, general knowledge and personal/social skills.

The following section interprets and discusses the findings presented in the qualitative and quantitative sections above.

5.3 DATA INTERPRETATION AND DISCUSSION OF FINDINGS

Developing the measurement instrument and a structural model of service quality were two major purposes of this study. To attain these two purposes the following five main research questions were formulated based on evidence from literature analysis.

- RQ1: What are the dimensions of students' perceived service quality, satisfaction, perceived gain and loyalty in the higher education (HE) context?
- RQ2: How well does a four-factor measurement model with a simple structure (each variable loading on one latent factor) fit the data?
    - RQ2.1: Is the measurement model invariant to two or more groups of students (gender, residence, programme, institution)?
- RQ3: Do students' background and other characteristics have significant relation or association with perceived service quality, satisfaction, perceived gain, and loyalty?
- RQ4: How well does the proposed structural model fit to the data and how many of the dependent variables in the structural model, both latent and observed, are accounted for by the independent variables?

- RQ4.1: Does perceived service quality have a direct effect on loyalty, satisfaction, and perceived gain?
- RQ4.2: Does perceived service quality have an effect on loyalty mediated by satisfaction and perceived gain?
- RQ4.3: Does satisfaction have a direct effect on loyalty?
- RQ4.4: Does perceived gain have a direct effect on satisfaction and loyalty?
- RQ4.5: Does perceived gain have an effect on loyalty mediated by satisfaction?
- RQ4.6: Do demographic and non-demographic student characteristics have an effect (direct and indirect) on perceived service quality, satisfaction, perceived gain, and loyalty?
- RQ4.7: Do two or more groups differ in their regression coefficients of the paths in the structural model?

- RQ5: To what extent does EPHE provide quality services to students?

The previous section presented the empirical evidence out of the analyses of qualitative and qualitative data to answer the research questions. In this section, the findings for each research question are interpreted and discussed compared to the literature reviewed in chapters two and three, more recent works of different researchers as well as the researcher's experiences. The interpretation and discussion start with the dimensions of service quality constructs.

5.3.1 Dimensions of the four service quality constructs

The literature reviewed in sections 2.4 through 2.7 indicated different suggestions about the dimensions of service quality constructs. This reality informed this study to explore context specific and culturally appropriate dimensions that could be used to measure service quality in the context of HE in general and in EPHE in particular. Accordingly, RQ1 was formulated in search of these dimensions. The dimensions identified with the respective service quality constructs are discussed in the following sub-sections based on the findings obtained from the qualitative and quantitative data analyses.

5.3.1.1 Dimensions of perceived service quality

The qualitative study result presented in sub-sections 5.2.2.1.1 revealed 17 dimensions of perceived service quality. The finding from the quantitative study (see sub-sections 5.2.2.2.1 and 5.2.2.2.2) verified the results obtained from the qualitative study in that similar number and type of perceived service quality dimensions were identified except the reduction of a dimension – safety and security - and some attributes from different dimensions. Thus, results in this study revealed a total of 16 dimensions of perceived service quality construct. Each dimension consisted of three to fifteen attributes from both academic and support services.

Analysis of the psychometric property for the attributes of the respective dimensions presented in sub-sections 5.2.2.2.2 confirmed that 15 of the 16 dimensions were found to be single component factors with eigenvalues exceeding the minimum threshold 1. The attributes in the dimensions were heavily loaded on the respective dimensions accounting for more than 50% of the variance in the respective dimensions. The reliability indices of each dimension were greater than the minimum threshold $\alpha > .65$ (Lodico, Spaulding, & Voegtle, 2010).

Of the dimensions of perceived service quality, tangibles was the only dimension that had two components named: accessibility of tangibles and appropriateness of tangibles. Appropriateness of tangibles accounted for 45% of the total variance in students' perception of tangibles whereas accessibility contributed only 7% of the variance in tangibles with eigenvalues greater than 1 at alpha <.05 level. The two components together accounted for about 52% of the variance in students' perception of tangibles. This finding indicated that students consider both accessibility and appropriateness of tangibles in their perception of the physical aspect of the service - tangibles. Students are conveying the message that the physical facilities, materials and equipment used to undertake the education and support services should be available in an adequate number or size and in an appropriate organisation and quality. This concern might have emanated from the realities in EPHE institutions. Given the rapid expansions and associated increase in student number, concern for both accessibility and appropriateness of tangibles seems a solid fact that worth consideration in the provision of services in PHE.

Generally, the findings from the qualitative and quantitative data analyses evidenced that perceived service quality can be measured using 16 dimensions. These findings are consistent with the review of perceived service quality dimensions synthesized in chapter two (section 2.4) except safety and security, and cost. Although safety and security was identified as a dimension of perceived service quality in the qualitative phase, it was dropped in the quantitative phase for it had an inter-item correlation less than the threshold .2 (Pallant, 2007). It means the items of safety and security had no consistency with the items of the other perceived service quality dimensions.

Cost was not identified as a dimension of perceived service quality right from the qualitative stage of the study. It seems that students in EPHE had no concern with the cost of services. This may be due to the fact that public universities in Ethiopia deliver services to undergraduate regular students covering the tuition and accommodation costs. Though students enter into cost-sharing arrangements that demand them to cover part of their education expenses, they are compelled to pay back after employment, not during the study years. This might have relieved students from cost-related pressures. Consequently, cost as an aspect of service quality seems less important to students.

Viewed from the different aspects of services discussed in section 2.3, the findings of this study also revealed that students in the EPHE context described perceived service quality in terms of sensual or core, psychological and physical aspects (Douglas et al., 2006; Edvardsson, 1998). The sensual aspect refers to: such dimensions as accessibility of service providers, commitment of service providers, adequacy and timely release of information about the services rendered (communication). In addition, it contains dimensions like competence of service providers in delivering the service, credibility or acceptability of service providers by students, flexibility in time and procedures of service provision, the exposures and opportunities the service providers created for students to link academic activities with industries (industry-link) so as to help students develop real-life experiences, and provide services in a way that inspires students (motivation). The sensual aspect of perceived service quality also extends to incorporate dimensions such as reliability of services, dependability of service providers, responsiveness to the students' needs and queries, organisation and management of the service delivery, and usefulness of the services to students' needs.

The psychological aspect of perceived service quality identified from the study includes: the service providers' understanding or empathetic handling of students' concerns and problems, the socializing activities that support students to adjust to the new academic and campus life expectations, and the friendly approach and respect service providers show to students. The nature of these dimensions reflect that students consider the treatment, handling and care they received from the service providers during the service production process in addition to the core services to examine and judge the service quality.

The context in which the services are provided is the third aspect of service quality and refers to the physical and administrative routines and procedural issues (Evardsson, 1998). In this study, however, the physical aspect has got more attention and reported than accessibility and appropriateness of facilities, materials, and equipment necessary to provide academic and support services. This reality conveys the importance of the physical context at which the services are produced in the perception of service quality.

Generally, the findings show that perceived service quality is a multi-dimensional construct described in terms of the 16 dimensions discussed above. In other words, the students' perception of HE services is dependent on the institution's performance on 16 dimensions that address the core, psychological and the physical aspects. The measurement model reported in sub-section 5.2.2.3 also confirmed that the 16 dimensions are valid constructs of perceived service quality with strong loadings ranging from .44 (Tangibles) to .88 (Reliability) at $p < .05$. This means that the identified 16 dimensions are relevant factors used to measure the perceived service quality construct with acceptable convergent validity.

5.3.1.2 Dimensions of satisfaction

With regard to the dimensions of satisfaction the findings from the qualitative phase (see sub-section 5.2.2.1.2) concurred with the findings of the quantitative phase (see sections 5.2.2.2.1 and 5.2.2.2.2). Both phases revealed three dimensions of the satisfaction construct. These are satisfaction with the academic service, satisfaction with the support service and satisfaction with the entire institution's service. The psychometric properties of the three dimensions of satisfaction

also prove that they have acceptable inter-item correlation ranging between r = .551 and r = .556. The result of principal component analysis also confirmed that the three dimensions heavily loaded on one factor – satisfaction - and accounted for about 71% of the variance in satisfaction with eigenvalue greater than 1. The reliability of the subscale was also found to be .797 and thus it satisfied both the internal consistency and construct validity criteria (see section 5.2.3.1). The result implies that the satisfaction construct can be measured using the three dimensions that have strong convergent validity.

However, the re-specification of the measurement model required a new regression path from tangibles to satisfaction to fit the data (see section 5.2.2.3). That means tangibles are shared with satisfaction and perceived service quality constructs. This cross-loading implies that the satisfaction construct could have included satisfaction with tangibles as its fourth dimension. Consistent with this finding Ahmed and Masud (2014) reported a positive, significant and direct influence of tangibles on overall student satisfaction. Hence, the satisfaction construct would have been considered as a four dimension construct involving satisfaction with (1) academic services, (2) support services, (3) tangibles and (4) institution-wide services. The multi-dimensional nature of satisfaction is also reported in the works of Boshoff and Gray (2004), and Jones and Suh (2000). Boshoff and Gray (2004) suggest that since overall satisfaction considers all encounters and experiences with the services in the organisation, it is likely to be multidimensional in nature. Jones and Suh (2000) commend the use of both encounter levels and overall satisfaction if the purpose of the research is to determine both the level of satisfaction and predict the subsequent outcomes like loyalty (see chapter two, section 2.5).

5.3.1.3 Dimensions of perceived gain

The findings of the dimensions of perceived gain were found to be consistent in both qualitative (sub-section 5.2.2.1.3) and quantitative (sub-sections 5.2.2.1 and 5.2.2.2) phases. Analysis of the psychometric properties of the attributes of the perceived gain construct showed that perceived gain is a five factor or multi-dimensional construct composed of perceived improvements in (1) cognitive developments, (2) professional knowledge and skills, (3) communication skills, (4) general knowledge and (5) personal/social skills. The confirmatory factor analysis reported in sub-

section 5.2.2.2.3 clearly revealed that the five factors explained about 76% of the variance in perceived gain and had the reliability indices above .700. Surprisingly, developments in personal/social skills were found to have the biggest contribution (51%) to the variance in perceived gain. The other four dimensions contributed only 25% of the variance. This finding seems to favour the claim that HE institutions make a strong contribution to the students' holistic development in addition to academic and professional competencies (Brennan et al., 2010; Ory and Braskamp, 1988).

The measurement model fit test (see section 5.2.2.3) also verified that the identified five dimensions are structurally valid constructs of perceived gain with strong loadings at alpha < .05 level. That means the identified five dimensions are reliable and valid components to measure and explain perceived gain. In a HE context, students value cognitive developments, professional preparedness, communication skills, acquisition of general knowledge and developments in personal/social skills as outcomes of exposure to different services in public universities. These dimensions have also been used by different researchers (Dilnesaw, 2007; Pike & Kuh, 2005; Tam, 2006) to measure perceived gain although they were not as comprehensive as is the case in this study. The next sub-section deals with the dimensions of loyalty.

5.3.1.4 Dimensions of loyalty

Like the constructs discussed earlier, the qualitative study was carried out first to explore context specific dimensions of loyalty. At this stage (see section 5.2.2.1.4) two dimensions - behavioural action and behavioural intention - were identified consistent with the theoretical base discussed in section 2.7. However, the result in the quantitative phase (see sections 5.2.2.2.2.4) explained loyalty as a single dimension construct. Despite the reduction in the number of dimensions, the attributes representing the single dimension construct were from both behavioural actions and behavioural intentions.

The factor analysis result in Table 5.10 revealed that seven attributes of behavioural actions and behavioural intentions had loadings ranging from .681 to .792. The attributes contributed to about 55% of the variance in students' loyalty to their institution with the eigenvalue greater than 1 at

alpha <.05 level. The reliability analysis of the loyalty subscale (α=.863) also indicates that the subscale had strong internal consistency. Hence, the seven attributes were found to be internally consistent and structurally valid measures of loyalty (Byrne, 2010, Ullman, 2013).

The attributes address students' commitments to reuse services, communications of positive words of mouth, recommending the university to others, tolerating minor problems, and defending the university from wrong perceptions. The attributes also refer to students' intent to continue their studies in the same university, remain in touch with the university after graduation and contribute willingly to the university. These attributes are similar to the suggestions of Douglas et al. (2008), Fisher (2001), Lin and Tsai (2008), Ehigie and Taylor (2009), and Yu and Kim (2008) discussed in chapter two, section 2.7. Although the specific attributes identified to measure loyalty were consistent with pervious works reported above, the finding in this study is inconsistent with the theoretical discussions presented in section 2.7 for it has been reduced to a one-dimensional factor instead of having two dimensions. The reason for the deviation could largely be attributed to the differences in context or the items used to measure loyalty.

The discussions made so far highlight the dimensions or attributes that can be used to measure the four service quality constructs. Still, the question "do the identified dimensions or attributes exclusively measure the respective constructs?" remains. This question paves the way to the discussion of analysis results on the measurement model fit and model invariance.

5.3.2 Measurement model fit and model invariance

The discussion in the earlier sub-sections focused on identifying the dimensions of the four service quality constructs. The proposed measurement framework of service quality in chapter two, section 2.9 explains service quality as a four-factor model with some relationships, not as sharply distinct constructs. Informed by the theoretical discussions in chapter two, a four-construct measurement model was hypothesized using AMOS (see Figure 5.1). After checking the normality and multicollinearity concerns, confirmatory factor analysis was run using the maximum likelihood estimation method through AMOS 18 (see section 5.2.2.3) to test the measurement model fit or answer RQ2.

As the result Table 5.13 shows that three of the four fit indices of the initial measurement model fall below the threshold (relative chi-square (CMIN/DF) = 6.715, GFI =.865, CFI = .916, RMSEA = .064 with p=.000). Thus, the initial measurement model failed to fit the data. Following the recommendation of Byrne (2010), a two-step re-specification measure was taken to explore an alternative model that fits the data. First, the error terms of dimensions or items that had similar meanings and high M.I. values were set to covary freely. Second, a regression path from tangibles to satisfaction was drawn because the tangibles dimension cross-loads on both satisfaction and perceived service quality constructs (see Figure 5.2). Following the re-specifications, the fit indices (see Table 5.16) were improved to an acceptable level (CMIN/DF =4.398, GFI =.915, CFI = .951, and RMSEA = .049 and PCLOSE = .743.) and an alternative measurement model that fits the data was identified.

The computed maximum likelihood estimates for regression weights and standardized regression weights for the paths in the re-specified model (see Table 5.17) confirmed two things. One, the predictive power of all latent variables on the respective dimensions of observed variables was significant at the 0.05 level (two-tailed). The second is that the standard regression weights that ranged from .40 to .88 indicate that the loadings of each latent factor on the respective dimensions or observed variables were relatively high, suggesting convergent validity of the instrument (Byrne, 2010; Ullman, 2013). These two observations confirmed that the identified four-factor measurement model has constructs with structurally valid dimensions or attributes that can exclusively measure the respective constructs withstanding the possible relationships among the four constructs (Byrne, 2010; Ullman, 2013).

The covariances/correlations among the latent factors presented in Table 5.18 also showed that there were significant and strong correlations among the four latent factors but they did not exceed .85. This makes the model free from multicollinearity concerns (Kline, 2011). Such strong correlations free from multicollinearity issues imply that there is a substantial non-redundant relationship among the constructs of service quality and that lays the foundation to examine possible causal relations among the latent factors (Kline, 2011; Lodico, Spaulding & Voegtle, 2010). Thus, the re-specified measurement model is an acceptable one that fits the data. It can generate valid measurement data that can be generalized to the population of the study. This verifies the

construct validity of the instrument (Byrne, 2010) used to measure service quality in the EPHE context.

The acceptable measurement model was further tested for its invariance to different groups of participants – gender, residence, programmes, and institutions (RQ 2.1). The result shows that the model remains invariant for female and male students, urban and rural students, between programmes and between institutions (see sections C1 and C2 of Appendix C). It means there were no significant differences between the different groups at .05 alpha level for at least one of the paths from the latent variables to the respective dimensions or items in the re-specified measurement model (Byrne, 2010). Hence, the re-specified measurement model is invariant to those groups of respondents. This verifies the cross-validation of the instrument (Byrne, 2010).

In general, the measurement model analysis resulted in a valid service quality measurement model that fits the data well after the re-specification. Hence, service quality in EPHE can be measured using the four constructs specified in the conceptual framework with some modifications made in the re-specified model (see Figure 5.2). Stated differently, service quality in HE is a four-factor model with each factor having some dimensions or observed variables identified and discussed in the previous section. Most of these findings are in conformity with the expectations hypothesized in section 2.9.

5.3.3 Correlations or associations between student characteristics and service quality constructs

Based on the assumption that students have a stake in the service production process, the structural model of service quality hypothesized in chapter three (sections 3.7 and 3.8) considers student characteristics (background and non-background) as an important aspect in the study of PHE service quality. The description of the characteristics of respondents presented in sub-sections 5.2.1.2.1 and 5.2.1.2.2 also confirmed that students had a range of background and non-background characteristic differences. This entails examination of the influences of student variables on the perception of service quality constructs. Thus, this study first analysed the

correlation between the students' characteristics and the four service quality constructs (RQ3) and latter examined the effects of the student characteristics on the service quality constructs (RQ 4.6).

As shown in Table 5.19 in sub-section 5.2.3.1, Pearson correlation was computed for 11 of the 17 student variables. The result revealed that five of the 11 student variables that deal with the type and extent of information students had about the services of universities in general, their own university and a programme of study in particular have a statistically significant but weak relation with the four service quality constructs at $p < .05$. That means the more adequate and positive information students have about universities, the higher will be their perception to service quality, satisfaction, perceived gain and loyalty (Lodico et al., 2010).

These findings are consistent with theoretically set expectations discussed in sections 2.8.1 and 2.8.2. The two sections clearly revealed that students' perception of service quality, satisfaction, gain and loyalty were influenced by the extent and type of information they had about the university and the study programmes. The works of different researchers concur with the findings in this study, mainly with the correlation between information variables and perceived service quality. For instance, Jo Kealy and Rockel (1987) claim that information from advertisements and word of mouth have a positive influence on the students' perception of college quality. Prugsamatz, Pentecost and Ofstad (2006) also reported that advertising, word of mouth and prior experience are the most influential factors in shaping customers' expectations and thereby determining their perceptions of service quality. A more recent work of Sultan and Wong (2013) states that information is one of the key issues that plays a vital role in forming perception of service quality.

The results also affirm that the correlations are stronger for the information students had after joining the institution than that obtained prior to enrolment. This means that more concrete and realistic information has a stronger relation to students' perception of the four service quality constructs.

The other two student variables that have a statistically significant positive but weak relation with the four constructs were class attendance and participation in different campus activities at $p < .05$. The result indicated that the more students attend class regularly or participate in campus activities

the higher is their perception of the four service quality constructs (Lodico et al., 2010). Consistent with this finding, Burns and Ludlow (2006) reported that regular class attendance is a statistically significant predictor of high rating in service quality. Reflecting on the contribution of participation in campus activities, Tam (2002) also noted that students' involvement in entertainment, student union, sport and recreation, campus residence and socialization services contributed to the perceived holistic gains.

Goal orientation or students' value of their learning was the eighth student variable found to have statistically significant positive but weak relation with the four service quality constructs at $p < .05$. That means those students who are concerned with mastering the subject matter show higher perception of the four service quality constructs than those with the aim just to finish or with no clear goal orientation (Lodico et al., 2010). This finding agrees with the idea of Nakashima, Putro, Mulyono and Takeshi (2010). Nakashima et al. (2010) contend that customers' perception of the factors of service quality vary by their values or life orientations.

University CGPA was the ninth background variable that had statistically significant but negligible positive relation with perceived service quality ($r = .062$, $p < .05$), perceived gain ($r = .053$, $p < .05$) and loyalty ($r = .077$, $p<.05$), but not with satisfaction. That means students with higher CGPA had higher perceived service quality, higher perceived gain and stronger loyalty (Lodico et al., 2010). However, higher CGPA is not a guarantee of students' satisfaction with the university services. This finding is inconsistent with the work of Onwuegbuzie et al. (2007) presented in sub-section 2.8.1.2 that revealed GPA as a factor that has no significant relation with perceived service quality. The inconsistency could be attributed to differences in the composition of participants involved or differences in the items used to measure the four service quality constructs.

Surprisingly, year of study was found to have a statistically significant but weak negative relation with perceived service quality ($r = -.088$), satisfaction ($r = -.161$) and loyalty ($r = -.100$) at $p < .05$. The correlation between year of study and perceived gain was also negative but not significant at $p < .05$. That means students' perception of the three service quality constructs declines with their seniority (Lodico et al., 2010). As suggested by Pike (2006), this could happen for the reason that students have modified their service expectations as they stay longer in the university and that

might have resulted in a decline in the perception of service quality, satisfaction and loyalty. Contrary to this reality, however, Pancer, Hunsberger, Pratt and Alisat (2000) reported a positive significant relationship between year of study and service expectations that have a key role in the perception of the service quality constructs. Kontic (2014, p. 65) also supported the later idea when she stated “the students' perceptions of service quality elements change over a period of study”. Her findings show that seniority has a significant influence on students’ perceived service quality. Kontic’s study, however, didn’t address the relationship of year of study with the other three service quality constructs.

Of the student characteristics variables examined, it is only students’ entrance exam score that had no statistically significant relation with all service quality constructs. This result, however, contradicts the work of Kuh, Kinzie, Buckley, Bridges and Hayek (n.d.) which claim that students with high academic secondary school performance have high expectations of university activities which, in turn, influences their perception of service quality.

