

**SERVICE QUALITY DIMENSIONS, INFORMATION
COMMUNICATION TECHNOLOGY AND STUDENT SATISFACTION
IN SCHOOLS OF BUSINESS OF CHARTERED UNIVERSITIES IN
KENYA**

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DECLARATION

I declare that this research thesis is my original work and that it has not been submitted to any university for any other award.

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DEDICATION

This research thesis is dedicated to my parents, Stephen and Margaret Kimaita, who planted the inaugural seed of education in my life and taught me the art and science of hard work.

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ABSTRACT

The purpose of this study was to explore the effect of service quality dimensions on student satisfaction in universities in Kenya and specially students in the Schools of Business. Service quality is a measure of the extent to which a service meets and exceeds customer expectations; which in turn creates a competitive edge for the organization. For the purposes of this study, service quality was measured under four dimensions, namely service tangibility, responsiveness, reliability and accessibility. Satisfaction, on other hand, is the extent to which service delivery meets the student expectations, was assessed on the basis of; customer loyalty, referrals, positive word of mouth and student retention. Tremendous growth of university education in Kenya has brought enormous challenges some of which have continued to compromise the quality of services delivered to students. The specific objectives of the study included: to establish the effect of service tangibility on student satisfaction in Schools of Business of Chartered Universities in Kenya, to find out the effect of service responsiveness on student satisfaction in Schools of Business of the Chartered Universities in Kenya, to determine the effect of service reliability on student satisfaction of Schools of Business of Chartered Universities in Kenya, to assess the effect of service accessibility on student satisfaction in Schools of Business of Chartered Universities Institutions in Kenya and to establish the moderating effect of Information Communication Technology on the relationship between service quality dimensions and student satisfaction in Schools of Business of Chartered Universities in Kenya. The study was based on Positivism philosophy and the Cross-sectional descriptive design was employed. Sampling was done in two stages: stage one was sampling of the universities which were the unit of analysis while stage two was sampling students from the sampled universities. Primary data was collected from 400 respondents; questionnaires were self-administered to students during the common units' classes. Descriptive statistics namely; cross-tabulations, frequency distributions and median were used to summarize the data whereas inferential statistics was used to establish the magnitude and the direction of the relationship. Statistical Package for Social Sciences (SPSS) (2020) version 27 was used for data analysis. The study used the Multinomial Logistic Regression Model after the proposed Ordinal Logistic Regression Model was found inappropriate when the test of parallels estimation was carried out.

Results revealed that among the four hypothesis that were tested on both the main effect MLR model and Moderated MLR model service tangibility and service responsiveness were found to be statistically significant. Results of the study indicated that service quality had a significant effect on student satisfaction in Schools of Business of Chartered universities in Kenya. This was based on two service quality dimensions (service tangibility and service responsiveness) that were found significant across all categories under the main effect model and the moderated effect MRL environment. This study is expected to benefit various stakeholders in the education sector among them Higher Education Institutions Management, Commission for University Education, Ministry of Education and Government of Kenya (GoK) in developing essential education policies regarding quality. Scholars and researchers also could use the study as a basis for further research.

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LIST OF ABBREVIATIONS AND ACRONYMS

CHE	Commission for Higher Education
CUE	Commission for University Education
ICT	Information Communication Technology
MOE	Ministry of Education
UNESCO	United Nations for Educational, Scientific and Cultural Organization
GOK	Government of Kenya
SERVQUAL	Service Quality
RSQS	Retail Service Quality Scale
IS	Information System
EDT	Expectancy Disconfirmation Theory
FGD	Focus Group Discussion
SPSS	Statistical Package for Social Sciences
NACOSTI	National Commission for Science, Technology and Innovation
OLR	Ordinal Logistic Regression Model
MLR	Multinomial Logistic Regression Model
ISO	International Organization for Standardization
HEdPERF	Higher Education Performance Framework

OPERATIONAL DEFINITION OF TERMS

Service quality - Is a measure of the extent to which a service meets and exceeds students' expectations which in turn creates a competitive edge for the universities (Tegambwage, 2017).

Service quality dimensions - Instruments that are used to measure the quality of the services provided to students by universities (Ramya, Kowsalya & Dharanipriya, 2019).

University services - are services that universities provide to students and these are academic and non- academic services such as Library services, counselling services, health services, accommodation services among others (Safdar, Habib, Amjad & Abbas, 2020).

Students' satisfaction - A state of mind that student has about the university when expectations have been met or exceeded over the lifetime of a service (s) (Lagrosen, Seyyed-Hashemi & Leitner, 2014).