As presented in section 5.2.3.2, gender, residence, exposure to universities and value to service quality during university selection were four student variables coded or recoded as dichotomous variables. Independent sample t-tests were computed to examine whether there are differences in the four constructs associated with differences in the four student variables. The result in Table 5.20 revealed that there were no statistically significant mean differences between male and female students in their perception of perceived service quality ($t = .088$, $p = .930$), satisfaction ($t = -1.068$, $p = .286$), perceived gains ($t = -.093$, $p = .926$) and loyalty ($t = .225$, $p = .822$) with $df = 1410$. In other words, being a male or female student didn’t result in significant differences in their perception of service quality constructs. This implies that both male and female students had similar perception for the four service quality constructs (Tabachnick, & Fidell, 2013). This finding corroborates with the work of Nora, Cabrera, Hagedom, and Pascarella (1996). They reported that boys and girls are similar in the factors that affect their persistence or loyalty.

However, there are many researchers who reported otherwise (Junn & Fuller, 1996; Li et al., 1999; Onwuegbuzie et al., 2007; Yousapronpaiboon, 2013). For example, Onwuegbuzie et al. (2007) identified gender as one of the demographic variables found to play a role in the prediction of

quality college teaching. For Yousapronpaiboon (2013), there were relatively significant differences between gender groups on the perceptions of service quality. The work of Junn and Fuller (1996) also reported that female students rated services more favourably than male students. Correspondingly, females were more satisfied with the service than males. Li et al. (1999) also reported a direct effect of gender on self-reported gain. Further research seems essential to justify the observed contradictions of findings in this regard.

Residence was another background characteristic discussed in sections 2.8 and 3.6 and was expected to have a certain effect on the students' perception of service quality constructs. As presented in Table 5.21, the computed independent t-test shows no statistically significant mean differences between students coming from urban and rural residences on their perception of the service quality constructs. That is, residence had no statistically significant association with the students' perception of the four service quality constructs (Tabachnick, & Fidell, 2013). Hence, both urban and rural students had a similar perception of perceived service quality, satisfaction, perceived gain and loyalty. This finding contradicts the work of Nakashima et al. (2010). They reported that customers' perception of the factors of service quality vary by their living place.

Similarly, the independent sample t-test result presented in Table 5.22 revealed that the mean differences between students who had prior exposure to universities and those who had not on their perception of the four service quality constructs were not statistically significant except that of perceived gain. The two groups had statistically significant mean difference (-1.133) on perceived gain at $t = -2.113$, $p < .035$. This implies that students who had no exposure to universities perceived that they gained little from the services compared to those who had the exposure (Tabachnick & Fidell, 2013). So exposure as a student-related variable showed some association only with perceived gain.

Despite students' difference in exposure to universities, they had similar perceptions of perceived service quality, satisfaction and loyalty. This finding contradicts the works of Trent and Johnson (1977), Webster (1991) and Prugsamatz, Pentecost and Ofstad (2006). These researchers reported that students' previous exposure to universities had a positive influence on their service quality expectations and perceptions. Sultan and Wong (2013) also reported prior experience as a

critical antecedent of service quality. Yet studies are scarce with regard to the relationship between exposure and other service quality constructs. The observed contradictions could be associated with context differences or that understanding services might require more than simple exposure to universities. So even if some students are exposed to universities, their exposure might not be that helpful to understand whether the services provided are positive and to set strong expectations that affect perceptions of the four service quality constructs.

Students who valued service quality as a criterion for selecting universities had a significantly higher mean score compared to those who had low value for the criterion for loyalty. The mean difference was – 1.395 at t = -2.683 and p < .007 (see Table 5.23). However, the two groups had no statistically significant mean differences for perceived service quality, satisfaction and perceived gain. Thus, students' value difference to service quality as a criterion for selecting universities had no any association with their perception of service quality constructs except loyalty (Tabachnick & Fidell, 2013).

The discussions in sections 2.8 and 3.6 proposed that the nature of programmes and the institution where students study can have some association with the perception of service quality constructs. The one way ANOVA analyses presented in sub-section 5.2.3.3 are the empirical evidence in response to the proposed claims. The result in Appendix B revealed that students in the four programmes do have significant differences in their perception of perceived service quality (F=8.786, p=.000), gains (F = 6.405, p = .000) and satisfaction (F = 12.507, p = .000), but not in loyalty (F = 1.370, p = .250) (Tabachnick & Fidell, 2013). Similarly, the computed one way ANOVA for the institutions shows that there were statistically significant differences among the three institutions on the four service quality constructs at .05 alpha level (Tabachnick & Fidell, 2013). Hence, the results more or less imply that students' perception of the four service quality constructs have some associations with programme and institution differences. These findings seem to be consistent with the proposed arguments presented in sections 2.8 and 3.6.

Generally, from the analyses of the relationship and association between student variables and service quality constructs, it was found that among the 17 student variables, only entrance exam score, gender and residence had no statistically significant relation or association with the four

service quality constructs. Prior exposure to universities and students' value to service quality as a criterion to university selection had statistically significant association only with perceived gain and loyalty respectively. The nature of programmes was also found to have significant association with all constructs but not with loyalty, whereas institution and all the rest of the student-related variables had statistically significant association or relation with the four constructs of service quality. Hence, it seems possible to infer from this that most of the student characteristics presented in this section are consistent with the claim that students' perception of service quality constructs are influenced by variations in their background as well as non-background variables.

Thus, in order to further examine the effect of student characteristics on the explanation of service quality in the HE context, those student-related variables which have significant relation or association with at least one of the four constructs were included in the structural model (RQ 4.6). The others which have no significant relationship or association with the service quality constructs like entrance exam score, gender and residence were excluded from the structural model fitting process. The details are presented next.

5.3.4 Structural model fit and causal relations

5.3.4.1 Structural model fit

The second major objective of this study was to test the analytically proposed conceptual framework for service quality fit to the data in the EPHE context. After constructing a hybrid measurement and structural model (see Figure 5.3) and checking the multivariate assumptions (see section 5.2.4.1) structural equation modelling (SEM) was run using AMOS 18 to test the model fit and closely examine the causal relationships among the observed and latent variables in the proposed framework. The model fit result presented in Table 5.24 revealed that all the fit indices (GFI = .867, CFI = .899 and RMSEA = .051, p = 086) except the relative chi-square (CMIN/DF= 4.717) didn't satisfy the threshold values for a good model fit suggested by different authorities (Byrne, 2010; Loehlin, 2004; Schumacker & Lomax, 2004). This result implies that the proposed model fits the data poorly.

Based on Byrne's (2010) recommendations, a two-step further measure was taken to improve the model fit. First, paths with non-significant regression coefficient at .05 level (or -1.96 < C.R. < 1.96) were excluded from the model. Second, either the control variables were set to freely covary/correlate or a regression path was drawn from the control variables to the latent variables by carefully observing the M.I. values at each stage and the meaningfulness of the correlations. As a result of the first re-specification measure, the following three student variables: CGPA (BG7), prior exposure to universities (EXPOS) and value to service quality were excluded from the model for they had nonsignificant regression coefficients. On the basis of the second re-specification measure, the following five pairs of student variables: STEX2<-->STEX3, STEX6<-->STEX7**,** STEX9<-->Goal, STEX4<-->STEX7 and STEX10<-->Goal were allowed to freely covary/correlate because of high M.I. values and the meaningfulness of the correlations between the pairs. The re-specification process also involved drawing a regression path from goal orientation to perceived gain and from year of study (BG3) to satisfaction (See Figure 5.4).

Following the above re-specification measures, the indices of the re-specified structural model were improved to an acceptable level (CMIN/DF=3.856, GFI=.901, CFI = .934 and RMSEA = .045, p=1.000) (See Table 5.27). The CMIN/DF ratio (3.856) for the re-specified model satisfied the alternative chi-square index criterion suggested by Schumacker and Lomax (2004). This CMIN/DF ratio implies that the structural model tested for the sample is relatively the same as the model for the population and thus the re-specified structural model is retained. The GFI (.901) was slightly above the threshold and indicates that the re-specified model fits the sample data (Loehlin, 2004). The other relative fit indices (CFI = .934, and RMSEA = .045, p = 1.000) were well above the minimum threshold and testify that the re-specified model not only adequately described the sample data but also matches the model for the population (Byrne, 2010; Loehlin, 2004).

These goodness-of-fit indices suggest that the structure proposed as the conceptual framework of service quality in EPHE is well established after the re-specifications. Thus, the final structural model is valid enough to explain the causal relationships between and among the observed and latent factors in the model in the context of EPHE institutions. This result answers our RQ4 as expected with some respecifications. The respecifications, however, didn't bring major change to the data because the differences between the standardized coefficients of the paths common in the

initial (see Table 5.25) and re-specified structural models (see Table 5.28) were very negligible. All the differences fall below 0.0081. Thus, a four factor structural model with nine control variables is identified to explain service quality in EPHE. The causal relationships among the constructs and variables in the structural model are discussed in the next sub-section.

5.3.4.2 Causal relations

Path analysis was carried out using SEM to closely examine the causal relations between the independent variables and dependent variables in the re-specified structural model. The path analysis answers six sub-research questions extended from the structural model fit test (RQ 4).

The first sub-research question pertains to the direct effect of PSERVQUAL on satisfaction, perceived gain and loyalty (RQ 4.1). As depicted in Figure 5.4 and Table 5.29, the paths from PSERVQAL to: SAT (β =.62, p<.05), PGAIN (β =.*51*, p<.05*)* and LOYALTY *(*β =.*28,* p<.05*)* have higher and positive regression coefficients significant at p < .05 level. This result implies that PSERVQUAL significantly predicts SAT, PGAIN and LOYALTY. The result indicates that students with a higher perception of service quality were highly satisfied with the service provision, had higher perceived gain and exhibited stronger loyalty to the institution (Kline, 2011; Ullman, 2013). This finding is in the expected direction and consistent with the literature analysis presented in section 3.8. The findings of this study also corroborate with the works of different researchers. For instance, the works of Ali, Zhou, Hussain, Nair, and Ragavan (2016), Seng and Ling (2013), Sultan and Wong (2013), and Vajda, Farkas and Málovics (2015) reported a positive and direct effect of perceived service quality on satisfaction. They suggest that students' positive perception of service quality will lead to greater satisfaction. From the analysis of empirical evidence, Lapina, Roga and Müürsepp (2016, p. 270) also concluded that ". . . students' satisfaction with their study experience is mostly affected by the fact that the HEIs provide services and support." According to Tam (2012) and Zameer, Tara, Kausar and Mohsin (2015), customers' perceived service quality positively contributes to their perceived value/gain. Similarly, Butt and Aftab (2013), Kursunluoglu (2014), and Lonial and Raju (2015) reported that customers' perceived service quality has a strong impact on overall customer satisfaction and on customer loyalty. Thus, the findings of this study had sufficient support from studies carried out in different contexts.

The second sub-research question (RQ4.2) was set to examine the indirect effect of PSERVQAL on loyalty mediated by satisfaction and perceived gain. The result in Table 5.29 revealed that the standardized indirect effect coefficient of perceived service quality on loyalty through the mediation of both satisfaction and perceived gain was significant with effect size 0.41, p <. 05. The standardized indirect effect coefficient increased to .43, p< .05 when the path from PGAIN to SAT was removed. This finding implies that higher perceived service quality leads to higher satisfaction and perceived gain which, in turn, results in stronger loyalty (Kline, 2011; Ullman, 2013). Thus, the finding answers the second sub-research question (RQ4.2) and is in conformity with literature review presented in sections 3.6 and 3.8. A battery of researches carried out in the educational and business contexts concur with this finding. Most of the works, however, reported statistically significant relationship between customers' perceived service quality and loyalty mediated by customer satisfaction alone (Ali et al., 2016; Chodzaza & Gombachika, 2013; Edward & Sahadev, 2011; Lonial & Raju, 2015; Mustaffa, Hamid, Bing & Abdul Rahman, 2016; Tsoukatos & Rand, 2006). Tam (2012) was the only researcher who reported the moderating effect of perceived gain on the relationship between perceived service quality and loyalty as far as the knowledge of the researcher is concerned.

From the answers to the two sub-research questions it seems possible to infer that perceived service quality predicts satisfaction and perceived gain directly. Perceived service quality also predicts loyalty directly and mediated by satisfaction and perceived gain. Stated differently, the above findings suggest that when students have a more favourable perception of the academic and support services of HE institutions, the greater will be their overall satisfaction, perceived gain, and loyalty. Students' satisfaction with the physical facilities, academic, support and overall service as well as their perceived gains in cognitive, professional, communication, general knowledge and personal/social skills play a significant role in strengthening the effect of perceived service quality on loyalty.

The third sub-research question deals with the direct effect of satisfaction on loyalty (RQ4.3). The result in Table 5.29 proved that satisfaction has a significant direct positive effect (β = .44, p < .05) on loyalty. The finding implies that the higher the satisfaction of students with acacdemic and

support services the greater will be their loyalty to their institution (Kline, 2011; Ullman, 2013). The finding concurs with the literature analysis in section 3.5.1, the works of Sultan and Wong (2013), and Tam (2012). These researchers reported that satisfaction has a direct and causal relationship with loyalty. Students in HE develop stronger emotional bonds with the institution, desire to return to the institution for further study or reuse the services and are committed to promote (using WOM) and defend the institution if they are satisfied with the academic and support services as well as the physical facilities.

The direct effect of perceived gain on satisfaction and loyalty was the fourth sub-research question (RQ4.4) in the causal analysis of the structural model. The result presented in Table 5.29 revealed that perceived gain has a statistically significant positive effect on satisfaction ($\beta = 0.22$, $p < .05$) and loyalty ($\beta = 0.17$, $p < .05$) as expected. The result implies that higher perceived gain results in higher satisfaction with the services in HEIs and stronger loyalty to the institution (Kline, 2011; Ullman, 2013). The result concurs with the literature in sections 3.4 and 3.5 and the works of Pura (2005) and Tam (2012). Pura (2005) reported that perceived value or gain has a direct significant positive effect on loyalty. Tam (2012) also confirmed in her work that the higher the perceived value/gain, the greater the satisfaction and the stronger the loyalty of customers. When students perceived that they have gained a lot as a result of different engagements in the university, they tend to be more satisfied and become loyal to the institution.

The path from perceived gain to satisfaction to loyalty entails a consideration of the indirect effect of perceived gain on loyalty mediated by satisfaction. This refers to the fifth sub-research question (RQ 4.5). The result in Table 5.29 confirmed that perceived gain has statistically significant indirect effect ($\beta = 0.096$, $p < .05$) on loyalty mediated by satisfaction. This implies that the perceived higher gain resulted in greater satisfaction and that, in turn, resulted in stronger loyalty (Kline, 2011; Ullman, 2013). This mediation effect of satisfaction has improved the total predictive power of perceived gain on loyalty from $\beta = 0.17$ to $\beta = 0.27$ at $p < .05$ level. Thus, it is evident that both satisfaction and perceived gain are significant predictors of loyalty. The result is consistent with the researcher's expectation and literature analysis presented in section 3.5.2. As reported earlier, the work of Tam (2012) also concurs with this finding.

The answers to the above five sub-research questions purports that the four latent factors included in the conceptual framework or structural model of service quality have the anticpated causal relationships. The relationships verify that service quality is a concept that not only refer to students' judgement of performance against perceived service quality dimensions but also results in satisfaction with services, perceived gain and loyalty. The moderator latent factors also enhanced the causal relationships among the constructs captured in the structural model. The next paragraphs examine whether the established causal relationships among the service quality constructs are affected by the student-related variables.

The sixth sub-research question (RQ 4.6) in the structural model analysis was aimed at examining the effects of background and non-background student characteristics on the four service quality constructs. For the sake of clarity the results for RQ4.6 are discussed under the four service quality constructs as follows.

Effects of student characteristics on perceived service quality

With regard to the effects of student characteristics on perceived service quality, the results in Table 5.29 show that five student characteristics that deal with the adequacy and type of information (STEX2, STEX3, STEX4, STEX6, STEX7) had a direct positive predictive power on perceived service quality with effect size ranging from β =0.06 for STEX3 to β = 0.17 for STEX6 at $p < .05$. The result implies that the more adequate and favourable information students obtain from formal and informal sources about different universities and their own institution before and after joining a university, the higher is their perceived service quality (Kline, 2011; Ullman, 2013). Consistent with the findings in the correlation analysis (see sub-section 5.2.3.1), the effect size of the information variables indicate that information obtained after joining the university had a stronger effect than that obtained before joining the university. This finding corroborates with the review presented in sub-section 2.8.1.2, correlation analysis in sub-section 5.2.3.1 and the works of different researchers (Jo Kealy & Rockel, 1987; Prugsamatz et al., 2006; Sultan & Wong, 2013). These researchers reported a positive and significant relationship between information students had about the university and their perception of service quality.

The results in Table 5.29 also revealed that students' goal orientation (Goal) (β = 0.06), class attendance (STEX9) (β = 0.07) and participation in campus activities (STEX10) (β = 0.14) had a direct positive predictive power on perceived service quality (PSRVIQAU) at .05 sig level. The findings clearly imply that students who had mastery goal orientation, attended class regularly and participated in campus activities frequently tend to have high perceived service quality (Kline, 2011; Ullman, 2013). These findings agree with the literature review presented in section 3.7, the correlation analysis in section 5.2.3.1 and the works of different researcher (Burns & Ludlow, 2006; Jelena, n.d., Junn and Fuller, 1996; Nakashima, Putro, Mulyono and Takeshi, 2010). For instance, Nakashima et al. (2010) noted that customers' perception of service quality varies for differences in their values or life orientations. Jelena (n.d., p. 642) also claims that ". . . students who attend classes more often are able to give a more realistic estimate of the quality of educational services".

On the other hand, the result in Table 5.29 revealed that years of study had a significant but negative (β = -0.06) direct effect on perceived service quality at $p < .05$ level. That means the longer students stay in the university, the lower is their perceived service quality (Kline, 2011; Ullman, 2013). This finding is similar to the correlation analysis discussed earlier. The explanations provided for the correlation analysis also apply to the causal relations between year of study and perceived service quality too. Substantiating the explanations given in the correlation analysis, Gallifa and Batalle (2010, p. 168) reported that "final year students had clear, sometimes critical, perceptions and evaluations, and this allows . . . [service] deficiencies to be detected." Especially when the HE institutions are not service-oriented and do not periodically assess students' expectation and respond accordingly, there is a great chance for the institutions' services to be rated negatively with an increase in student maturity or seniority. Capitalizing on the maturity of students and its effect on service quality perception, Jelena (n.d.) reported that as compared to senior students, those at the lower years of study consistently express higher estimates of higher education quality in all service quality dimensions.

Generally, the reported R^2 value for perceived service quality in Table 5.29 made it clear that the nine student characteristics (one background and eight non-background variables) included in the final structural model predicted only 12% of the variance in perceived service quality. Chin, Peterson, and Brown (2008) classified the variables (control or latent) as substantial, moderate or

weak based on the R^2 values of 0.67, 0.33 or 0.19, respectively. In view of this classification the overall effect of student variables on perceived service quality is found weak even if it is statistically significant.

The effects of student characteristics on satisfaction

With regard to the effect of student characteristics on satisfaction, the result in Table 5.29 revealed that only year of study (BG3) had a significant negative direct effect on satisfaction (β = -0.128) and implies that senior students are less satisfied than the freshmen and the juniors. Year of study has also a significant negative indirect effect on satisfaction (β = -.045, $p < .05$) mediated through perceived service quality. This purports that those senior students had lower perceived service quality and it, in turn, resulted in lower satisfaction (Kline, 2011; Ullman, 2013). Since satisfaction is a positive correlate of perceived service quality, the explanation for the negative relationship between year of study and perceived service quality applies to the negative relationship between years of study and satisfaction too.

The other eight student variables have a significant indirect positive effect on satisfaction with effect size ranging from (β = .046 for STEX3) to (β = .122 for STEX6). Thus, students with adequate and favourable information about the services of universities and their own institution, mastery goal orientation, regular class attendance and high participation in different on-campus activities had higher perceived service quality and that, in turn, resulted in greater satisfaction with the university services (Kline, 2011; Ullman, 2013). This finding corroborates with the literature review presented in section 3.7 and the correlation analysis discussed in sub-section 5.2.3.1. Thus, perceived service quality plays a mediator role in the relationship between the student characteristics and satisfaction.

The effects of student characteristics on perceived gain

Goal orientation is the only student variable that has a significant positive direct effect (β = 0.163) on perceived gain and an indirect effect (β = 0.03) mediated through perceived service quality at $p < .05$ level. The result implies that goal orientation predicts perceived gain directly as well as mediated through perceived service quality. The other seven student variables had a significant indirect positive effect on perceived gain with effect size ranging from (β = .044, for STEX3) to (β

= .115, for STEX6). The results imply that the adequacy and favourableness of information students had about the services of universities and their own institution, regular class attendance and high participation in campus activities resulted in higher perception of service quality which, in turn, resulted in higher perceived gain (Kline, 2011; Ullman, 2013). These findings are consistent with the works of different authorities and researchers such as Feldman (1977), and Jo Kealy and Rockel (1987) reviewed in sub-section 2.8.2 and section 3.7. Particularly, the observed direct effect of goal orientation on perceived gain seems logical in that students with mastery orientation usually value the gains they can acquire from the education system more than those students with the aim just to finish or with no clear goal orientation. Thus, the more students become mastery goal oriented the higher will be their perceived gain.