Universities - Institutions of higher education, usually comprising a college of liberal arts and sciences and graduate and professional schools and having the authority to confer degrees in various fields of study (CUE, 2013).

Tangibility - The appearance of physical facilities, location, equipment, personnel and communication materials that students interact with in the process of obtaining services in a university (Paul, Mittal & Srivastav 2016).

Responsiveness - The eagerness to encourage students and to give provoked benefits. This includes giving students right information, keeping students informed as to when services will be performed, prompt service to students, willingness to help students, readiness to respond to students' requests, giving them undivided attention and promoting services (Huang, Luo & Wang, 2018).

Reliability - Service provider's ability to provide accurate, competent and dependable services (Kubra & Orkun, 2017). Other indicators of reliability include providing services as promised, performing a service right the first time, maintaining accurate records that are error free (Chege, 2020).

Accessibility – Approachability and ease of contact the service is easily accessible, the waiting time to receive the service is not extensive, there are convenient hours of operation and the service facility is in a convenient location (Yarimoglu, 2014).

Information Communication Technology – The technology that supports gathering, processing, storing and presenting data that has enabled continuous education through teaching, learning and research and this makes it possible for students and lecturers to communicate as well as access resources from any place thereby saving time as well as cost (Yilmaz, 2015).

CHAPTER ONE

INTRODUCTION

This chapter presents an explicit background of the study that discusses the independent variables (service tangibility, service responsiveness, service reliability and service accessibility), the dependent variable (student satisfaction) and the moderating variable (Information Communication Technology). The chapter outlines a brief history of School of Business and the origin of university education in Kenya. Additionally, statement of the problem, objectives of the study, research hypotheses, significance and scope of the study are the other main sections that are featured in this chapter.

1.1 BACKGROUND OF THE STUDY

As global and local competition for services increase, it is imperative for companies to provide quality services to their customers as for those who fail to compete on quality risk losing their customers (Donya, Nuha & Naser, 2019). Market research has shown that major service companies lose 14% of their customers for better products, 9% for cheaper products while the largest number 68% leave due to poor quality of services (Car, Pilepic & Simunic, 2014). Studies have reported excessive complaints by customers who are not satisfied with or not delighted by the quality of service offered by some organizations (Ramakele & Koloi-Keaikitse, 2016). Owing to frequency of customer complaints regarding poor service quality within service organizations, management find themselves under great scrutiny (Kealesitse, O'Mahony, Lloyd-Walker & Jay-Polonsky, 2014)

This situation can easily be avoided by ensuring service quality improvements are made to realize competitiveness (Etemad & Rizzuto, 2014). Organizations need to shift their attention to maintaining competitiveness by means of measuring their service quality from the eyes of customers. Through initiating major service quality change programmes, organizations can

reduce the high cost associated with acquiring new customers to replace those who have been lost (Giovanis, Athanasopoulou & Tsoukatos, 2015).

1.1.1 Service Quality Dimensions

Service quality is an indicator of the extent to which service delivery meets and/or exceeds customer expectations which in turn creates a competitive edge for the organization (Tegambwage, 2017). Service organizations have come to appreciate the importance of customer-centered philosophies and using service quality as a differentiator and path to success (Melaku, 2015). This is because competition in the business environment today is stiff and therefore organizations need to deliver high quality services, continuous evaluation and focus on improving the current situation (Wijetunge, 2016). In their study, (Pathmini *et al.*, 2019) posit that service institutions rendering high-quality service achieve enormous success as they are able to satisfy customer needs.

According to Albonaeimi and Hatami (2018), a service provider's perception of service quality is often quite different from a customer's perception hence the need for a tool to measure service quality. Service quality conceptualization encompasses both the service delivery process and its outcome which is a customer evaluation of result of the service (Lehtinen & Jarvinen, 2015). Previous studies may agree that service quality forms a multidimensional construction although there is no agreement regarding generic dimensions. For example, a study by Yarimoglu (2014) acknowledged three dimensions identified three dimensions of service quality which include physical, corporate, and interactive. In addition, a study by Ali, Dey and Filieri (2015) on assessment of service quality and customer satisfaction of air travel in Pakistan found that service quality dimensions (responsiveness, reliability, empathy and assurance) had positive influence on customer satisfaction. Further, a study by Wu (2014) on how some dimensions of service quality impacted gaming establishments in China found that perceived value and corporate image were the dimensions determining customer satisfaction.