Year of study also had a significant indirect but negative effect (β = - 0.031, $p < .05$) on perceived gain mediated through perceived service quality. This implies that senior students had a low perception of service quality and that, in turn, resulted in low perception of gain (Kline, 2011; Ullman, 2013). This finding concurs with the suggestion of Tam (2004). As stated earlier, Tam explained that students may make adjustments in their expectations with the passage of years in a university and that could have contributed to critical evaluation that lend itself to a low rating of perceived service quality and thereby resulting in low perceived gain.

The effects of student charactersitics on loyalty

All the nine student characteristics have an indirect effect on loyalty significant at $p < .05$ level. Seven of the nine student characteristics had a positive indirect effect on loyalty mediated through perceived service quality only. Their standardized coefficients ranged from .04 to .12 at $p < .05$ level implying that those students who had adequate and favourable information, attended classes regularly, and participated in campus activities had high perceived service quality and that, in turn, resulted in stronger loyalty (Kline, 2011; Ullman, 2013). These findings are in the expected direction and concur with the reviews presented in section 3.7 and the correlation analysis in sub-section 5.2.3.1.

Goal orientation also predicated loyalty indirectly mediated by both perceived service quality and perceived gain with the standardized coefficient 0.08 at $p < .05$ level. The result implies that

students with mastery goal orientation had higher perceived service quality and higher perceived gain which, in turn, resulted in stronger loyalty. Similarly, year of study had significant indirect and negative effect on loyalty mediated by both perceived service quality and satisfaction with the standardized coefficient of -0.10 at $p < .05$ level. This means that senior students had lower perceived service quality and lower satisfaction than those who are junior and freshmen and that led to weaker loyalty. The reasons discussed earlier in relation to year of study for the three constructs can serve to explain the observed negative indirect effect between year of study and loyalty.

In sum, the path analysis in the final structural model (Figure 5.4) reveals that loyalty is a second order outcome latent factor and that 62% of its variance is predicted by the joint effects of perceived service quality, satisfaction and perceived gain. Each of these predicator latent factors is also explained by some other control varaibles and latent factors. For instance, 60% of the variance in students' satisfaction is predicted by years of study, perceived service quality, and perceived gain. Similarly, 29% of the variance in perceived gain is predicted by goal orientation and perceived service quality. As reported earlier, the nine student variables also explain only 12% of the variance in perceived service quality.

Hence, the structural model fit and the path analysis confirmed that service quality can be conceptualized as a function of the four latent factors and nine student variables. Stated differently, service quality in the EPHE context is not delimited to the perceived performance of institutions against the perceived service quality dimensions. It should also be understood as a process that results in satisfaction, perceived gain and loyalty. Service quality constructs are influnced directly and/or indirectly by background and non-background characteristics of students such as: years of study, adequacy and type of information students had about universities and their own institution, goal orientation, class attendance and participation in on-campus activities. However, their influence is minimal.

Based on the recommendations from different researchers (e.g., Sultan & Wong, 2013) and the result of the analysis in sub-section 5.2.4, the researcher further carried out the multi-group analysis to test structural model invariance for different groups of students. This analysis examines

whether there are significant path coefficient differences between students in different programmes and institutions (RQ4.7). The method used to check these differences is “Stat tool”. The tool employes z-test or performs a permutation test or a randomization test that provides a non-parametric option to compare groups in terms of path coefficients (Palma & Sepe, 2016). The comparison of regression coefficients of paths in the structural model was carried out for students in six pairs of programmes and three pairs of institutions. The findings in sub-section 5.2.4.3.4 show that the nature of the programmes seems to make an inconsistent contribution to the effect size of the paths in the structural model because three of the six programme pairs do not show differences in path coefficients at all but the other three pairs (Psychology vs. Engineering, Economics vs. Engineering and Medicine vs. Engineering) indicated statistical differences in the coefficients of some paths in the model.

Similarly, institutions seem to contribute for variations in regression coefficients in some of the paths of the structural model although inconsistencies prevail. While the observed group differences make programmes and institutions important background variables that are worth attention in the study of service quality, the inconsistencies of group differences calls for further research. These two student characteristics increased the student variable affecting the causal relations in the re-specified structural model from nine to eleven.

Following the examination of causal relations of the variables in the structural model, the researcher evaluated the performance or status of institutions against the validated constructs of service quality and respective dimensions. The results of the evaluation of the service quality status are discussed in the following sub-section.

5.3.5 Status of service quality in Ethiopian Public Higher Education

One-sample t-tests were computed in response to the last research question (RQ5). For instance, the result in Table 5.30 revealed that the mean scores of all the dimensions of perceived service quality were less than the respective test values. The negative mean differences and respective t-values of all dimensions confirm that the obtained mean was significantly lower than the test values at .05 alpha level and df =1411. The result implies that the quality of academic and support

services provided to students by Ethiopian Public Universities was perceived far below the expected level of performance (Cohen et al., 2007; Tabachnick, & Fidell, 2013). This finding concurs with the works of different researchers (Çerri, 2012; Narang, 2012; Yousapronpaiboon, 2013). For example, Narang (2012) measured the perceived service quality of a management institute in India using EduQUAL instrument that had five dimensions. The finding pointed to a negative quality gap in all the dimensions. That means the institute provided services below the expectation of students. Yousapronpaiboon (2013, p. 1088) also measured higher education perceived service quality in Thailand using SRVQUAL five dimensions and found that "all scores for perception were lower than their expectation scores" implying that the status of service quality is below expectations.

It is only the work of Ljiljana Kontic (2014) that reported a moderate level of perceived service quality in Serbia HE. Such a lower or moderate level of performance of HEIs in the dimensions of perceived service quality could be attributed to different factors. One may be that the long standing tradition of an audit approach to quality assurance in HE systems has led institutions to focus on responding to the audit requirements rather than improving services based on students' expectations. The second reason could be that the service approach to quality assessment is a recent phenomenon in HE systems and institutions might have not shaped their services taking the service nature of education into account. The third reason may be the perception students had about the academic and support services was not properly attended to and shaped by the institutions so that the exaggerated expectations might have led to low performance perception.

A surprising finding of this study was the status of perceived gain dimensions. As shown in Table 5.30, the mean scores of perceived gain dimensions were higher than the respective test values. The positive mean differences and t-values convey that the observed mean scores were significantly greater than the test values at .05 alpha level, df =1411, except the mean score of general knowledge. Although the mean difference of general knowledge was positive, it was not statistically significant ($t = 1.213$, $p = .062$ and $df = 1411$). This implies that students in EPHE institutions perceived that they had gained some extent of general knowledge and a lot of cognitive development, professional preparedness, communication skills and personal/social skills (Cohen et al., 2007; Tabachnick, & Fidell, 2013) as a result of the academic and support services rendered in

the public universities. This result seems a paradox given the lower performance of the institutions in perceived service quality – a causal antecedent of perceived gain. One possible explanation for this result could be that students' perception of gain was determined in terms of achievements from their own independent efforts on the basis of their goal orientation in addition to those gains obtained from services students perceived as poorly provided.

The result in Table 5.30 also proved that the mean scores of the three dimensions of satisfaction were less than the respective test values. The negative mean difference and t-values indicated that the difference is statistically significant at .05 alpha level and df = 1411. It implies that students were slightly satisfied by the academic, administration and overall services rendered in the public universities (Cohen et al., 2007; Tabachnick, & Fidell, 2013). From the previous discussion of causal relations between perceived service quality and satisfaction it seems logical to see such lower satisfaction of students for EPHEIs with lower level of performance in perceived service quality.

As noted elsewhere, since there are possibilities of making adjustments in expectations as the students' years of study increases, the dissatisfaction with services are likely to occur if the service provisions were not improved accordingly. Perceived gain being another causal antecedent of satisfaction with weak effect, the observed high perceived gain in the EPHEIs might have increased the satisfaction level from no satisfaction level to the observed slightly satisfied level.

As shown in Table 5.30, the mean score of loyalty was also found to be significantly less than the test value (t = -7.069, df = 1411) at .05 alpha level which implies that students had little or no intention to be loyal to their institution (Cohen et al., 2007; Tabachnick, & Fidell, 2013). This means students had little or no intention to stay connected with the institution as alumni, contribute something to their institution after graduation, continue their further education in their institution, nor reuse some of the services provided. Students are not also committed to promote their institution by communicating positive words of mouth or defending it from unrealistic or wrong perceptions others have about the institution. This finding concurs with the works of Chodzaza & Gombachika (2013) although it was carried out in a different context. These authors reported that customers, in

the study, perceived service quality as poor and as a result they were dissatisfied and disloyal to a public service - electric utility. The next section strives to windup the main accounts of the chapter.

5.4 CONCLUSION

In general, the chapter presented pertinent empirical evidence that describes the characteristics of participants involved in the study and answered the research questions. The empirical evidence presented in sub-sections 5.2.1.1 and 5.2.1.2 confirmed that respondents vary in their background and non-background characteristics implying the need for close examination of the relationship or effects of such differences on their perception of service quality constructs.

In response to the first research question (RQ1), empirical evidence from qualitative and quantitative phases of the study show that three of the four service quality constructs are multi-dimensional. Perceived service quality had 16, satisfaction had three and perceived gain had five dimensions. Loyalty was identified as a two-factor construct in the qualitative phase but proved to have a single factor in the quantitative analysis.

The measurement model fitting analysis also confirmed that the four constructs and their respective dimensions are valid factors to measure service quality in EPHE after some re-specifications (RQ2). The invariance test also proved that the measurement instrument generates similar data irrespective of students' differences in gender, residence, programmes of study and institution of study (RQ 2.1). In general, the analyses in section 5.3 addressed the first purpose of the research that deals with developing a valid and reliable measurement instrument for service quality constructs in the EPHE context.

Since respondents vary in their background and non-background characteristics, the chapter examined the correlation or associations between students' characteristics and service quality constructs to answer RQ3. In this regard, the empirical evidence showed a mixed result. Three of the seventeen student variables (i.e., entrance exam score, gender, and residence) had no statistically significant relation or association with any of the four service quality constructs. Thirteen of the remaining characteristics had a statistically significant positive relation or

association with at least one of the four service quality constructs. Year of study is the only variable that had a significant but negative relation with the service quality constructs. Thus, most of the background and non-background characteristics included in the study seem to influence students' perception of service quality constructs though the magnitude of influence is very minimal.

Structural model fitness and analyses of the causal relations among the independent and dependant variables were the other analyses done in the chapter to address the second major purpose of the study. These analyses answered RQ4 and its seven sub-research questions (RQ4.1 through RQ4.7). The empirical evidence presented in sub-section 5.2.4 verified that the hypothesized structural/conceptual framework of service quality fits the data after some re-specifications. The re-specification process resulted in a further reduction of three student variables from the model, covariances/correlations of some dimensions, drawing of regression paths from two student variables to two constructs.

The re-specifications, however, didn't bring a major change in the data and hence can be taken as an acceptable framework that represents the population. Most of the effect analyses also confirmed the expected causal relationships among the constructs and control variables included in the structural model. The model implied that service quality is a grand concept explained by the four service quality constructs, associated dimensions and nine student related control variables. In other words, service quality is not only a judgment of students about the service providers' performance against certain perceived service quality dimensions but also results in satisfaction, perceived gain and loyalty. The perceptions of students of the service quality constructs are to a little extent affected by nine student variables. However, the multi-group analyses carried out to check the structural model invariance for students in different programmes and institutions also resulted in possible differences in the path coefficients despite the inconsistencies observed.

The empirical evidence presented in sub-section 5.2.5 to answer the last research question (RQ5) proved that EPHE institutions were providing the academic and support services only to a little extent or not at all. As a result students were dissatisfied with the services provided at the encounter and institution levels. This has resulted in disloyalty to their institution. In spite of such poor performance in the three service quality constructs, students believed that they have gained

at least some level of development in cognitive skills, professional competence, communication skills, social/personal skills and general knowledge.

The chapter also discussed the empirical findings for each research question against the literature and experiences of the researcher under section 5.3. The discussion revealed that most of the research questions were answered as hypothesized and were supported by previous studies and literature. Yet, there are some findings particularly related to the effects of student characteristics on the service quality constructs that were found to be in contradiction with the hypothesized direction and the available literature. Such findings need further research.

The major findings from literature and empirical evidence are briefly summarized in the next chapter. Major conclusions and recommendations also follow the summary of findings.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The final chapter of this study serves five purposes. Firstly, it presents a synopsis of the forgoing chapters to help the readers grasp the research problem, theoretical underpinnings and methodological issues of the study. Secondly, it outlines a synthesis of key findings from literature and empirical studies which will be followed by conclusions. Thirdly, recommendations that stem from the findings and conclusions of the study are forwarded towards the end of the chapter. Fourthly, it presents the contribution that the study makes to the discipline both in terms of theory and practice. Lastly, the chapter ends by presenting concluding remarks that highlight the researcher's reflection on his journey of the doctoral study.

6.2 SYNOPSIS OF THE STUDY

As presented in chapter one, the study started by exposing the readers to the idea that quality in higher education in general and in Ethiopia in particular is a crucial concern (FDRE, 2003, 2009; UNESCO, 2009; United Nations, 2015) that demands continuous improvement (HERQA, 2008; World Bank, 2003) (see section 1.1). Improvement, however, should be preceded by effective measurement (Behara et al., 2002). The most frequently used quality measurement approach in most parts of the world including Ethiopia is auditing. Auditing regards education as a product and follows the systems notion in assessing the quality of HE.

The audit approach is, however, largely criticized for a number of shortcomings (Sallis, 2002). The shortcomings emanate from its perspective that regards education as a product and the system notion it follows in measuring quality. The shortcomings inherent in the audit approach to quality have influenced many scholars to shift to the customer perspective which regards education as a service rather than a product (Angell et al., 2008; Brochado, 2009; J. Douglas, A. Douglas, & Barners, 2006; Lagrosen et al., 2004; Sallis, 2002). The scholars consequently developed different

service quality measurement models or frameworks (Angell et al., 2008; Brochado, 2009, Sultan & Wong, 2013).

Despite the greater acceptance of the shift to a customer perspective and its worthwhile contribution to the quality improvement process, there is little or no attention given to measure service quality from the customers' perspective in HE in general and in the PHE institutions of Ethiopia in particular. The few attempts made to measure service quality in the higher education context globally revealed variations in the measurement approaches followed, the dimensions of quality considered and methodologies employed.

Moreover, many of the studies conducted in the area of service quality so far used different independent indicators or constructs such as perceived service quality (Lagrosen et al., 2004; Li & Kaye, 1998; G. Smith, A. Smith & Clarke, 2007; Yeo, 2008; Zafiropoulos & Vrana, 2008), satisfaction (Popli, 2005), perceived gains (Šimić & Čarapić, 2008; Tam, 2006) and loyalty (Boshoff & Gray, 2004; Brown & Mazzarol, 2009; Ehigie et al., 2009; Yu & Kim, 2008). The works of these researchers, however, seem to overlook the relationships among those indicators. The dimensions used to measure each of these indicators/constructs also vary (see sections 2.4 through 2.7). Thus, the analysis of literature shows these and other gaps and inconsistencies apparent in measuring and describing (modelling) service quality in the higher education context (see sub-section 1.2.2).

The apparent inconsistencies in the available literature and empirical evidence, the absence of a comprehensive instrument to measure service quality in the EPHE context as well as lack of a well-established theoretical framework in the area motivated the researcher to pick up the issue for further investigation. Hence, the researcher intended to develop the measurement and structural frameworks analytically from the existing literature and test them empirically in the EPHE context.

To address the above general intent and gaps, the researcher raised a general research question that states: How can service quality be measured and modelled in Higher Education (HE) in general and in Ethiopian Public Higher Education (EPHE) in particular?

To guide the research and address the above general research question, the researcher developed a modified and more comprehensive SERVQUAL framework from the existing literature (see sub-section 1.2.2). The analytically developed framework describes service quality as the provision of academic and non-academic services (both tangible and intangible) that not only meet actual or implied needs and/or expectations but also satisfy the customers, add value and thereby ensure loyalty (see section 1.2.1). Factors that may affect the perception of students are also important variables considered in the study of service quality (Angell et al., 2008).

Generally, the research aimed at first exploring and testing the dimensions used to measure service quality constructs in the context of EPHE. Second, it examined the linear and causal relationships among the constructs (perceived service quality, satisfaction, perceived gains and loyalty of the students) – of the structural model. The effect of students' characteristics in the causal relationships of the constructs was also part of the investigation. To systematically address these broad objectives and the general research question, five main and eight minor research questions were formulated (see section 1.3).

Section 1.4 stated the theoretical and practical significance of conducting this study; while, section 1.5 briefly highlighted the design and methodological issues considered in carrying out the study. The design section (1.5.1) presented an overview of the research paradigm chosen for the study (1.5.1.1), and the mixed methods approach, particularly the exploratory (qual-QUAN) sequential design employed to carry out the research (see 1.5.1.2).

The methodological section (see 1.5.2) also outlined the population and sampling procedures employed in the qualitative and quantitative phases of the study (see 1.5.2.1). It also discussed the instrumentation and data collection techniques employed in both phases (see sub-section 1.5.2.2). Section 1.5.2.3 discussed the data analysis and interpretation techniques for both qualitative and quantitative phases.

Measures taken to ensure the validity, reliability and generalizability of the qualitative and quantitative phases of the research were discussed in section 1.5.2.4. Section 1.5.2.5 discussed the ethical measures taken while collecting, storing and analysing data as well as reporting findings.

Section 1.6 outlined the chapter divisions of the dissertation and finally operational definitions of key terminologies were provided to the readers in section 1.7.

Consistent with the two major purposes of the study, a systematic, extensive and in-depth review of literature was carried out and organised in two chapters -- chapters two and three. Chapter two generally focused on the development of the measurement model of service quality while chapter three discussed the structural model.

Chapter two first described the type of services rendered to students in higher education institutions (see section 2.2) and continued to specify the three interdependent elements involved in the process of producing services in HE (see section 2.3). Sections 2.4 though to 2.7 discussed the dimensions and associated attributes customers/students may use to form their perception on perceived service quality, satisfaction, perceived gain and loyalty constructs respectively. The attributes and dimensions identified in these sections were used as a theoretical answer to the first research question at a general level and served as a base to develop the instrument used to measure service quality in the HE context.

Valuing the significant role students have in the process of producing HE service, section 2.8 reviewed demographic and non-demographic student-related factors that may contribute mainly to perceived service quality and to some degree to students' satisfaction, perceived gain, and loyalty. Section 2.9 summarized the chapter and delimited the dimensions that would be used to measure perceived service quality, satisfaction, perceived gain, loyalty and student characteristics treated in this study. The section also pictorially depicted the measurement models for these major constructs.

Chapter three mainly discussed the linear and causal relationships among the four service quality constructs, respective dimensions and student variables to formulate a hypothesized structural model of service quality. The chapter began with examining the effects of perceived service quality dimensions on satisfaction, perceived gain and loyalty (see section 3.2). This examination laid the foundation to further examine the direct link between perceived service quality and its extensions - satisfaction, perceived gain and loyalty (see section 3.3).

Section 3.4 extended the discussion to the examination of the direct link between perceived gain to satisfaction while section 3.5 discussed both satisfaction and perceived gain as direct predictors of loyalty. Section 3.6 examined the mediating role of satisfaction and perceived gain to the relation between perceived service quality and loyalty.

Cognizant of students' contribution in the production of education service, section 3.7 discussed the effect of students' characteristics on the four service quality constructs. After highlighting possible interplays among the dimensions of the four constructs, between student characteristics and the four constructs as well as among the four constructs themselves, section 3.8 concluded the chapter by delimiting the structural model to include only the latter two interplays (see Figure 3.1).

Chapter four presented details of the design and methodology of the study employed to answer the research questions. Since decisions on research paradigm and approach are dependent on the research questions and the theoretical framework of the study, section 4.2 started by revisiting the research questions and the theoretical framework of the study (see sub-section 4.2.1). The section extended the discussion to the research paradigm chosen for the study and the corresponding research approach and design in sub-sections 4.2.2 and 4.2.3 respectively.

Favouring the philosophical stance that explains knowledge as an outcome of a dynamic interaction between beliefs/values and experiences as well as the coexistence of subjective and objective realities rather than positions that polarize the two, the above sub-sections outlined the pragmatic paradigm as a preferred world view of the study. In addition, the mixed methods approach, particularly the exploratory sequential design with more emphasis on a quantitative approach (qual→QUAN) was specified as appropriate to the selected paradigm.

The chapter also described methodological issues like: population and sampling (section 4.3), instrumentation and data collocation techniques (section 4.4), and data analysis techniques (section 4.5) for both the qualitative and quantitative parts of the study.

Moreover, methodological rigor followed to enhance the quality of the study such as validity, reliability and generalizability of both the qualitative and quantitative parts of the research (section 4.6) and ethical measures taken during data collection; analysis and reporting of findings were discussed in section 4.7. Following that, chapter five provided the analysis and interpretation of the data. Key findings of the study from literature and empirical evidence are summarized next.

6.3 RESEARCH FINDINGS AND CONCLUSIONS

This section first presents key scholarly findings from literature and then continues to present key empirical findings of this study.

6.3.1 Findings from literature

In the course of addressing the two major purposes of the research – developing a service quality measurement and structural relationships among service quality constructs – critical analysis of literature was carried out in chapters two and three. The following key theoretical answers to the research questions were obtained from the literature analysis:

- Education is more of a service than a product that entails the active involvement of service providers and consumers in a context – classroom, lab, workshop, field, office, admin routines, etc. (Sallis, 2002) (see section 1.1).

- Service quality is a perspective that regards the role of customers as an important aspect in the production and consumption process of education services (Sallis, 2002; Oldfield and Baron as cited in Joseph, Yakhou, & Stone, 2005) (see section 1.1). Students are the primary consumers and important customers of higher education services (Sallis, 2002) (see section 1.2.1)

- Service quality indicators (like meeting customer expectations, customer satisfaction, perceived gains and loyalty) are as strong as standard based and objective performance

indicators and can be used in the measurement of quality in higher education (Sallis, 2002; Oldfield and Baron as cited in Joseph, Yakhou, & Stone, 2005).

- Researchers measured service quality differently because of the different meanings attached to it. Service quality had been conceptualized and measured in terms of perceived service quality - meeting expectations (Parasuraman, Zeithaml & Berry cited in Borchado, 2009; Edvardsson, 1998) or meeting performance standards (Cronin & Taylor cited in Borchado, 2009), customer satisfaction (Angell et al., 2008; Brochado, 2009; J. Douglas, A. Douglas, & Barners, 2006; Lagrosen et al., 2004), perceived gain (Lagrosen et al., 2004; Šimić & Čarapić, 2008; Tam, 2002; 2004, and 2006) or loyalty (Brown & Mazzarol, 2009; Ehigie & Taylor, 2009; Lin & Tsai, 2008; Yu & Kim, 2008). The literature analysis in sub-section 1.2.2 revealed that these constructs are not as such sharply distinct nor are measured using similar dimensions.

- Service in the context of higher education refers to both academic and support services. Every quality management effort in higher education should consider the two core services (Sultan & Wong, 2010). The academic services include: (1) teaching, learning, and assessment, (2) academic advising or consultation, (3) research supervision, and (4) community or industry link services. The support services, on the other hand, cover (1) admission/registration services, (2) residential services, (3) campus life/personal development services, (4) general student services, and (5) resources and facilities provision services (see section 2.2).

- The analysis of literature in section 2.3 reveals that the delivery of services in the HE context requires the involvement and interaction of both the service providers (academic and support staff) and the service recipients (students). This fact makes the study of student characteristics an important aspect of the service production process in addition to the service providers.

- Literature also revealed that the service delivery process in higher education involves three interrelated components (see Figure 2.1 in section 2.3): (1) the physical (tangibles)

and administrative context where the service transaction is taking place, (2) the 'sensual' or 'explicit' service which consists of both the technical and functional services rendered by the service provider during the production of a service, and (3) the 'implicit' or psychological aspect of the service which deals with the treatment and handling of students through cognitive and behavioural reactions during service provision (Sasser et al., cited in Douglas et al., 2006; Edvardsson, 1998).The customer's total perception of a certain service relies on his/her perception of the three components (Edvardsson, 1998).

- Students being the primary consumers of HE service are considered as important judges of the quality of the service provided to them. The assumption here is that students have actual or implied needs or expectations (standards of service measurement) derived from their demographic and non-demographic characteristics. Based on their expectations they measure the actual service delivery against certain dimensions and arrive at a cognitive judgment about the extent to which the service provider is delivering the service to students. This judgment of performance is operationally defined as 'perceived service quality'.

- Literature synthesized in section 2.4 shows that perceived service quality of academic and support services is measured against 18 'general' dimensions (see Table 2.1). These dimensions are: (1) Reliability, (2) Responsiveness, (3) Communication, (4) Access, (5) Competence, (6) Courtesy, (7) Credibility, (8) Safety and Security, (9) Empathy, (10) Tangibles, (11) Functionality/usefulness, (12) Commitment, (13) Organization and Management, (14) Flexibility, (15) Motivation/gain, (16) Socializing, (17) Industry-links/corporate collaboration, and (18) Cost. The dimensions also fall under the three components of the service production process described in section 2.3 – sensual/core/explicit, psychological/implicit and physical and administrative contexts.

- Literature shows that satisfaction is an affective outcome variable that results from the cognitive judgment of service provision and refers to the degree of pleasure students feel (see section 2.5). Although disputes prevail among scholars on how to measure the

satisfaction of students, the extensive discussion on the different perspectives shows the importance of using both the service encounter and overall satisfaction together.

- On the basis of the transformational perspective of quality, behavioural changes observed in students as a result of their exposure to higher education was considered as an important indicator of higher education service quality. After reviewing different suggestions of authorities in the area, five dimensions of perceived gain were identified. These are (1) cognitive/intellectual skills, (2) vocational/professional preparation, (3) general education, (4) personal/social development, and (5) communication skills (see section 2.6).

- Loyalty is another second and/or third level outcome construct of service quality. As indicated in section 2.7 literature provides different perspectives to explain loyalty. The overarching perspective explains loyalty in terms of the cognitive, affective, conative and action aspects (Oliver, 1999). However, the first two aspects of this perspective do have direct association with the perceived service quality, satisfaction and perceived gain constructs of service quality discussed above.

  Hence, the conative or behavioural intentions (e.g., intent to continue in the institution or use a service, to rejoin the institution for further education, intent to reuse a service) and behavioural actions (e.g., commitments, willingness to recommend, repurchase/reuse behaviours, tolerance to service related procedures) aspects are found sufficient to measure loyalty (see Figure 2.4). In addition, the two are the mostly used and recommended dimensions of loyalty in the context of higher education (Boshoff & Gray, 2004; Brown & Mazzarol, 2009; Ehigie & Taylor, 2009; Yu & Kim, 2008).

- As already stated earlier, students are important allies in the service production process. They make decisions regarding where and what to study, set their expectations of the services and judge the performances of service providers accordingly. However, the decisions, expectations and judgments they make, set and pass respectively are affected

by their demographic and non-demographic characteristics. So, studying the students' characteristics that affect perceived service quality is vital.

In this regard, the literature analysis made in section 2.8 identified originally seven demographic factors but the researcher reduced them to five (gender, year of study, GPA, place of living, and area of study) excluding age and ethnicity for the reasons indicated in section 2.9. Similarly, the analysis in section 2.8 primarily identified nine non-demographic factors but reduced them to seven (goal orientation, prior experience, personal needs/preferences, formal advertisements, word of mouth before and after encounter, class attendance and participation in different campus activities) by excluding attitude to education and self-efficacy because they are in one or another way represented by the student's goal orientation (see section 2.9).

- Literature also evidences that the effects of students' characteristics are not restricted to perceived service quality. They also have potential effect on satisfaction, perceived gain and loyalty (see section 2.8.2).

In sum, the literature presented in chapter two provided analytically developed measurement models for service quality constructs (perceived service quality, satisfaction, perceived gain and loyalty). The models served as a theoretical foundation to develop instruments used to measure service quality. In addition, students' characteristics that have some relationship or association with the service quality constructs in the context of HE were identified and delimited for this study (see section 2.9).

Literature presented in chapter three examined the interplay among service quality dimensions, among the service quality constructs together with the effect of student characteristics on these constructs. The result of the literature analyses revealed that:

- dimensions of perceived service quality have a direct and/or indirect effect on the dimensions of satisfaction, perceived gain and loyalty (see section 3.2).

- dimensions of perceived service quality do have relationships with (1) satisfaction (e.g., Douglas, McClelland, and Davies, 2008; Marzo-Navarro, Pedraja-Iglesias, and Rivera-Torres, 2005), (2) perceived gain (e.g., Kotze and du Plessis, 2003; Kuh, n.d.; Tam, 2006), or (3) loyalty (e.g., Douglas et al.; 2008; Kumer et al., 2009).
- there is a direct positive relationship between the perceived quality and satisfaction, perceived gain and loyalty (see section 3.3).
- perceived gain has a unidirectional positive relation with satisfaction (see section 3.4).
- satisfaction and perceived gain are found to be precursors of loyalty (section 3.5) and also serve as mediators to the link between perceived service quality and loyalty (see section 3.6).
- a host of demographic and non-demographic student characteristics influence perceived service quality directly. The direct and indirect influences also extend to satisfaction, perceived gain, and loyalty (see sections 2.8 and 3.7).

The literature analysis in chapter three revealed all possible interplays among the dimensions of four constructs, between student characteristics and the four constructs as well as among the four constructs themselves. The researcher, however, decided to delimit the structural model to include only the latter two interplays (see section 3.8). The interplays at the dimension level were intentionally omitted from the structural model for two reasons. First, the study will not be manageable if all the interplays are included in the model. Second, the interplay among the dimensions is implicitly considered for it is one of the assumptions to be satisfied to carry out the structural model fit test that involves the four constructs.

The findings from literature analysis generally provided theoretical answers to the main research question at a general level. It specified the constructs and respective dimensions used to measure service quality in the HE context (measurement model) in chapter two as well as the interplay between student characteristics and the four constructs, and among the four constructs themselves (structural model) in chapter three.

The empirical evidence presented next is aimed at verifying the analytically formulated measurement and structural frameworks in the context of EPHE. In other words, the empirical findings answer the five major and eight minor research questions formulated for this study.

6.3.2 Empirical findings

Findings from empirical investigation are based on results obtained from the qualitative (interviews) and quantitative (survey) phases of the study.

In response to the first research question (RQ1) that aims at investigating the dimensions used to measure service quality constructs, empirical evidence from qualitative (sub-section 5.2.2.1) and quantitative (sub-section 5.2.2.2) phases of the study show that three of the four service quality constructs (i.e., perceived service quality, satisfaction, perceived gain) are multi-dimensional. Perceived service quality had sixteen, satisfaction had three and perceived gain had five dimensions. Loyalty was identified as a two-factor construct in the qualitative phase but appeared to have a single factor in the quantitative analysis (sub-section 5.2.2.2.4).

- The dimensions of perceived service quality are (1) Accessibility, (2) Commitment, (3) Communication, (4) Competence, (5) Credibility, (6) Empathy, (7) Flexibility, (8) Friendliness/Courtesy, (9) Industry-links, (10) Organization and Management, (11) Motivation, (12) Responsiveness, (13) Reliability, (14) Socializing, (15) Usefulness/Functionality and (16) Tangibles.
- The dimensions of satisfaction are (1) satisfaction with academic service, (2) satisfaction with support service and (3) overall or institutional level satisfaction.
- Perceived gain is described in terms of (1) cognitive/intellectual skills, (2) vocational/professional preparation, (3) general education, (4) personal/social development, and (5) communication skills.
- Loyalty is represented as a single dimension construct expressed in terms of attributes of behavioural action and behavioural intention.

The measurement model fitting analysis carried out to answer RQ2 resulted in acceptable fit indices (i.e., CMIN/DF = 4.398, GFI = .915, CFI = .951, RMSEA = .049 and PCLOSE =.743) after some re-specifications (see sub-section 5.2.2.3). This confirmed that the four constructs of service quality and their respective dimensions are valid factors to measure service quality in the EPHE context. The re-specification process of the measurement model resulted in a cross-loading of tangibles on perceived service quality and satisfaction. This implies that satisfaction construct could have been measured in terms of students' satisfaction with tangibles in addition to the three already reported satisfaction dimensions.

The invariance test performed to answer RQ2.1 revealed that the measurement instrument generated similar data irrespective of students' differences in gender, residence, programmes of study and the institution of study. This finding shows the cross-validity of the instrument. In sum, the analyses in sub-section 5.2.2 addressed the first purpose of the research that deals with developing a reliable and valid measurement instrument for service quality constructs in the EPHE context.

The third research question (RQ3) was formulated to investigate whether the respondents' characteristics (background and non-background) correlate/associate with the four service quality constructs. The empirical evidence in this regard showed mixed results. This means that:

- Three of the seventeen student variables (i.e., entrance exam score, gender, and residence) had no statistically significant relation/association with any of the four service quality constructs.
- Fourteen of the remaining characteristics had statistically significant positive or negative relation/association with at least one of the four service quality constructs.
    - Student characteristics that had a positive relation or association with at least one service quality construct were:
        - CGPA (BG7), prior exposure to universities (EXPOS), programme of study and institution of study,

        - the extent and type of information students had about universities from formal and informal sources before and after joining the university (represented by five variables),
        - students' goal orientation (Goal),
        - Class attendance (STEX9),
        - participation in campus student activities (STEX10),
        - value to service quality during university selection,
    - Year of study was the only background variable that had a significant but negative relation with the four service quality constructs.

Thus, most of the background and non-background characteristics included in the study seem to have some relationship/association with students' perception of service quality constructs. However, the magnitude of their relationship was very minimal. These student variables were included in the structural model for further testing.

The structural model fitness test and analyses of the causal relations among the independent and dependant variables were carried out to answer RQ4 and its seven sub-research questions (RQ4.1 through RQ4.7) in sub-sections 5.2.4.2 and 5.2.4.3. The empirical evidence presented in sub-section 5.2.4.3 showed that the hypothesized structural framework of service quality fits the data after some re-specifications. As shown in Table 5.27, the fit indices of the re-specified structural model reached to an acceptable level (CMIN/DF=3.856, GFI=.901, CFI = .934 and RMSEA = .045, p=1.000).

The re-specification process resulted in: (1) a further reduction of three student variables from the model (i.e., CGPA, prior exposure to universities, and value to service quality during university selection), (2) covariances/correlations of some dimensions or attributes, and (3) regression paths from year of study and goal orientation to satisfaction and perceived gains respectively (see Figure 5.4). The re-specifications, however, didn't bring a major change in the data and hence can be taken as an acceptable framework that represents the population.

Most of the effect analyses also confirmed the expected causal relationships among the constructs and control variables included in the re-specified structural model. Specifically, the path analysis revealed that:

- Perceived service quality directly and significantly predicts satsifaction, perceived gain and loyalty (see sub-section 5.2.4.3.1, Figure 5.4 and Table 5.29) – RQ4.1
- Perceived service quality significantly predicts loyalty indirectly mediated through both satsifaction and perceived gain (see sub-section 5.2.4.3.2, Figure 5.4 and Table 5.29). This is to mean that higher perceived service quality leads to higher satisfaction and perceived gain which, in turn, results in stronger loyalty (RQ4.2).
- Satisfaction has a significant direct positive effect on loyality (see sub-section 5.2.4.3.1, Figure 5.4 and Table 5.29) – RQ4.3.
- Perceived gain has a statistically significant, positive and direct effect on satisfaction (β = 0.22, $p < .05$) and loyalty (β = 0.17, $p < .05$) implying that higher perceived gain results in higher satisfaction and stronger loyalty to the institution (see sub-section 5.2.4.3.1, Figure 5.4 and Table 5.29) – RQ4.4.
- Perceived gain also has a statistically significant indirect effect (β = 0.096, $p < .05$) on loyalty mediated by satisfaction. This implies that the perceived higher gain resulted in greater satisfaction and that, in turn, resulted in stronger loyalty (see sub-section 5.2.4.3.1, Figure 5.4 and Table 5.29) – RQ4.5.
- With regard to the effects of student characteristics on the four service quality constructs (RQ 4.6), the empirical evidence discussed in sub-sections 5.2.4.3.1 and 5.2.4.3.2 shows the effects of student charactersitics on the four service quality constructs as presented next.

    - The effects of student charactersitics on perceived service quality
        - Five student characteristics that deal with the extent and type of information students had about the services of universities before and after joining a university (STEX2, STEX3, STEX4, STEX6, STEX7) have a direct positive predictive power on perceived service quality. Their effect size ranged from β =0.06 for STEX3 to β = 0.17 for STEX6 at p

< .05. The result implies that the more adequate and favourable information students obtain from formal and informal sources about different universities and their own institution, the higher is their perceived service quality (Kline, 2011; Ullman, 2013).

- Student's goal orientation (Goal) (β = 0.06), class attendance (STEX9) (β = 0.07) and participation in campus activities (STEX10) (β = 0.14) have a direct positive predictive power on perceived service quality (PSRVIQAU) at .05 sig level. The finding implies that students who had mastery goal orientation, attended class regularly and participated in on-campus activities more often tend to have high perceived service quality (Kline, 2011; Ullman, 2013).

- On the other hand, years of study has significant but negative (β = -0.06) direct effect on perceived service quality at p < .05 level. That means as the students' seniority increases, the lower is their perceived service quality (Kline, 2011; Ullman, 2013).

- Generally, the R^2 value for perceived service quality indicated that the nine student characteristics (one background and eight non-background variables) included in the final structural model predicted only 12% of the variance in perceived service quality. In the view of Chin et al. (2008), this effect size is very weak.

- The effects of student characteristics on satisfaction
  - Year of study (BG3) has a significant negative direct effect on satisfaction (β = -0.128) and implies that senior students are less satisfied than the freshmen and the juniors. Year of study has also a significant negative indirect effect on satisfaction (β = -.045, p < .05) mediated through perceived service quality. This purports that senior students had lower perceived service quality and this, in turn, resulted in lower satisfaction (Kline, 2011; Ullman, 2013).

- The other eight student variables have significant indirect positive effect on satisfaction with effect size ranging from (β = .046 for STEX3) to (β = .122 for STEX6). Thus, students with adequate and favourable information about the services of universities and their own institution, mastery goal orientation, regular class attendance and high participation in different on-campus activities had higher perceived service quality and that, in turn, resulted in greater satisfaction with the university services (Kline, 2011; Ullman, 2013).

- Effects of student characteristics on perceived gain
  - Goal orientation is the only student variable that has significant positive direct effect (β = 0.163) on perceived gain. It has also an indirect positive effect (β = 0.03) on perceived gain mediated through perceived service quality at $p < .05$ level. The result implies that goal orientation predicts perceived gain directly as well as indirectly mediated through perceived service quality.

  - The other seven student variables had significant indirect positive effect on perceived gain with effect size ranging from (β = .044, for STEX3) to (β = .115, for STEX6) at $p < .05$. The results imply that the adequacy and favourableness of information students had about the services of universities and own institution, regular class attendance and high participation in on-campus activities resulted in higher perception of service quality which, in turn, resulted in higher perceived gain (Kline, 2011; Ullman, 2013).

  - Year of study also had significant indirect but negative effect (β = - 0.031, $p < .05$) on perceived gain mediated through perceived service quality. This implies that senior students had low perception of service quality

and that, in turn, resulted in low perception of gain (Kline, 2011; Ullman, 2013).

- Effects of student characteristics on loyalty
  - All the nine student characteristics have an indirect effect on loyalty significant at p <.05 level.
    - Seven of the nine student characteristics have a positive indirect effect on loyalty mediated through perceived service quality only. Their standardized coefficients ranged from .04 to .12 at p < .05 level implying that students who had adequate and favourable information, attended classes regularly, and participated in on-campus activities had high perceived service quality and that, in turn, resulted in stronger loyalty (Kline, 2011; Ullman, 2013).

    - Goal orientation also predicated loyalty indirectly mediated by both perceived service quality and perceived gain with a standardized coefficient 0.08 at p < .05 level. The result implies that students with mastery goal orientation had higher perceived service quality and higher perceived gain which, in turn, resulted in stronger loyalty.

    - Similarly, year of study had a significant indirect and negative effect on loyalty mediated by both perceived service quality and satisfaction with the standardized coefficient of -0.10 at p < .05 level. This means that senior students had lower perceived service quality and lower satisfaction than those who are junior and freshmen and that, in turn, led to a weaker loyalty.

- The multi-group analyses carried out to check the structural model invariance for students in different programmes and institutions resulted in possible differences in the path coefficients (RQ4.7). However, inconsistencies prevail in the

magnitude of path coefficients and significance level in the group differences observed (see sub-section 5.2.4.3.4).

- In sum, the path analysis in the final structural modle (Figure 5.4) reveals that loyalty is a latent construct that 62% of its variance is predicted by the joint effects of perceived service quality, satisfaction and perceived gain. Each of these predicator latent constructs is also explained by some other control variables and latent constructs included in the model.

  For instance, 60% of the variance in students' satisfaction is predicted by years of study, perceived service quality, and perceived gain. Similarly, 29% of the variance in perceived gain is predicted by goal orientation and perceived service quality. As reported earlier, the nine student variables also explain only 12% of the variance in perceived service quality.

- With regard to the current status of service quality provided in Ethiopian Public Higher Education Institutions (RQ5), the empirical evidence presented in sub-section 5.2.5, Table 5.30, revealed that students perceived that academic and support services are provided to a little extent or not at all. Students also reported dissatisfaction with the academic, support and overall services. This resulted in disloyalty to their institution. In spite of such poor performance in the three service quality constructs, students believed that they had gained at least some level of cognitive development, professional competence, communication skills, social/personal skills and general knowledge.

The following section highlights the conclusions reached based on the findings from literature and the empirical study.

6.3.3 Conclusions

Based on the evidence from literature and the qualitative and quantitative parts of this study, the following conclusions are drawn.

- Service quality can be measured in terms of sixteen dimensions of perceived service quality, four dimensions of satisfaction, five dimensions of perceived gain and loyalty as a single dimension construct. In other words, except loyalty, the other three constructs of service quality are multi-dimensional in nature. Moreover, the four constructs are not sharply distinct indicators of service quality; rather they have causal relationships (see sub-sections 5.2.2.2 and 5.2.2.3)

- The psychometric properties (see sub-sections 5.2.2.1 and 5.2.2.2), tests of assumptions for each statistical technique employed in the study and the measurement model fit test showed that the data obtained using the instrument for the four service quality constructs and respective dimensions are reliable and valid (sub-sections 5.2.2.3). Thus, the modified questionnaire resulted from the re-specified measurement model is comprehensive and adequate for assessing service quality in EPHE.

- Students are reliable sources of information about the services of HE (see sub-section 1.2.1). However, their judgment/perception of service quality could be affected by differences in their background and non-background characteristics (see sub-section 2.8.2). Considering the variation of students' characteristics in the measurement of service quality is essential although the magnitude of the effect is minimal (see sub-sections 5.2.3.1, 5.2.3.2, 5.2.3.3 and 5.2.4.3). The observed inconsistencies in moderating effects of programmes and institutions on the effect size of some paths in the structural model make the predictive power of the two factors inconclusive and subject for further research (see sub-section 5.2.4.3.4). Hence, the following student related characteristics could be considered when studying the student variables:

    - Year of study, the nature of the study programme and institutions of study from background characteristics.
    - Type and adequacy of information students had about universities (represented by five variable), class attendance, participation in on-campus activities, and goal orientation from the non-background characteristics of students.

- The structural model test (sub-section 5.2.4.2) and causal analysis (subsection 5.2.4.3) revealed that service quality is a concept that should not be understood as a sharply distinct description of perceived service quality, satisfaction, perceived gain or loyalty. Rather, it is a comprehensive concept that needs to be expressed as a function of the four interdependent constructs, and student-related variables mentioned above. In other words, service quality is not only a judgment of students about the service providers' performance against certain perceived service quality dimensions but also results in satisfaction, perceived gain and loyalty. The perceptions of students to the service quality constructs could be affected to a little extent by some student variables. This means that the differences in student characteristics have a very negligible influence on the predictive relationship among the service quality constructs.

- Generally, the findings from literature (chapters two and three) and empirical evidence (chapter five) clearly suggest that service or customer approach to the measurement and understanding of quality can be used to measure and improve the quality of services in HE in general and in EPHE in particular. It can be an effective alternative to quality enhancement and assurance endeavours. This conclusion concurs with the claims of Sallis (2002), and Oldfield and Baron as cited in Joseph et al. (2005) mentioned somewhere else in this chapter and chapter one. They suggested that service quality indicators such as meeting customer expectations, customer satisfaction, perceived gains and loyalty are as strong as standard based and objective performance indicators and can be used in the measurement of quality in higher education.

- Measured by the four service quality constructs and respective dimensions identified and tested in this study, the current status of service quality in EPHE as perceived by students is very poor. Consequently, it resulted in students' dissatisfaction with the HE services and disloyalty to their institution (see sub-section 5.2.5). It calls for serious attention of the university management and other bodies in charge of governing the Ethiopian Public Higher Education sector. In spite of the poor service performance, students reported that they have gained at least some level of cognitive development, professional preparedness, communication skills, general knowledge and personal social

skills as a result of their exposure to the HE services (see sub-section 5.2.5) and probably from their individual efforts emanating from their mastery goal orientation (see sub-sections 5.2.4.3.1 and 5.3.5).

In conclusion, measuring service quality periodically using the already developed measurement instrument (measurement and structural models) and improving the services of EPHE institutions based on measurement results seem timely issues that are worth giving significant attention to in the management of EPHE institutions.

The following section presents the theoretical implications of the research to the understanding of service quality constructs and their measurement as well as practical recommendations pertinent to improve the service quality of EPHE institutions.

6.4 RECOMMENDATIONS

Based on the findings from the literature and the empirical findings of this study and the conclusions drawn, the researcher makes the following recommendations that have theoretical and practical implications.

6.4.1 Recommendation 1: Use more comprehensive dimensions to measure service quality constructs in the EPHE context.

The results associated with the dimensions of service quality constructs (sub-section 5.2.2) clearly implied the need for more dimensions to understand perceived service quality, satisfaction and perceived gain comprehensively. For instance,

- Instead of depending on the five SERVQUAL dimensions proposed by Parasuraman, Zeithaml and Berry (cited in Borchado, 2009) and applied by different researchers (Angell et al., 2008; Narang, 2012; Zafiropoulos & Vrana, 2008), the qualitative (sub-section 5.2.2.1) and quantitative findings (sub-section 5.2.2.2) of this study imply the need for more dimensions to assess perceived service quality. Thus, researchers, academia, quality assurance agencies and management of HE institutions who would like to

measure and understand perceived service quality in the HE context are advised to use the sixteen dimensions identified in this study. Measuring perceived service quality by considering more dimensions provides the opportunity to address a wide array of sensual, psychological and physical aspects of service quality. This in turn helps to make quality improvement interventions comprehensive.

- From the results of the quantitative study, particularly from the factor analysis (sub-section 5.2.2.2.2) and measurement model re-specification process (sub-section 5.2.2.3), it was evident that students' satisfaction with HE service could be measured more comprehensively if satisfaction of students with the physical facilities was considered in addition to the satisfaction with academic services, support services and overall services. Thus, researchers, academia, quality assurance agencies and HE management are advised to consider these four dimensions in measuring and understanding students' satisfaction with HE services.

- Similarly, this study has identified a more comprehensive list of dimensions to understand and measure perceived gain compared to the previous work of researchers (e.g., Dilnesaw, 2007; Li et al., 1999; Ory & Braskamp, 1988; Pike & Kuh, 2005; Tam, 2006). The identified dimensions are: cognitive developments, professional preparedness, communication skills, general knowledge, and personal/social skills (see section 2.6 and sub-sections 5.2.2.2.1.3 and 5.2.2.2.2.3). Thus, researchers, academia, quality assurance agencies, HE management are advised to consider the identified dimensions to understand and measure students' perceived gain from HE services. Since gains in these areas can ensure students' holistic development (Brennan et al., 2010), university and programme managers need to revisit and strengthen their curricular and co-curricular activities in line with the five areas of gains.

- Unlike the claims of pervious theories (see section 2.7), loyalty was found to be a single dimension construct measured in terms of behavioural intention and behavioural action (sub-section 5.2.2.2.2.4). They appeared to represent the same dimension instead of falling into two dimensions. Thus, researchers, academia, quality assurance agencies

and university management should understand the possibility of measuring loyalty as a single dimension construct.

6.4.2 Recommendation 2: Understand service quality as a function of the four constructs (perceived service quality, satisfaction, perceived gain and loyalty) and student characteristics with causal or predictive relationships instead of employing each construct as a standalone indicator of service quality.

The measurement model analysis clearly showed that perceived service quality, perceived gain, satisfaction and loyalty are constructs that can be measured by a relatively exclusive set of dimensions or attributes except the cross-loading of tangibles on both perceived service quality and satisfaction. Despite the exclusive dimensions each construct is composed of, the measurement model analysis also revealed that there is an acceptable level of covariance/correlation among the four constructs that laid the foundation for possible causal relationships among the constructs (see sub-section 5.2.2.3). The structural model analysis further confirmed the causal relations among the four service quality constructs as well as student variables (sub-sections 5.2.4.2 and 5.2.4.3). From these results, it is possible to claim that instead of using each of the four constructs as a standalone measure of service quality (as it has been used by many researchers so far), it is advisable to measure service quality as a function of the four constructs and some student variables with causal or predictive relationships. This means that:

- perceived service quality should be understood as the provision of academic and support services taking into account the sixteen dimensions identified in this study that result in students' satisfaction, perceived gain and loyalty.
- satisfaction should also be understood as consequences of perceived service quality and/or perceived gain rather than an independent indicator of service quality.
- perceived gain should be understood as consequences of perceived service quality rather than taking it as a standalone indicator of service quality.
- loyalty has to be understood as a second or third order service quality construct distilled from perceived service quality, satisfaction and perceived gain.

- student variables included in the re-specified structural model have some level of direct and indirect effects on the four service quality constructs and their causal relationships.

Hence, researchers, academia, quality assurance agencies and university management should take this new meaning or framework of service quality into account to understand, measure and improve services in the HE institutions.

Recognizing the comprehensive dimensions of service quality constructs and understanding them as a function of four constructs and student-related variables having some predictive relationships are theoretical or conceptual level solutions suggested to scholars, researchers and practitioners in the area. The poor performance of EPHE institutions in service delivery (see sub-section 5.2.5) and the less attention given to the customers approach to service quality (see section 1.1) imply the need for adopting the service perspective and the new service quality measurement model in EPHE as well as translating the above theoretical solutions into actions.

This in turn entails a range of activities and involvement of significant bodies working at different levels of the HE sector. The activities may include introducing the new perspective, revisiting existing policies in HE, modifying the existing quality enhancement practices and developing a customer-oriented quality culture. The main bodies that should be involved in carrying out these activities include MoE, HERQA, and EPHE institutions. The following paragraphs present the activities with responsible bodies necessary for the smooth adoption or integration of the new quality perspective within the existing EPHE quality assurance system.

6.4.3 Recommendation 3: Introducing service quality perspective to policy/decision makers and practitioners.

The first action in adopting the new quality perspective into the HE sector should be introducing the service approach to the quality enhancement perspective to the relevant actors in the sector. Policy makers (MoE), staff of the Higher Education Relevance and Quality Agency (HERQA), management of EPHE institutions, programme managers at the respective EPHE institutions, staff

of institution level quality enhancement offices, and front line service providers should be introduced to the new perspective. This can be done through:

- disseminating the research outcomes of this study to the above mentioned actors using websites of MoE, HERQA and different public universities and in the form of publications.

- making deliberations on service quality perspectives and related research findings to higher decision making bodies and university management using the existing platforms such as:
    - the quality education conferences organised annually by universities,
    - clustered university forums carried out at regional level,
    - university management forms organised by MoE at national level, and
    - annual research conferences organised by universities.

- Furthermore, MoE and HERQA may take the initiative to organise similar seminars to quality enhancement officers of respective universities to introduce them to the new perspective, measurement instrument and structural model. The respective universities should cascade the workshop to institution and programme level quality enhancement staff as well as front line academic and support service providers.

Once the relevant bodies are aware of the service approach to quality enhancement, the next step would be to institutionalize it in HE institutions. This requires policy and practice level interventions.

6.4.4 Recommendation 4: Institutionalizing the service quality perspective in HE institutions at the policy level

As a matter of fact, HE in general and EPHE in particular have been following the auditing approach to quality enhancement and assurance so far (see section 1.1). Shifting from this long standing tradition of quality assurance to the new perspective – customer-oriented or service approach - entails policy level decisions. For a smooth shift, the researcher recommends to

decision makers to start with revising or modifying the existing quality assurance and enhancement policy as well as its strategies. In this regard:

- HERQA can modify its quality assurance policy and procedures. The modifications should focus on integrating the service perspective in the existing quality audit policy and focus areas. Particularly, the new perspective can be integrated in one of the ten focus areas of HERQA. The tenth focus area of HERQA which deals with the need to establish an "internal quality assurance system" in the universities (HERQA, 2007, p. 9) seems the right place to integrate the new perspective. In this way, HERQA can make it mandatory to EPHE institutions to apply the service perspective or use the service quality structural model developed and tested in this study as an additional or alternative strategy of institution and programme level quality enhancement processes.

- MoE is expected to formulate a policy or directives that enforce customer-oriented service provision in EPHE institutions. Through such a policy or directives, MoE can demand public universities to put customer-oriented service provision at the centre of their planning, operation and monitoring activities.

- EPHE institutions should also develop institution level policy that puts customer-oriented service at the centre of its decisions, plans, operations and monitoring activities. They should also revisit their recruitment, staff development, and staff appraisal and reward policies in a way that promotes and ensures customer-oriented service provision.

6.4.5 Recommendation 5: Institutionalizing service quality perspective in HE institutions at the operation/practice level

The operations of EPHE institutions need to be re-designed to make them customer-oriented. This could be achieved through:

- Integrating the service-oriented quality enhancement approach into the existing institution and programme level quality enhancement systems. For instance, programmes and front

line operations could be required to assess perceived service quality, satisfaction, perceived gain and loyalty on semester bases and report results to the institution level quality assurance and enhancement office. The institution level quality assurance and enhancement office analyses the data from programmes and operations to determine institution level service quality performances, student satisfaction, perceived gain and loyalty.

Drawing on the analysis result the office informs the university management on strategic decisions related to service provisions, and sets goals or directions of improvement to programmes and operations. The programmes and operations, in turn, develop and implement interventions in light of the directions given by the institution level office, the university management and their own monitoring results to address the intended service delivery needs. These measures would help to integrate the service quality enhancement process with the existing institutional and programme level quality enhancement process.

- The poor performance of EPHE institutions in service quality (see sub-section 5.2.5) could also be associated with the mind-set of the management and staff dictated by the audit approach followed or the tradition in Ethiopian public universities that disregards students as customers. Thus, another operation level intervention essential to adopt the new perspective could be developing a customer-oriented mind-set.

  The management of public universities through the institution level quality enhancement and assurance office or staff development unit should train their staff to equip them with a service-oriented attitude, knowledge and skills. This can be done by including relevant trainings about the service quality perspective, measurement and structural models in the staff development programmes of universities.

  Introductory and updating trainings must be designed for the staff working at different management positions as well as those working at the front line of academic and support services. The training contents should address the behaviours and skills described in the form of perceived service quality dimensions, particularly those referring to the sensual

and psychological aspects of service quality (see section 2.3 and 2.4; sub-sections 5.2.2.1 and 5.2.2.2). In this regard, Chui, Ahmad, Bassim, and Zaimi (2016) recommended that the management, academic and support staff at the public universities should undergo training and development that helps to strengthen and develop customer-oriented attitudes, knowledge and skills necessary to provide services effectively.

- Monitoring service quality using an appropriate instrument is another operation level action that must be carried out regularly. Since services are consumed at the time of the production process (see section 2.3), HE institutions need to continuously monitor the extent of service performance, student satisfaction, their perceived gain and loyalty to improve services before it is too late to take action as is the case with auditing (Sallis, 2002; Sultan & Wong, 2013).

  Failure to measure students' perception of service quality will lead to inappropriate service design. Thus, EPHE institutions and respective programmes are advised to use reliable and valid service quality measurement tools to properly understand the service status. The survey instrument developed and tested by this study (see sub-section 5.2.2) can serve the purpose and address the missing link in EPHE (see section 1.1). The survey instrument provides comprehensive, reliable and valid data on the four constructs that could be used to design appropriate interventions to enhance service quality (see sub-sections 5.3.1 and 5.3.2). In this regard, Oliveira-Brochado and Marques (2007, p. 2) suggest that ". . . the use of the most appropriate measurement tool would help managers to assess service quality provided by their institutions, thus having the ability to use the results to better design service delivery."

  The service quality survey instrument also provides information about the student-related variables that might have some effect on their perception of the service quality (see sub-sections 5.2.1, 5.2.3 and 5.2.4). The information would help to design relevant interventions to shape students' expectations or address their service needs. The interventions may include the following:

- Providing adequate and realistic information to students. Since the extent and type of information students have about the services of the universities and fields of study have significant effect on students' perception of service quality, universities should provide adequate and trustworthy information to students through their external communication office, student admission, and student affairs offices. This can be done by employing different formal and informal communication channels including word of mouth. This would enhance the prospective as well as admitted students' knowledge about the quality of higher education services and help them to make informed decisions when selecting a university or field of study. It also helps students to develop realistic expectations of services which in turn shapes their perception of service quality.

- The formally organised orientation programmes usually offered during field placement should also be strengthened because they play a significant role in influencing students' perception of service quality. Thus, universities and programmes should organise well planned, comprehensive and realistic orientation programmes for freshman students. If the information provided is exaggerated, it will result in unrealistic expectations and that will affect their perception of service quality. Thus, precautions must be taken when introducing and advertising programmes.

- Since students' goal orientation affects their perceptions of service quality constructs, it is necessary to help students develop mastery goal orientation. This can be done by redesigning the contents, delivery methods and assessment strategies. Programmes and academic service providers are in charge of redesigning their courses, and delivery and assessment strategies in a way that promote deep learning.

- Engaging students in on-campus/co-curricular activities that would facilitate their holistic development. This can be done by designing different co-curricular activities and engaging students in the activities in a way that: (1) forces students

to work closely with the academic and support staff, and (2) facilitates students' developments in cognitive, professional, communication, general knowledge and personal/social skills. The design of activities and their delivery should be attractive to students.

- Encouraging students to attend classes regularly so that they can develop in terms of cognitive, professional and communication skills. Regular attendance can also help them to make proper judgments about the quality of academic services. One way to ensure regular class attendance is by improving academic service.

- The researcher also recommends to university and programme level managers to monitor the changes in students' perceptions of academic and support services as their year of study increases. This is necessary to improve services accordingly and overcome the negative effects of year of study on their perceptions of service quality.

The measurement instrument developed by the researcher can also provide information on the accessibility, adequacy and organisation of tangibles (physical facilities) (see subsection 5.2.2.2.2.1). Hence, Ethiopian Public Universities and respective programme managers should regularly monitor and improve the physical facilities to influence the service quality perceptions and satisfaction of students (see sub-section 5.2.3). In this regard, Chui et al. (2016, p. 138) said, ". . . focus should be on maintenance and update of facilities" to improve the context in which services are delivered and affect the students' perception of service quality and satisfaction.

- Another operation level intervention could be "[strengthening and] creating a system of tracking the students' complaints" such as "tracking systems and logbooks" and providing quick response and feedback to the complaints (Chui et al. 2016, p. 138). The university and programme level managers are expected to use such systems as supplements to the survey instrument for they help to identify service problems before the next survey.

- Making structural and procedural changes to make functions and operations in the university more customer-oriented is another operational level intervention that the university management should pay attention to.

6.4.6 Recommendation 6: Developing a culture that values quality service

Attaining effective service quality management entails working beyond creating awareness, modifying policies and integrating service-oriented operations into the system. It needs to make provision of quality service a culture. Thus, universities need to work towards shaping and maintaining a culture that values quality service to students. This can be achieved by:

- putting the issue of customer-oriented service at the centre of decisions, plans, operations, monitoring and evaluation activities.

- promoting customer-oriented service using different mechanisms including ritual, events, and marketing communications. However, cautions must be taken while promoting and communicating the kind and quality of services universities are providing to students. In this regard, Sharabi (2013) recommends that:

> university should work to deliver the services as promised in the marketing communication. Otherwise communication gaps result. The difference between promises made to the students and what is actually delivered may usually be caused by overpromising, or by a lack of communication. Management needs to integrate their marketing communications to avoid overpromising (p. 316).

- using effective internal communication for improving service delivery and service quality is another mechanism to develop and maintain a service-oriented culture in an organisation (Lahap, O'Mahony, & Dalrymple, 2016).

- rewarding service providers for their customer-oriented attitudes and performances. In this regard, Chui et al. (2016, p. 138) recommended "motivating the staff to perform

better in the service delivery dimensions, and creating different opportunities that promote better student and management relationship" is essential to create and maintain a customer-oriented culture in institutions.

In sum, shaping and maintaining the culture that values customer-oriented service requires the dedication and commitment of university management. As suggested by Rusu (2016, p. 291), shaping and maintaining a quality culture goes beyond carrying out "a week of interesting seminars; a lot of work; knowledge and solid methods; rigorous tests and experiments, intellectual honesty, and cooperation." Rusu claims that it needs "dedication and commitment of the management and the entire staff". The management of the university can prove their dedication by "the emphasis they give to quality in their decision and actions made to improve all the processes and operations, being proactive to prevent the appearance of quality problems and deliver the customers [students] the quality they need" (2016, p. 291). The next section presents specific contributions of the study to theory and practice.

6.5 CONTRIBUTIONS OF THE STUDY

The contributions of the study are described in terms of changes in the dimensions of service quality constructs, the shift in the meaning of service quality, the type and number of student-related variables considered and contributions to practice.

The literature analysis in sections 2.4 through to 2.7 show the different dimensions used by researchers to measure the four constructs of service quality. It was evident from the literature that researchers came up with different lists of dimensions. The identified dimensions were criticized for lack of comprehensiveness as well as observed inconsistencies. The observed variations in the kind and number of dimensions used to measure service quality constructs were identified as one of the gaps that reinforced the researcher's desire to carry out the study.

With the intent of addressing the observed gap, the researcher reviewed different works in the area, outlined the dimensions applicable in the context of HE as exhaustively as possible, and tested them empirically in the context of EPHE. The empirical evidence from the qualitative and

quantitative phases of this research verified a more comprehensive list of dimensions for perceived service quality, satisfaction and perceived gain. Perceived service quality was found to have sixteen dimensions, which is much higher than the dimensions suggested by the SERVQUAL framework and other research reviewed in section 2.4. The satisfaction construct also included satisfaction with tangibles in addition to the three commonly used dimensions – satisfaction with academic, support and overall services. Many researchers have been using a maximum of four dimensions to measure perceived gain. This study, however, has identified and tested five dimensions that can be used to measure the construct in the HE context.

Thus, the identification of more comprehensive dimensions than the three constructs can be considered as a contribution of this study to knowledge or theory in the area. The study has not only addressed the incomprehensiveness concern researchers had with the SERVQUAL framework (see sub-section 1.2.2) but also identified more dimensions for the satisfaction and perceived gain constructs. The study has also shown the possibility of measuring loyalty as a single factor expressed in terms of behavioural intentions and actions (see sub-section 5.2.2.2.2.4) unlike the theoretical suggestions in section 2.7.

The second contribution of this study is related to the shift in the meaning of service quality. Analyses of literature in the area presented in sub-sections 1.2.1, 1.2.2 and chapter three have resulted in the formulation of a new framework that defines service quality as a more comprehensive concept. It shifted the understanding of service quality from a standalone description of perceived service quality, satisfaction, perceived gain or loyalty to a concept that describes it as a function of the four constructs and student characteristics having causal or predictive relationships. The analytically hypothesized causal relations were verified by the empirical evidence of this study presented in the measurement (sub-section 5.2.2.3), structural (sub-sections 5.2.4.2) model fit tests and the examination of causal relations (sub-section 5.2.4.3). Hence, service quality is conceptualized as customers' perception of service delivery measured against certain dimensions of perceived service quality that results in customer satisfaction, added value, and loyalty to the institution, which is affected by some student characteristics. This study has introduced such a framework that shifted the concept of service quality in the HE context and thus can be taken as another theoretical contribution of the study.

Unlike the previous studies, this research also considered a wide array of student-related factors believed to have some effect on the students' perception of service quality. The new departure in this study is conducting the study involving different programmes and institutions in addition to the other eleven background and non-background variables (see sections 3.7 and 3.8). Despite the observed inconsistencies in some of the findings of the effects of the student characteristics on the four service quality constructs with literature or the works of other researchers (see sub-sections 5.2.3, 5.2.4.2, and 5.2.4.3), the examination of the effects of more student variables on service quality constructs is a contribution worth recognition in the knowledge base of HE service quality.

As indicated in section 1.1, a well developed and tested instrument to measure service quality was lacking in the EPHE institutions. The efforts made to develop a context specific, reliable and valid survey instrument by this study is a practical contribution relevant to the improvement of service quality in EPHE. It addressed the missing link in the sector. The analyses in sub-section 5.2.5 also uncovered the status of service quality in EPHE. This again is a practical contribution of the study to decision makers and practitioners in the HE sector for it helps the management of EPHE institutions to see the areas that need immediate attention and improvement. Despite such contributions, the study was not immune from limitations. The following section presents some concerns in this regard.

6.6 LIMITATIONS OF THE STUDY

Originally the study was designed to follow a gap approach to determine perceived service quality measurement. However, due to the large number of items included in the survey instrument, writing the survey items as measures of expectation and measures of perception would double the number of perceived service quality items. This would make the items for measuring perceived service quality construct very cumbersome for respondents to respond properly. As a result items designed to measures the students' service expectation part of perceived service quality measurement were dropped. In other words, students' service expectation was not actually measured. Rather students' service expectations are assumed to be inherent student standards or references in the process of judging services – perception. Thus, readers are advised to consider

the fact that expectations are used as implicit standards of judgment and hence they are not actually measured.

The other limitation of this study relates to the fact that it has considered only the undergraduate regular students of EPHE institutions. Non-regular undergraduate students, postgraduate students and other customers of the university were not included in the study. Thus, the findings cannot be generalizable to all undergraduate students. Other researchers may carry out a similar study involving such different groups of customers to validate the perception of student customers about the service quality constructs as well as verify the generalizability of the measurement and structural models tested in this study.

The study represents only the first generation of EPHE institutions. It does not consider those institutions established later for the reasons stated in the methodology chapter of this study. Thus, the findings of the study can be generalizable only to the first generation of HE institutions, not to all EPHE institutions. Researchers can replicate the study in the new PHE institutions or mix of the old and new EPHE institutions to see whether the service quality measurement and structural model employed in this study works. In addition to some of the suggestions already outlined for researchers to consider in the future, the next section presents further avenues for research.

6.7 AVENUES FOR FURTHER RESEARCH

The service quality measurement instrument employed in this study was used for the first time. It needs to be repeatedly administered and refined to improve its reliability and construct validity. Further refinement of the measurement instrument and re-testing the measurement and structural models taking a larger number of public universities and employing the highest cut-off points for model fit indices is an issue researchers may take up to validate the findings of this study.

The observed inconsistencies of findings with regard to multi-group moderation tests of programmes and institutions as well as the student variables that were found contradictory with the literature and the works of other researchers might have emanated from unbalanced number of participants considered in the analysis. Thus, researchers can examine the effects of such

variables again by considering an adequate number of participants representing the population of the groups under study.

One of the observations in the reliability and construct validity test was the reduction of relevant attributes from the support service component. Most of the items dropped in the process of inter-item and item-total reliability tests as well as during the factor analysis and measurement model tests were from the support service component. The researcher believed that this problem occurred because the attributes of academic and support service were used together to measure a dimension in a given construct. Since the nature of support services and students' experience with the support services are different from those provided in the academic wing, it is recommended that researchers use a separate list of attributes and dimensions to measure the quality of academic and support services. This will resolve the problem encountered in the current study. Moreover, treating the two services separately may result in a different number of dimensions and list of attributes for the academic and support service components.

Since the perceived service quality is measured based on the performance only approach, students' actual expectations were not measured. Thus, further research can measure both expectations and perceptions employing the gap approach and see if different results can be obtained.

Finally, researchers are advised study the causal relationships of service quality constructs at a dimension level to know the dimension level predicators of satisfaction, perceived gain and loyalty. This would help to determine important perceived service quality dimensions which have significant predicative power on the dimensions of second and third level constructs. This in turn will help to prioritize interventions necessary to improve service quality. With these points in mind, the following section leads readers to the researcher's reflection on his journey of doctoral study.

6.8 CONCLUDING REMARKS

The researcher's experience as a lecturer, coordinator of the first internal and external audit process, and the head of the academic development and resource centre at the university where he has been working for years initiated him to work on a broader theme, higher education quality.

Initially, the intention was to compare different quality assurance and enhancement approaches (audit, satisfaction, value added) in the context of HE. However, the theme of the research was refocused to the study of service quality in the HE context based on extensive reading in the area, the support from the research proposal development training organised by SANTRUST and suggestions from the supervisor. Specifically, it emphasised exploring the attributes and dimensions used to measure different service quality constructs and examining the relationships among the constructs. In the process, the title of the research evolved to "Measuring and Modelling Service Quality in the EPHE context".

As indicated earlier, what has happened in the process of identifying the research problem or topic was not a simple shift of research interest. Rather it was a shift in value or perspective the researcher had to the actual nature of education and the quality assurance and enhancement process. The researcher came to understand education as a service rather than a product and valued the quality measurement and enhancement process that considers education as a service. This indicates that identifying a knowledge gap or a research topic itself is the result of a learning process that took shape through critical analysis of knowledge in the area as well as reflections on one's practices, beliefs and values.

As stated earlier, one of the important experiences in the course of undertaking this research was the research proposal training provided by SANTRUST. It has exposed the researcher to well-known professors who had rich experience and knowledge in qualitative and quantitative studies. The training ranged from identification of researchable problems to all processes involved in a research undertaking. It helped the researcher a lot in preparing a well-organized and synthesized research proposal. That was a moment when the researcher developed confidence in his doctoral study. The recognition given to the quality of his proposal by the proposal evaluating committee and his supervisor boosted the researcher's motivation for the doctoral research engagement.

The researcher's engagement in the doctoral study was a special journey for two reasons. First, it was a first experience for the researcher to undertake education in the distance mode of delivery in the face of competing work, social and family pressures. Second, it was an exercise that

contributed a lot to his professional and personal development. The journey was both a challenging and wonderful experience that demanded the researcher to work hard to overcome different pressures. Reaching this level and reflecting on the process is a wonderful opportunity indeed. The researcher organised his reflection under themes referring to professional, communication and personal development as well as the challenges faced.

One of the professional developments the researcher finds worth mentioning is the ability to analyse literature critically and systematically. Earlier the researcher had little experience in critically reviewing literature for research undertakings. It was in the process of his doctoral research engagement that he came to learn the skills of critical and systematic analysis of literature. It was an important skill helping him to know different perspectives, the knowledge gap in the area of service quality, and existing inconsistencies of empirical evidence. It was this analytical skill that helped the researcher to identify the gaps in the service quality management and in the formulation of a theoretical framework for the research.

Relevance of the literature to the research questions, to the HE context, credibility and use of up-to-date sources were considered as criteria to select the resources in the process of reviewing literature as far as the availability of resources permitted. In the process of reviewing literature, the researcher found the area explored more in the marketing and business studies than in HE. Understanding education as a service and assessing service quality is an area that few scholars and researchers have shown interest in very recently. Service quality in HE, the researcher argues, is an area that needs more research engagement in the future. There are a lot of unsettled research issues in the area. For instance, the approaches of measuring service quality, the dimensions used to describe and measure different constructs of service quality as well as the causal relationships among the constructs are the major ones. The effect of student-related factors on students' perception of service quality is another broad and unsettled area that needs further research.

Another area of professional development relates to the researcher's understanding about the different worldviews of reality and how they can be measured. The researcher had a strong belief that there is a predetermined reality and what makes people differ in understanding and

interpretation of reality has to do with lack of an appropriate measurement instrument or mankind's limited capacity to understand the reality, not because of an inherent subjectivity of the reality. The relativity of truth emanates from the limited capacity of mankind not from the reality itself.

However, the researcher's readings in the area exposed him to bipolar positions of world views and to those taking the middle ground. After his readings on the world views with regard to reality, he came to believe that as long as the limited capacity of mankind prevails, the subjective interpretation of reality and its relativity persists. This was another polarized position contrary to the first belief. Further examination of views on reality and ways of understanding it exposed the researcher to a perspective that focuses more on the knowledge/reality production process than its nature, pragmatism.

As a result, the researcher came to value that reality/truth/knowledge results from iterative transactions between experience and belief or values and it changes with advancements in the capacity of mankind. That seems the logical reason behind the relativity of reality. This change of value was reflected in the researcher's selection of the research paradigm and research methodology.

The researcher's readings on the research methodology also helped him to know more about the ethical issues that must be considered in the process of developing data collection instruments, administration of instruments, data storage, analysis and reporting of findings. It was a significant change in the researcher's value in relation to ethical considerations compared to his previous experience which was limited only to maintaining anonymity of participants during data collection. The procedure the researcher had passed through to get ethical clearances for the qualitative and quantitative phases of his study from UNISA helped him to consider every detail of ethical considerations during the study, which would not have happened to that level of detail had the requirement not been there. The researcher realized the importance of ethical issues for the safety and dignity of participants as well as for obtaining unbiased and reliable data.

The advanced statistical methods employed in the study (e.g., SEM, CFA, EFA) reinforced the researcher to read a lot in the area. As a result, the researcher learned how to carry out the stated

statistical techniques, and operate AMOS software to process and interpret the data through self-learning. To be honest it was a big achievement to learn and apply such advanced statistics and use AMOS software through self-learning. It made the researcher believe that one can learn and perform more as long as one exerts effort and remains committed.

Thus, engagement in this doctoral study has contributed more than gains in professional or research competence explained in terms of the ability to use qualitative data analysis techniques and advanced quantitative statistical techniques to analyse data. It was an opportunity that made the researcher value and rely on self-learning, which he believes is an appropriate learning strategy at this level of study and to an adult distance learner.

Another interesting lesson the researcher learned from the whole process of his doctoral research engagement was that learning starts when one commences writing his/her ideas based on readings. At the beginning of the study the researcher hesitated to start writing. Instead he spent too much time reading books, journal articles and relevant documents searching for evidence and taking necessary notes. Until the researcher learned the importance of writing a chapter, or a section in a chapter, he had a hard time organising his ideas and developing meaning from readings. He found out that after doing some reading on a topic it is important to start writing on it. That helps to think clearly and critically, and see what is addressed and left out, and then the piece gradually takes shape to the intended level of the thesis. Almost every chapter of the thesis passed through seven to twelve versions of drafting before the first submission to the supervisor. The researcher called this exercise learning by informed writing.

In addition to its contribution to his professional development as an expert in service quality knowledge area and research competences, the doctoral study has contributed to the researcher's communication skills as well. Communication through email exchanges with his supervisor and other people who had a stake in the process of undertaking the doctoral study were cases in point. Dealing with gate keepers to get permission to access participants, convincing participants to participate in the study, getting professional support from professors to validate and translate the instruments, getting comments on statistical analysis from experts and getting the chapters proof read and language edited were the major scenarios that created opportunities for developments in

the researcher's aural and written communication. Through the process the researcher improved not only his communication skills but also interpersonal skills.

As stated earlier self-confidence, strong interest and commitment to the doctoral study, motivation to master rather than rush and self-learning are the major personal developments the researcher believes have been gained in the process.

The journey of the doctoral study was not without challenges. Being an adult and distance learner, the researcher had to undertake his doctoral study parallel to the requirements of work life, social life and family responsibilities. His studies were frequently interrupted because of the above responsibilities. Getting re-connected to the research undertaking after an interruption was time consuming and doubled the efforts and time the researcher needed to finish the study. The researcher would like to confess that he was not doing well in managing time. The independent learning he has been through to learn the advanced statistical techniques as well as running AMOS software had a negative impact on his time management. It was the researcher's interest in the research topic, the supervisor's encouragement and the achievements the researcher had in the process of the study that kept him moving and protected from burnout.

The empathetic understanding and tolerance of the supervisor, his professional comments, the professional freedom he gave the researcher and the flexibility of UNISA contributed making the researcher feel at ease and enabled him to overcome the challenges and cross the line of this doctoral study.

In conclusion, this doctoral study was an experience that went beyond attaining the stated research objectives. It was an opportunity for the researcher's advancement in his profession, communication skills and personal developments. The researcher would like to say it was a right decision to join UNISA for his doctoral study.

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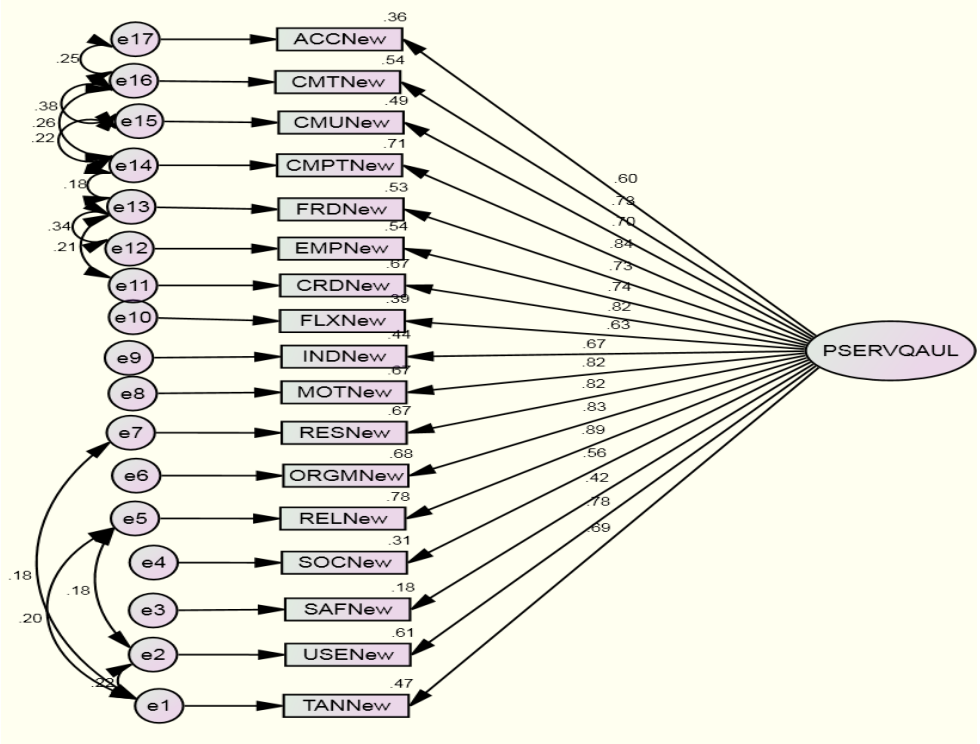
APPENDICES

Appendix A: partial confirmatory analysis at the pilot stage

A1. A partial confirmatory analysis result for PSRVQUAL construct at the pilot stage

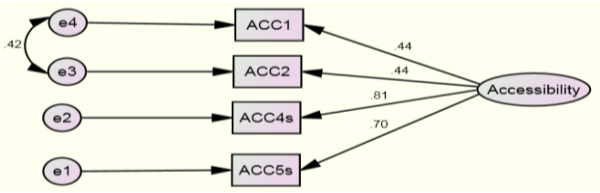


Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
TANNew	<---	PSERVQAUL	.686
USENew	<---	PSERVQAUL	.782
SAFNew	<---	PSERVQAUL	.419
SOCNew	<---	PSERVQAUL	.558
RELNew	<---	PSERVQAUL	.885
ORGMNew	<---	PSERVQAUL	.825
RESNew	<---	PSERVQAUL	.821
MOTNew	<---	PSERVQAUL	.820
INDNew	<---	PSERVQAUL	.665
FLXNew	<---	PSERVQAUL	.625
CRDNew	<---	PSERVQAUL	.818
EMPNew	<---	PSERVQAUL	.737
FRDNew	<---	PSERVQAUL	.729
CMPTNew	<---	PSERVQAUL	.843
CMUNew	<---	PSERVQAUL	.701
CMTNew	<---	PSERVQAUL	.734
ACCNew	<---	PSERVQAUL	.598

A2. Partial Confirmatory factor analysis result for sample dimensions of perceived service quality construct at the pilot stage

i. **Accessibility**



CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	13	1.498	1	.221	1.498
Saturated model	14	.000	0		
Independence model	8	431.974	6	.000	71.996

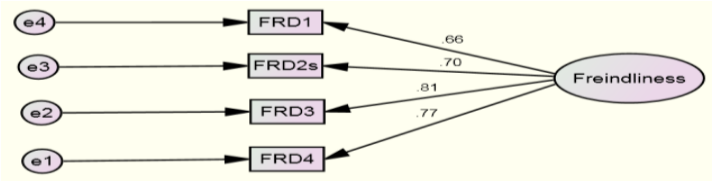
Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.997	.979	.999	.993	.999
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.033	.000	.134	.450
Independence model	.393	.362	.425	.000

ii. Friendliness



CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	12	5.321	2	.070	2.660
Saturated model	14	.000	0		
Independence model	8	653.072	6	.000	108.845

Baseline Comparisons

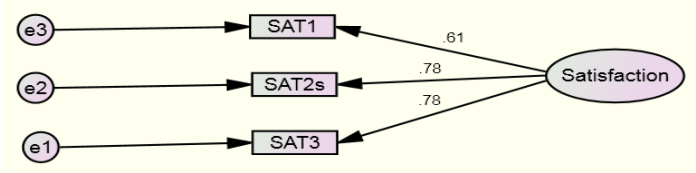
Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.992	.976	.995	.985	.995

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.060	.000	.125	.304
Independence model	.485	.454	.516	.000

A3. Partial Confirmatory factor analysis result for satisfaction construct at the pilot stage



Note for the model

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 9
Number of distinct parameters to be estimated: 9
Degrees of freedom (9 - 9): 0

Result (Default model)

Minimum was achieved
Chi-square = .000
Degrees of freedom = 0
Probability level cannot be computed

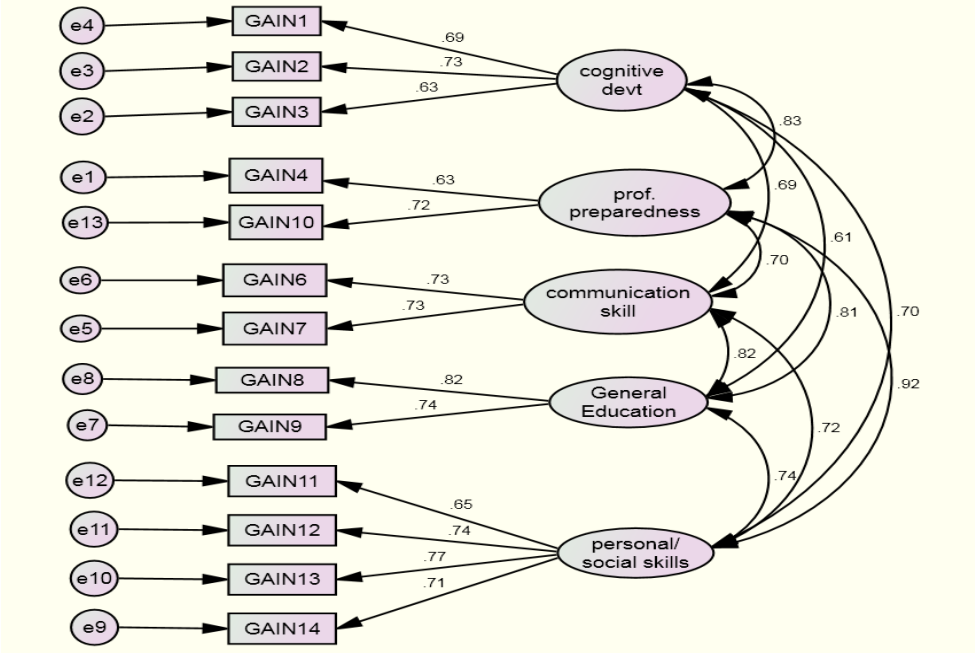
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
SAT3	<---	Satisfaction	1.000				
SAT2s	<---	Satisfaction	.958	.082	11.669	***	par_1
SAT1	<---	Satisfaction	.753	.068	11.077	***	par_2

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
SAT3	<---	Satisfaction	.782
SAT2s	<---	Satisfaction	.782
SAT1	<---	Satisfaction	.614

A4. Partial confirmatory analysis result for perceived gain at the pilot stage



CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	36	113.123	55	.000	2.057
Saturated model	91	.000	0		
Independence model	13	2428.253	78	.000	31.131

RMR, **GFI**

Model	RMR	GFI	AGFI	PGFI
Default model	.031	.963	.939	.582
Saturated model	.000	1.000		
Independence model	.362	.330	.219	.283

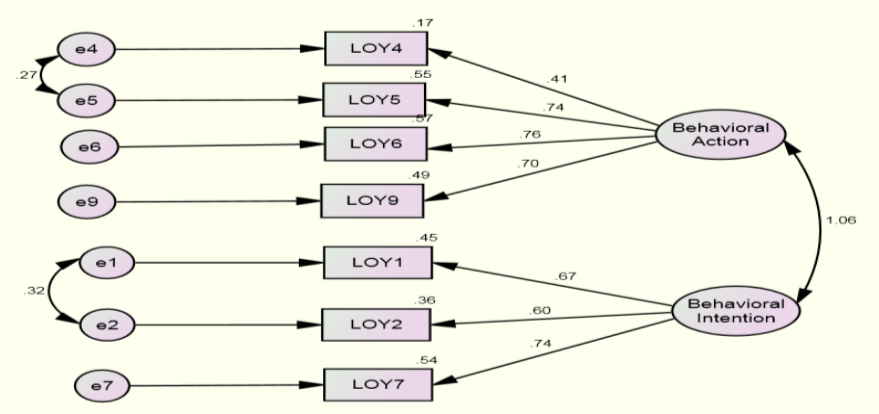
Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.953	.934	.976	.965	.975
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.048	.035	.061	.586
Independence model	.256	.247	.265	.000

A5. Partial confirmatory analysis result for Loyalty construct at a pilot stage



CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	24	30.257	11	.001	2.751
Saturated model	35	.000	0		
Independence model	14	1297.811	21	.000	61.801

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.977	.955	.985	.971	.985
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.062	.036	.089	.205
Independence model	.364	.347	.381	.000

Appendix B: Results of one way ANOVA on differences in perceptions of service quality constructs among students in four programmes and three institutions

B1. One way ANOVA on differences in perceptions of service quality constructs among students in the four programmes

		Sum of Squares	df	Mean Square	F	Sig.
PSERVQAL	Between Groups	75505.691	3	25168.564	8.786	.000
	Within Groups	4033396.674	1408	2864.628		
	Total	4108902.365	1411			
GAINS	Between Groups	1819.127	3	606.376	6.409	.000
	Within Groups	133210.924	1408	94.610		
	Total	135030.051	1411			
SATISFACTON	Between Groups	230.436	3	76.812	12.507	.000
	Within Groups	8647.339	1408	6.142		
	Total	8877.775	1411			
LOYALTY	Between Groups	157.495	3	52.498	1.370	.250
	Within Groups	53955.057	1408	38.320		
	Total	54112.552	1411			

*. The mean difference is significant at the 0.05 level.

B2. One way ANOVA on differences in perceptions of service quality constructs among students in the three institutions

		Sum of Squares	df	Mean Square	F	Sig.
PSERVQAL	Between Groups	19890.277	2	9945.139	3.427	.033
	Within Groups	4089012.087	1409	2902.067		
	Total	4108902.365	1411			
GAINS	Between Groups	955.586	2	477.793	5.021	.007
	Within Groups	134074.465	1409	95.156		
	Total	135030.051	1411			
SATISFACTON	Between Groups	90.026	2	45.013	7.217	.001
	Within Groups	8787.750	1409	6.237		
	Total	8877.775	1411			
LOYALTY	Between Groups	310.368	2	155.184	4.064	.017
	Within Groups	53802.183	1409	38.185		
	Total	54112.552	1411			

*. The mean difference is significant at the 0.05 level.

Appendix C: Summary of measurement model invariance tests for groups

C1. Summary of measurement model invariance tests for groups categorized by sex, residence, and students' value to service quality during university selection

Path			Category				z-score
			Sex				
			Male		Female		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.467	0.000	0.464	0.000	-0.048
SAT	<---	PSRVIQAU	0.144	0.000	0.147	0.000	0.176
SAT	<---	PGAINS	0.049	0.000	0.071	0.000	1.269
LOYALTY	<---	SAT	0.469	0.000	0.720	0.000	1.453
LOYALTY	<---	PGAINS	0.055	0.000	0.015	0.464	-1.768*
LOYALTY	<---	PSRVIQAU	0.078	0.000	0.033	0.215	-1.555
			Residence				
			Urban		Rural		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.464	0.000	0.479	0.000	0.253
SAT	<---	PSRVIQAU	0.145	0.000	0.143	0.000	-0.129
SAT	<---	PGAINS	0.050	0.000	0.062	0.000	0.611
LOYALTY	<---	SAT	0.509	0.000	0.486	0.000	-0.195
LOYALTY	<---	PGAINS	0.052	0.000	0.035	0.060	-0.819
LOYALTY	<---	PSRVIQAU	0.070	0.000	0.078	0.000	0.355
			Value to service quality				
			Value other		Value quality		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.530	0.000	0.413	0.000	-2.179**
SAT	<---	PSRVIQAU	0.154	0.000	0.137	0.000	-1.139
SAT	<---	PGAINS	0.041	0.000	0.064	0.000	1.577
LOYALTY	<---	SAT	0.528	0.000	0.492	0.000	-0.334
LOYALTY	<---	PGAINS	0.048	0.000	0.048	0.000	-0.003
LOYALTY	<---	PSRVIQAU	0.065	0.000	0.076	0.000	0.563

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

C2. Summary of measurement model invariance tests of the measurement model for groups categorized by institution and programmes

Invariance by institutions

			University 1		University 2		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.384	0.000	0.504	0.000	1.759*
SAT	<---	PSRVIQAU	0.167	0.000	0.123	0.000	-2.221**
SAT	<---	PGAINS	0.021	0.108	0.076	0.000	2.722***
LOYALTY	<---	SAT	0.735	0.000	0.287	0.000	-3.01***
LOYALTY	<---	PGAINS	0.066	0.000	0.031	0.038	-1.575
LOYALTY	<---	PSRVIQAU	0.023	0.317	0.115	0.000	3.094***

			University 2		University 3		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.504	0.000	0.516	0.000	0.176
SAT	<---	PSRVIQAU	0.123	0.000	0.144	0.000	1.119
SAT	<---	PGAINS	0.076	0.000	0.058	0.000	-0.922
LOYALTY	<---	SAT	0.287	0.000	0.619	0.000	2.803***
LOYALTY	<---	PGAINS	0.031	0.038	0.051	0.000	1.008
LOYALTY	<---	PSRVIQAU	0.115	0.000	0.048	0.003	-2.737***

			University 3		University 1		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.516	0.000	0.384	0.000	2.129**
SAT	<---	PSRVIQAU	0.144	0.000	0.167	0.000	-1.267
SAT	<---	PGAINS	0.058	0.000	0.021	0.108	2.162**
LOYALTY	<---	SAT	0.619	0.000	0.735	0.000	-0.751
LOYALTY	<---	PGAINS	0.051	0.000	0.066	0.000	-0.707
LOYALTY	<---	PSRVIQAU	0.048	0.003	0.023	0.317	0.880

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

Invariance by programmes

			Economics		Medicine		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.495	0.000	0.488	0.000	-0.082
SAT	<---	PSRVIQAU	0.154	0.000	0.161	0.000	0.336
SAT	<---	PGAINS	0.046	0.006	0.041	0.000	-0.234
LOYALTY	<---	SAT	0.951	0.000	0.574	0.000	-1.823*
LOYALTY	<---	PGAINS	0.034	0.097	0.051	0.000	0.689
LOYALTY	<---	PSRVIQAU	-0.007	0.817	0.046	0.017	1.506

			Economics		Engineering		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.495	0.000	0.437	0.000	-0.770
SAT	<---	PSRVIQAU	0.154	0.000	0.124	0.000	-1.349
SAT	<---	PGAINS	0.046	0.006	0.062	0.000	0.774
LOYALTY	<---	SAT	0.951	0.000	0.325	0.000	-3.27***

LOYALTY	<---	PGAINS	0.034	0.097	0.054	0.000	0.822
LOYALTY	<---	PSRVIQAU	-0.007	0.817	0.108	0.000	3.487***

			Engineering		Medicine		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.437	0.000	0.488	0.000	-0.823
SAT	<---	PSRVIQAU	0.124	0.000	0.161	0.000	-2.056**
SAT	<---	PGAINS	0.062	0.000	0.041	0.000	1.252
LOYALTY	<---	SAT	0.325	0.000	0.574	0.000	-2.083**
LOYALTY	<---	PGAINS	0.054	0.000	0.051	0.000	0.164
LOYALTY	<---	PSRVIQAU	0.108	0.000	0.046	0.017	2.542**

			Psychology		Economics		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.511	0.000	0.495	0.000	-0.143
SAT	<---	PSRVIQAU	0.122	0.000	0.154	0.000	1.029
SAT	<---	PGAINS	0.104	0.001	0.046	0.006	-1.587
LOYALTY	<---	SAT	1.257	0.023	0.951	0.000	-0.524
LOYALTY	<---	PGAINS	-0.014	0.835	0.034	0.097	0.687
LOYALTY	<---	PSRVIQAU	0.019	0.797	-0.007	0.817	-0.326

			Psychology		Engineering		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.511	0.000	0.437	0.000	-0.714
SAT	<---	PSRVIQAU	0.122	0.000	0.124	0.000	0.086
SAT	<---	PGAINS	0.104	0.001	0.062	0.000	-1.193
LOYALTY	<---	SAT	1.257	0.023	0.325	0.000	-1.671*
LOYALTY	<---	PGAINS	-0.014	0.835	0.054	0.000	0.998
LOYALTY	<---	PSRVIQAU	0.019	0.797	0.108	0.000	1.207

			Psychology		Medicine		
			Estimate	P	Estimate	P	z-score
PGAINS	<---	PSRVIQAU	0.511	0.000	0.488	0.000	-0.214
SAT	<---	PSRVIQAU	0.122	0.000	0.161	0.000	1.387
SAT	<---	PGAINS	0.104	0.001	0.041	0.000	-1.828*
LOYALTY	<---	SAT	1.257	0.023	0.574	0.000	-1.213
LOYALTY	<---	PGAINS	-0.014	0.835	0.051	0.000	0.953
LOYALTY	<---	PSRVIQAU	0.019	0.797	0.046	0.017	0.370

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

Appendix D: Summary of multi-group moderation or group differences (for students in different programmes and institutions) in the regression coefficients of the paths of the structural model

D1. Multi-group moderation of programmes

Psychology vs Economics

			Psychology		Economics		
			Estimate	P	Estimate	P	z-score
PSRVIQAU	<---	STEX2	1.210	0.078	0.198	0.657	-1.238
PSRVIQAU	<---	STEX3	0.794	0.247	0.076	0.856	-0.892
PSRVIQAU	<---	STEX10	-0.077	0.841	0.292	0.165	0.840
PSRVIQAU	<---	STEX9	0.561	0.260	0.487	0.053	-0.134
PSRVIQAU	<---	STEX7	0.119	0.705	0.434	0.034	0.842
PSRVIQAU	<---	STEX6	1.315	0.065	0.753	0.052	-0.693
PSRVIQAU	<---	STEX4	0.622	0.049	0.153	0.439	-1.258
PSRVIQAU	<---	Goal	0.326	0.410	0.073	0.769	-0.540
PSRVIQAU	<---	BG3	-0.237	0.604	-0.349	0.228	-0.208
PGAINS	<---	PSRVIQAU	0.512	0.000	0.493	0.000	-0.164
PGAINS	<---	Goal	-0.081	0.798	0.294	0.123	1.012
SAT	<---	PSRVIQAU	0.121	0.000	0.151	0.000	0.981
SAT	<---	PGAINS	0.103	0.001	0.046	0.005	-1.565
SAT	<---	BG3	-0.071	0.278	-0.069	0.096	0.026
LOYALTY	<---	SAT	1.230	0.017	0.956	0.000	-0.501
LOYALTY	<---	PGAINS	-0.009	0.893	0.034	0.095	0.644
LOYALTY	<---	PSRVIQAU	0.021	0.760	-0.007	0.808	-0.377

Psychology vs medicine

			Psychology		Medicine		
			Estimate	P	Estimate	P	z-score
PSRVIQAU	<---	STEX2	1.210	0.078	0.364	0.088	-1.177
PSRVIQAU	<---	STEX3	0.794	0.247	0.220	0.301	-0.800
PSRVIQAU	<---	STEX10	-0.077	0.841	0.518	0.000	1.454
PSRVIQAU	<---	STEX9	0.561	0.260	0.287	0.043	-0.529
PSRVIQAU	<---	STEX7	0.119	0.705	0.355	0.005	0.698
PSRVIQAU	<---	STEX6	1.315	0.065	0.879	0.000	-0.588
PSRVIQAU	<---	STEX4	0.622	0.049	0.355	0.002	-0.796
PSRVIQAU	<---	Goal	0.326	0.410	0.101	0.492	-0.535
PSRVIQAU	<---	BG3	-0.237	0.604	-0.077	0.321	0.347
PGAINS	<---	PSRVIQAU	0.512	0.000	0.483	0.000	-0.276
PGAINS	<---	Goal	-0.081	0.798	0.521	0.000	1.747*
SAT	<---	PSRVIQAU	0.121	0.000	0.159	0.000	1.338
SAT	<---	PGAINS	0.103	0.001	0.041	0.000	-1.823*
SAT	<---	BG3	-0.071	0.278	-0.043	0.002	0.417
LOYALTY	<---	SAT	1.230	0.017	0.583	0.000	-1.232
LOYALTY	<---	PGAINS	-0.009	0.893	0.051	0.000	0.920
LOYALTY	<---	PSRVIQAU	0.021	0.760	0.045	0.021	0.344

Psychology vs Electrical Engineering

			Psychology		Elect Engineering		
			Estimate	P	Estimate	P	z-score
PSRVIQAU	<---	STEX2	1.210	0.078	0.335	0.126	-1.215
PSRVIQAU	<---	STEX3	0.794	0.247	0.440	0.047	-0.492
PSRVIQAU	<---	STEX10	-0.077	0.841	0.422	0.000	1.235
PSRVIQAU	<---	STEX9	0.561	0.260	0.113	0.439	-0.862
PSRVIQAU	<---	STEX7	0.119	0.705	0.359	0.003	0.716
PSRVIQAU	<---	STEX6	1.315	0.065	0.626	0.004	-0.924
PSRVIQAU	<---	STEX4	0.622	0.049	0.199	0.074	-1.260
PSRVIQAU	<---	Goal	0.326	0.410	0.212	0.119	-0.274
PSRVIQAU	<---	BG3	-0.237	0.604	-0.048	0.565	0.408
PGAINS	<---	PSRVIQAU	0.512	0.000	0.423	0.000	-0.849
PGAINS	<---	Goal	-0.081	0.798	0.602	0.000	2.013**
SAT	<---	PSRVIQAU	0.121	0.000	0.123	0.000	0.083
SAT	<---	PGAINS	0.103	0.001	0.066	0.000	-1.076
SAT	<---	BG3	-0.071	0.278	-0.069	0.000	0.033
LOYALTY	<---	SAT	1.230	0.017	0.324	0.000	-1.746*
LOYALTY	<---	PGAINS	-0.009	0.893	0.053	0.000	0.958
LOYALTY	<---	PSRVIQAU	0.021	0.760	0.108	0.000	1.253

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

Economics vs Medicine

			Economics		Medicine		
			Estimate	P	Estimate	P	z-score
PSRVIQAU	<---	STEX2	0.198	0.657	0.364	0.088	0.337
PSRVIQAU	<---	STEX3	0.076	0.856	0.220	0.301	0.304
PSRVIQAU	<---	STEX10	0.292	0.165	0.518	0.000	0.904
PSRVIQAU	<---	STEX9	0.487	0.053	0.287	0.043	-0.690
PSRVIQAU	<---	STEX7	0.434	0.034	0.355	0.005	-0.328
PSRVIQAU	<---	STEX6	0.753	0.052	0.879	0.000	0.288
PSRVIQAU	<---	STEX4	0.153	0.439	0.355	0.002	0.889
PSRVIQAU	<---	Goal	0.073	0.769	0.101	0.492	0.093
PSRVIQAU	<---	BG3	-0.349	0.228	-0.077	0.321	0.909
PGAINS	<---	PSRVIQAU	0.493	0.000	0.483	0.000	-0.138
PGAINS	<---	Goal	0.294	0.123	0.521	0.000	0.979
SAT	<---	PSRVIQAU	0.151	0.000	0.159	0.000	0.338
SAT	<---	PGAINS	0.046	0.005	0.041	0.000	-0.262
SAT	<---	BG3	-0.069	0.096	-0.043	0.002	0.591
LOYALTY	<---	SAT	0.956	0.000	0.583	0.000	-1.794*
LOYALTY	<---	PGAINS	0.034	0.095	0.051	0.000	0.682
LOYALTY	<---	PSRVIQAU	-0.007	0.808	0.045	0.021	1.478

Economics vs Electrical Engineering

			Economics		Elect Engineering		
			Estimate	P	Estimate	P	z-score
PSRVIQAU	<---	STEX2	0.198	0.657	0.335	0.126	0.277
PSRVIQAU	<---	STEX3	0.076	0.856	0.440	0.047	0.765
PSRVIQAU	<---	STEX10	0.292	0.165	0.422	0.000	0.538
PSRVIQAU	<---	STEX9	0.487	0.053	0.113	0.439	-1.283
PSRVIQAU	<---	STEX7	0.434	0.034	0.359	0.003	-0.317
PSRVIQAU	<---	STEX6	0.753	0.052	0.626	0.004	-0.285
PSRVIQAU	<---	STEX4	0.153	0.439	0.199	0.074	0.205
PSRVIQAU	<---	Goal	0.073	0.769	0.212	0.119	0.486
PSRVIQAU	<---	BG3	-0.349	0.228	-0.048	0.565	1.000
PGAINS	<---	PSRVIQAU	0.493	0.000	0.423	0.000	-0.939
PGAINS	<---	Goal	0.294	0.123	0.602	0.000	1.377
SAT	<---	PSRVIQAU	0.151	0.000	0.123	0.000	-1.285
SAT	<---	PGAINS	0.046	0.005	0.066	0.000	0.928
SAT	<---	BG3	-0.069	0.096	-0.069	0.000	0.004
LOYALTY	<---	SAT	0.956	0.000	0.324	0.000	-3.296***
LOYALTY	<---	PGAINS	0.034	0.095	0.053	0.000	0.787
LOYALTY	<---	PSRVIQAU	-0.007	0.808	0.108	0.000	3.511***

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

Medicine vs Electrical Engineering

			Medicine		Elect Engineering		
			Estimate	P	Estimate	P	z-score
PSRVIQAU	<---	STEX2	0.364	0.088	0.335	0.126	-0.095
PSRVIQAU	<---	STEX3	0.220	0.301	0.440	0.047	0.719
PSRVIQAU	<---	STEX10	0.518	0.000	0.422	0.000	-0.530
PSRVIQAU	<---	STEX9	0.287	0.043	0.113	0.439	-0.853
PSRVIQAU	<---	STEX7	0.355	0.005	0.359	0.003	0.023
PSRVIQAU	<---	STEX6	0.879	0.000	0.626	0.004	-0.847
PSRVIQAU	<---	STEX4	0.355	0.002	0.199	0.074	-0.982
PSRVIQAU	<---	Goal	0.101	0.492	0.212	0.119	0.557
PSRVIQAU	<---	BG3	-0.077	0.321	-0.048	0.565	0.255
PGAINS	<---	PSRVIQAU	0.483	0.000	0.423	0.000	-0.966
PGAINS	<---	Goal	0.521	0.000	0.602	0.000	0.458
SAT	<---	PSRVIQAU	0.159	0.000	0.123	0.000	-1.988**
SAT	<---	PGAINS	0.041	0.000	0.066	0.000	1.481
SAT	<---	BG3	-0.043	0.002	-0.069	0.000	-1.158
LOYALTY	<---	SAT	0.583	0.000	0.324	0.000	-2.158**
LOYALTY	<---	PGAINS	0.051	0.000	0.053	0.000	0.128
LOYALTY	<---	PSRVIQAU	0.045	0.021	0.108	0.000	2.603***

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

D2. Multi-group moderation of Institutions

University 2 vs University 1

			University 2		University 1		
			Estimate	P	Estimate	P	z-score
PSRVIQAU	<---	STEX2	0.158	0.519	0.282	0.369	0.311
PSRVIQAU	<---	STEX3	0.488	0.051	0.116	0.707	-0.939
PSRVIQAU	<---	STEX10	0.362	0.004	0.219	0.169	-0.707
PSRVIQAU	<---	STEX9	0.179	0.232	0.429	0.041	0.974
PSRVIQAU	<---	STEX7	0.229	0.053	0.567	0.000	1.640
PSRVIQAU	<---	STEX6	0.883	0.000	0.935	0.002	0.141
PSRVIQAU	<---	STEX4	0.038	0.731	0.472	0.003	2.245**
PSRVIQAU	<---	Goal	0.080	0.590	0.345	0.069	1.100
PSRVIQAU	<---	BG3	-0.138	0.117	-0.062	0.626	0.492
PGAINS	<---	PSRVIQAU	0.503	0.000	0.365	0.000	-2.058**
PGAINS	<---	Goal	0.409	0.002	0.476	0.001	0.337
SAT	<---	PSRVIQAU	0.121	0.000	0.162	0.000	2.063**
SAT	<---	PGAINS	0.077	0.000	0.027	0.042	-2.515**
SAT	<---	BG3	-0.033	0.092	-0.072	0.000	-1.335
LOYALTY	<---	SAT	0.279	0.000	0.719	0.000	3.011***
LOYALTY	<---	PGAINS	0.031	0.042	0.066	0.000	1.625
LOYALTY	<---	PSRVIQAU	0.117	0.000	0.027	0.232	-3.076***

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

University 2 vs University 3

			University 2		University 3		
			Estimate	P	Estimate	P	z-score
PSRVIQAU	<---	STEX2	0.158	0.519	0.652	0.002	1.529
PSRVIQAU	<---	STEX3	0.488	0.051	0.255	0.217	-0.719
PSRVIQAU	<---	STEX10	0.362	0.004	0.613	0.000	1.352
PSRVIQAU	<---	STEX9	0.179	0.232	0.161	0.251	-0.084
PSRVIQAU	<---	STEX7	0.229	0.053	0.317	0.009	0.521
PSRVIQAU	<---	STEX6	0.883	0.000	0.681	0.002	-0.650
PSRVIQAU	<---	STEX4	0.038	0.731	0.340	0.003	1.889*
PSRVIQAU	<---	Goal	0.080	0.590	0.212	0.110	0.660
PSRVIQAU	<---	BG3	-0.138	0.117	-0.135	0.084	0.031
PGAINS	<---	PSRVIQAU	0.503	0.000	0.509	0.000	0.082
PGAINS	<---	Goal	0.409	0.002	0.554	0.000	0.823
SAT	<---	PSRVIQAU	0.121	0.000	0.143	0.000	1.183
SAT	<---	PGAINS	0.077	0.000	0.058	0.000	-0.992
SAT	<---	BG3	-0.033	0.092	-0.068	0.000	-1.418
LOYALTY	<---	SAT	0.279	0.000	0.627	0.000	2.947***
LOYALTY	<---	PGAINS	0.031	0.042	0.051	0.000	1.020
LOYALTY	<---	PSRVIQAU	0.117	0.000	0.047	0.004	-2.873***

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

University 1 vs University 3

			University 1		University 3		
			Estimate	P	Estimate	P	z-score
PSRVIQAU	<---	STEX2	0.282	0.369	0.652	0.002	0.980
PSRVIQAU	<---	STEX3	0.116	0.707	0.255	0.217	0.376
PSRVIQAU	<---	STEX10	0.219	0.169	0.613	0.000	1.869*
PSRVIQAU	<---	STEX9	0.429	0.041	0.161	0.251	-1.061
PSRVIQAU	<---	STEX7	0.567	0.000	0.317	0.009	-1.207
PSRVIQAU	<---	STEX6	0.935	0.002	0.681	0.002	-0.690
PSRVIQAU	<---	STEX4	0.472	0.003	0.340	0.003	-0.681
PSRVIQAU	<---	Goal	0.345	0.069	0.212	0.110	-0.578
PSRVIQAU	<---	BG3	-0.062	0.626	-0.135	0.084	-0.487
PGAINS	<---	PSRVIQAU	0.365	0.000	0.509	0.000	2.366**
PGAINS	<---	Goal	0.476	0.001	0.554	0.000	0.418
SAT	<---	PSRVIQAU	0.162	0.000	0.143	0.000	-1.038
SAT	<---	PGAINS	0.027	0.042	0.058	0.000	1.871*
SAT	<---	BG3	-0.072	0.000	-0.068	0.000	0.170
LOYALTY	<---	SAT	0.719	0.000	0.627	0.000	-0.605
LOYALTY	<---	PGAINS	0.066	0.000	0.051	0.000	-0.750
LOYALTY	<---	PSRVIQAU	0.027	0.232	0.047	0.004	0.711

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

Appendix E: Interview guide English version (sample items)

(Note that the translated version is not appended for reason of space)

UNIVERSITY OF SOUTH AFRICA
COLLEGE OF EDUCATION
EDUCATION MANAGEMENT DEPARTMENT

Interview guide to undergraduate students

Dear student,
Thank you for taking part in this study. The purpose of this one-to-one interview is to gather detailed information about your encounter level and overall perceptions about the attributes of service quality constructs in the context of EPHE and thereby develop a service quality measurement instrument. I regard you as someone who can provide such detailed information; you are under no obligation to participate in the interview and can therefore choose not to be interviewed. Kindly note that even though I will be making notes in a book, the voice recorder will be switched on during the interview to ensure that as much information as possible is captured. Also note that all information will be treated confidentially. Please do not hesitate to ask any question regarding what I have just explained.

Do you agree/disagree to be interviewed?
Do you agree/disagree to be voice recorded?

Thank you for agreeing/disagreeing to be interviewed and voice recorded.
If you are willing to participate in the interview kindly note and remember the following.

- Please feel free to ask me to repeat or rephrase a question, where necessary.
- Please answer questions as honestly as possible.
- Please be informed that you can refrain from giving your ideas/responses to questions with which you feel uncomfortable, if any.

I. Attributes of constructs of service quality

1.1 Encounter level attributes of service quality constructs

A. Academic services are services that include teaching, learning and assessment; academic advising/consultation, research/project advising, and industry link.

---

1. Think of the instructors who have provided these services to you and roughly estimate the percentage of instructors who have served you so far:
    a. to your expectation ----------
    b. more than your expectation ----------
    c. less than your expectation ----------

2. Focus on the instructors who have offered the academic service to your expectation or more, and describe the qualities of those instructors in terms of what they did in:
    a. Teaching and learning
    b. Assessment and grading
    c. Academic advising/consultation
    d. Research advising
    e. Linking the course with industry/real life practice

4. What have you gained from your exposure to the academic activities in the university? (Gains academic)

B. Support services are non-academic services that facilitate the academic services and contribute to the students' personal and social developments.

6. What support services are rendered to students in your university? Please mention as many services as possible (use the Show Card).
    a. Please mention those support services that have been provided to your expectation or more?
    b. How would you describe the qualities/features of these services?

7. What did you feel about the support services providers who have served to your expectation or more? (Satisfaction support)

1.2 University level/Wide attributes to service quality constructs

10. Would you please tell me your overall feelings about the university? (Satisfaction)
15. What would you like to tell about the university to prospective students? (Loyalty)
18. What do you feel when you hear negative word-of-mouth/views about the university? How do you react to such views? (Loyalty)

II. Placement to the university and the field of study

1. Did you join the university by your choice?
    a. What rank was it in your choice? -----
    b. How did you make your decision to choose the university? -------

2. What is your field of study?
    a. Was it in your choice? ----
    b. What rank was it in your choice?
    c. How did you decide to join this field of study? ------

Note: A Show Card that contains list of twenty four different support services was provided for the interviewees to facilitate the identification of services provided in the respective universities.

Appendix F: Questionnaire English version (Sample items)
(Note that the translated version is not appended for the reason of space)

UNIVERSITY OF SOUTH AFRICA
COLLEGE OF EDUCATION
EDUCATION MANAGEMENT DEPARTMENT

Survey questionnaire for undergraduate students

Dear participant,

Code:_____

This questionnaire forms part of my doctoral research entitled: "Measuring and Modelling Perceived Service Quality in Ethiopian Public Higher Education" for the degree of DEd at the University of South Africa. You have been selected by comprehensive sampling strategy from a sample population of 1800. Hence, I invite you to take part in this survey.

The aim of this study is to (1) develop a service quality measurement and structural model that can work in the context of Ethiopian Higher Education and (2) determine the service quality status of Public Higher Education in Ethiopia. The findings of the study will benefit HE students, PHE management and service providers, quality assurance agencies, policy makers and researchers.

You are kindly requested to complete this survey questionnaire comprising of four sections as honestly and frankly as possible and according to your personal views and experience. No foreseeable risks are associated with the completion of the questionnaire which is for research purposes only. The questionnaire will take approximately 60 minutes to complete.

You are not required to indicate your name and your anonymity will be ensured; however, indication of your sex, field of study, year of study, etc. will contribute to a more comprehensive analysis. All information obtained from this questionnaire will be used for research purposes only and will remain confidential. Your participation in this survey is voluntary and you have the right to omit any question if so desired, or to withdraw from answering this survey without penalty at any stage.

After the completion of the study, an electronic summary of the findings of the research will be made available to you on request.

Permission to undertake this survey has been granted by Bahir Dar University management and the Ethics Committee of the College of Education, UNISA. If you have any research-related enquiries, they can be addressed directly to me or my supervisor. My contact details are: 251918769543, e-mail: 45888450@mylife.unisa.ac.za and my supervisor can be reached at 0824116361, Department of Education Management, College of Education, UNISA, e-mail: botharj@unisa.ac.za.

By completing the questionnaire, you imply that you have agreed to participate in this research.

Thank you for your participation

The researcher

Part I: Background Information

Please **encircle** only one alternative that represents your demographic characteristics **or write** the information one the space given.

1. The university where you are studying? ① Ha ② M ③ Ji ④ Ba

5. Where have you lived before joining this university?

① Urban area (localities with **2000 or more** inhabitants)

② Rural area (localities with **less than 2000** inhabitants)

7. Your last semester cumulative grade point average (CGPA)? (Write in the space) ----------

---

Part II: Exposures and Preferences of Students

Please **encircle** only one alternative for each item that represents your exposure or preferences.

1. What was your experience of universities and their services **before joining** this institution?

① I had never visited any university
② I had visited the physical facilities of at least one university
③ I had some awareness about the services of some universities that exceeded visiting their facilities
④ I had been hosted for some days in one of the universities
⑤ I had been enrolled as a student in one of the universities

3. Before joining this university, your information about its services from advertisements through TV, radio, newsletters, leaflets, brochures, websites, etc. was…

① Almost none ② Insufficient ③ Sufficient

4. Before joining this university, what you heard about its services from former students, family, relatives, etc. was …

① Extremely Negative, ② Negative, ③ Both Negative & Positive, ④ Positive,
⑤ Extremely Positive

8. Please indicate the **level of importance** you **actually** placed on the following **8 learning goals** by **encircling** one of the 5-point scale given against each item. The scale represents:

① = Not important at all (NI); ② = Less important (LI); ③ = Somewhat important (SI);
④ = Very Important (VI); ⑤ = Extremely important (EI)

No.	*Items*	Ni	Li	Sm	Vi	Ei
8.1	understanding the courses as thoroughly as possible	①	②	③	④	⑤
8.2	performing better than your peers	①	②	③	④	⑤
8.3	exerting effort only sufficient enough to complete your study	①	②	③	④	⑤

Part III: Perception of the academic and support services actually provided in this university

Below are items developed to measure your **experience** or **perception** of **the actual delivery** of the **academic** and **support services** rendered in **this university**. You are kindly requested to indicate the **extent of your actual experience or perception** by **encircling one** alternative of the five point rating scale given against each item. The scale represents:

①= Not at all (NA); ②= to a little extent (L); ③= to some extent (S); ④= to a great extent (G); ⑤= to a Very great extent (VG)

1. Accessibility

	To what extent …	NA	L	S	G	VG
1.1	are most instructors available in office hours to consult students when needed?	①	②	③	④	⑤
1.3	are most support service personnel available to students when needed?	①	②	③	④	⑤

2. Commitment

	To what extent …?	NA	L	S	G	VG
2.1	are most instructors committed to their teaching job (i.e., come prepared, teach with zeal, are energetic)?	①	②	③	④	⑤
2.4	do most instructors dedicate sufficient time to consult students in academic matters?	①	②	③	④	⑤
2.6	do most support service personnel exert maximum effort to provide the services students need?	①	②	③	④	⑤

3. Communication

	To what extent …?	NA	L	S	G	VG
3.1	do most instructors communicate the course requirements to students in advance?	①	②	③	④	⑤
3.3	do most support service personnel provide adequate information about the services students could get?	①	②	③	④	⑤

4. Competence

	To what extent …?	NA	L	S	G	VG
4.5	do most support service personnel (librarian, café workers, proctors, clinic staff, etc.) serve students properly?	①	②	③	④	⑤
4.6	are most instructors competent in their teaching skills (i.e., attractive lesson presentation, use varieties of teaching methods, participate and engage students, use instructional time effectively, manage classrooms effectively)?	①	②	③	④	⑤

5. Courtesy/friendliness

	To what extent …?	NA	L	S	G	VG
5.1	are most instructors welcoming and friendly when you want to consult them for academic or research advising?	①	②	③	④	⑤
5.2	are most support service personnel respectful, welcoming or approachable to students (such as librarian, café workers, proctors, clinic staff, etc.)?	①	②	③	④	⑤

① =Not at all (NA)
②= To a little extent (L)
③= To some extent (S);
④= To a great extent (G);
⑤= To a very great extent (VG)

6. Empathy/understanding

	To what extent …?	NA	L	S	G	VG
6.1	do most support service personnel understand students and their problems?	①	②	③	④	⑤
6.2	do most instructors understand the needs, feelings, or concerns of students and serve with a caring relationship?	①	②	③	④	⑤

7. Credibility= [trustworthiness, believability, honesty]

	To what extent …?	NA	L	S	G	VG
7.1	do most instructors treat all students equally and fairly?	①	②	③	④	⑤
7.4	can you depend on the services of most support service personnel?	①	②	③	④	⑤

8. Flexibility

	To what extent …?	NA	L	S	G	VG
8.2	are most instructors willing to help students irrespective of the fixed schedule?	①	②	③	④	⑤
8.3	are most support services willing to adjust the time or procedure of service provision to the convenience of students (e.g., registrar, library, clinic, student administration units)?	①	②	③	④	⑤

9. Industry-link

	To what extent …?	NA	L	S	G	VG
9.1	do most instructors use different activities (assignments, projects, cases, examples) or demonstrations (labs, shops, simulations, video records) to relate the courses with the real work/industry experiences?	①	②	③	④	⑤
9.2	does the university provide industry attachments that creates opportunities for skill developments?	①	②	③	④	⑤

10. Motivation

	To what extent …?	NA	L	S	G	VG
10.2	do most instructors deliver lessons that inspire students to attend classes regularly and eagerly?	①	②	③	④	⑤
10.3	do the academic advising services of most instructors reinforced students to use consultation hours properly?	①	②	③	④	⑤
10.6	do most of the support services rendered in the university encourage students to repeatedly use those services?	①	②	③	④	⑤

11. Responsiveness

	To what extent …?	NA	L	S	G	VG
11.1	do most instructors respond willingly and promptly to students' academic advising requests?	①	②	③	④	⑤
11.3	do most support service personnel respond to students' requests promptly?	①	②	③	④	⑤

① =Not at all (NA)
②= To a little extent (L)
③= To some extent (S);
④= To a great extent (G);
⑤= To a very great extent (VG)

12. Organization and management

	To what extent …?	NA	L	S	G	VG
12.3	do most instructors use the instructional time effectively and efficiently (start classes on time, conduct classes regularly, cover contents as scheduled and detailed in the course guidebook, use the instructional time to maximize students' learning)?	①	②	③	④	⑤
12.4	well organized and efficient are most support services provided to students (have clearly set procedures and requirements for the service, mechanisms are sought to avoid long queues, services are delivered right away)?	①	②	③	④	⑤

13. Reliability

	To what extent …?	NA	L	S	G	VG
13.2	are Gost instructors dependable in their academic advising service, i.e., they advise properly all the time?	①	②	③	④	⑤
13.3	are most instructors consistent in their comments to students' project/research works?	①	②	③	④	⑤
13.9	do most support service personnel provide consistent services to students i.e., provide services properly all the time?	①	②	③	④	⑤
13.10	does the university management provide services to students at the time it promised to do so?	①	②	③	④	⑤

14. Socialization

	To what extent …?	NA	L	S	G	VG
14.1	does the university induct new students to help them socialize and adjust to the campus life?	①	②	③	④	⑤
14.3	does the university organize different extra-curricular, club and entertainment activities to help students socialize?	①	②	③	④	⑤

15. Safety and security/comfort

	To what extent …?	NA	L	S	G	VG
15.2	do most instructors behave arrogantly or remain distant from students to gain unnecessary respect from students?	①	②	③	④	⑤
15.5	do most support service personnel harass or disrespect students?	①	②	③	④	⑤

16. Useful/functionality

	To what extent …?	NA	L	S	G	VG
16.2	do most instructors carry out the research/project supervision in a way that helps students develop the required research skills?	①	②	③	④	⑤
16.4	is the support service environment helpful to promote students' learning and overall development?	①	②	③	④	⑤

① =Not at all (NA)
②= To a little extent (L)
③= To some extent (S);
④= To a great extent (G);
⑤= To a very great extent (VG)

17. Tangibles

	To what extent …?	NA	L	S	G	VG
17.1	do students have adequate access to essential support services (e.g., dormitories, libraries, cafeterias, clinics, counselling, admission and registration, entertainment and sport activities, ...)?	①	②	③	④	⑤
17.5	do students have an adequate number of books to refer to for the courses they are attending?	①	②	③	④	⑤
17.7	do labs or workshops have adequate facilities, equipment and supplies necessary to do practical activities?	①	②	③	④	⑤
17.11	do most support service units have the necessary facilities and equipments (like clinics, counselling centres, entertainment and sport centres)?	①	②	③	④	⑤
17.15	is the appearance or dressing of most support service personnel appealing?	①	②	③	④	⑤

Part IV: Other service quality variables

1. **Gains** as a result of exposure to academic and support services in the university

Please rate the extent to which your experience at this university has contributed to your development in the following areas. Use the following scale:

① = Not at all (NA), ② = Little (L), ③ = Some (S); ④ = Much; and ⑤ = Very Much (VM)

	To what extent has your experience in this university developed your …	NA	L	S	M	VM
1.1	basic knowledge in the field of your study?	①	②	③	④	⑤
1.5	professional skills for future career in the field of your study?	①	②	③	④	⑤
1.6	communication skills (presenting ideas, writing reports, attending presentations)?	①	②	③	④	⑤
1.9	general knowledge about the different events and realities in the world (facts, history, etc.)?	①	②	③	④	⑤
1.13	life skills (self confidence, managing self, managing time, managing money)?	①	②	③	④	⑤

2. Satisfaction/state of happiness

Please indicate **your state of satisfaction** for receiving the following services in this university by **encircling** one of the five point scale given against each item. The scale represents**:**

①=Not satisfied (NS), ②=slightly satisfied (SS), ③=moderately satisfied (MS), ④=very satisfied (MS), ⑤=completely satisfied (CS)

	How satisfied are you with the quality of …	**NS**	**SS**	**MS**	**VS**	**CS**
2.1	academic services provided by most instructors?	①	②	③	④	⑤
2.2	support services provided by most support staff?	①	②	③	④	⑤

3. Loyalty /behavioural intentions or behavioural actions

Please indicate the extent of **intentions you have or action you would like to take** as a result of your exposure to the academic and support services in this university by **encircling one** of the five point rating scale given against each item. The scale represents:

①= Not at all (NA), ②= to a little extent (L), ③=to some extent (S),
④=to a great extent (G), ⑤= to a very great extent (VG)

	To what extent …	**NA**	**L**	**S**	**G**	**VG**
3.1	*do* you intend to continue your further education in this university, if you have to study locally?	①	②	③	④	⑤
3.3	did you communicate positive words of mouth while discussing with people about this university?	①	②	③	④	⑤
3.7	do you intend to defend in favour of this university whenever you come across people communicating negative words of mouth?	①	②	③	④	⑤

Appendix H: Certificate of ethical clearance for the qualitative phase

UNISA college of education

Research Ethics Clearance Certificate

This is to certify that the application for ethical clearance submitted by

MT Kassa [45888450]

for a D Ed study entitled

Measuring and modelling perceived service quality in Ethiopian Public Higher Education

(Phase 1)

has met the ethical requirements as specified by the University of South Africa College of Education Research Ethics Committee. This certificate is valid for two years from the date of issue.

Prof VI McKay
Acting Executive Dean : CEDU

UNISA

Dr M Claassens
CEDU REC (Chairperson)
mcdtc@netactive.co.za

Reference number: 2014 NOVEMBER /45888450/MC 17 NOVEMBER 2014

UNISA
COLLEGE OF EDUCATION
2014 -11- 21

Appendix I: Certificate of ethical clearance for the quantitative phase

UNISA university of south africa

COLLEGE OF EDUCATION RESEARCH ETHICS REVIEW COMMITTEE

17 June 2015

Ref #:**2015/06/17/45888450/13/MC**
Student #: Mr TM Kassa
Student Number #: 45888450

Dear Mr Kassa

Decision: Ethics Approval

Researcher
Mr TM Kassa
Tel: +25191 8769543
45888450@mylife.unisa.ac.za

Supervisor
Prof RJ Botha
College of Education
Department of Education Management
Tel: +2782 411 6361
Botharj@unisa.ac.za

Proposal: Measuring and modeling perceived service quality in Ethiopian Public Higher Education (Second Phase)

Qualification: D Ed in Education Management

Thank you for the application for research ethics clearance by the College of Education Research Ethics Review Committee for the above mentioned research. Final approval is granted for 2 years.

For full approval: *The application/ resubmitted documentation was reviewed in compliance with the Unisa Policy on Research Ethics by the College of Education Research Ethics Review Committee on 17 June 2015.*

The proposed research may now commence with the proviso that:

1) *The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*
2) *Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the College of Education Ethics Review Committee.*

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Appendix J: Letters of permission