While Andam, *et al.* (2015) stated that service quality is conceived as one which comprises five dimensions, namely tangibles, reliability, responsiveness, assurance and empathy. For the purposes of this study tangibility, responsiveness, reliability and accessibility were adopted as service quality dimensions of the study to establish their effect on student satisfaction.

According to Ramya (2019), responsiveness is the willingness to help customers and provide prompt services. Reliability on the other hand is the perceived ability to perform the promised service dependably and accurately. Assurance connotes the perceived employees' knowledge and their ability to inspire trust and confidence while tangibility refers to the appearance of physical facilities, equipment, personnel, and written materials. Lastly, service empathy is considered to be the caring, individualised attention given to customers who in this study are the students.

1.1.2 Customer Satisfaction

Customers' needs, wants and expectations regarding their purchasing experiences keep evolving; service quality and customer satisfaction must be considered indispensable in the service economy (Brophy, Blackler & Popovic, 2015). According to Hennayake (2017), customer satisfaction is the result of customers' comparison of perceived quality and actual service performance. On the other hand, Lagrosen, Seyyed-Hashemi and Leitner (2014) explains customer satisfaction as a state of mind that a customer has about a company when their expectations have been met or exceeded over the lifetime of the product or service. In addition, satisfaction is a summary of a response bound by limited time for the consumption of a product or service and it is also a predictor that enforces a customer to transact with the product (brand) (Ogbeci, Okafor & Onifade, 2018). Salo (2017) concluded that measuring customer satisfaction can offer a pointer for organizations' regarding how efficient they are in providing services to the market, where customer satisfaction is a significant differentiator of

marketing strategy and is mainly contingent on the extent to which services supplied by an organization fulfils or exceeds customer expectations.

Researchers are of distinct views over the antecedents of service quality and customer satisfaction (Kadhim *et al.*, 2020). Service quality leads to enhanced customer satisfaction and loyalty due to several factors such as tangibility, responsiveness, empathy, reliability and commitment (Izogo & Ogba, 2015). Saravanan (2018) stated factors that can increase the satisfaction level of customers are knowledgeable employees, friendly employees, helpful employees, better service quality and quick service. According to Asma (2018) and Yeo, Thai and Roh (2015), specific dimensions of students' satisfaction such as referral, retention and word of mouth need to be given attention as they are widely recognized as critical student outcomes.

Service quality has a direct positive impact on customer satisfaction hence organizations must strive to enhance quality and encourage customer feedback on the level of satisfaction from the service provided (Razali, *et al.*, 2017). A study by Mohammed (2015) sought to analyze customer satisfaction using the 7Ps on retail bank customers in Nigeria. The study revealed that product, and process and physical evidence were significantly related to customer satisfaction while price, promotion, place and people had no significance relationship with customer satisfaction.

A study by Phetogo, Olumide and Cheneso (2020) based in Botswana indicated that satisfying customers can be a challenging task, therefore, it is important for managers to devise initiatives that meet customer needs to improve their trust and loyalty to services offered by organizations. The study focused on student satisfaction as the student is a customer as well as a consumer of a university's services. In this case, satisfaction relates to a student's total experience with both academic and supporting elements of what the institution typically offers (Van, Schalkwyk & Steenkamp, 2014; Negricea, Edu & Avram, 2014). Students' satisfaction can be determined

by both academic and non-academic aspects and is crucial for the existence and survival of any higher education institution (Mestrovic, 2017). Pedro, Mendes, and Lourenco (2018) stated that students' satisfaction leads to loyalty, retention as well as support an organization to increase its customer base through referrals and word of mouth. Comparable to perceived service quality, customer satisfaction is a multifaceted and multi-dimensional concept, in which the overall customer satisfaction can be relevant to the case of university service (Ali *et al.*, 2016); Nugroho, 2014). Kara, Tanui, and Kalai (2016) stated that student satisfaction is related to institutions having knowledgeable and specialized lecturers whom students can easily access for consultation and provide feedback promptly.

1.1.3 Service Quality in Universities

In the university education sector, students are the prime customers and their satisfaction is a sign of the performance of quality of service by the providers (Cubillo, Sanchez & Cervino, 2016). According to Safdar *et al.* (2020), services that universities provide to students include: academic and non- academic for example, library services, counselling services, health services, accommodation services among others. A student purchases these services by giving money in terms of tuition fees hence the institutions must ensure their satisfaction is achieved at all levels (Abbas, 2020). The sector is therefore increasingly recognizing the importance of service quality which has led to heightened efforts to meet the expectations of students (Weerasinghe, Lalitha & Fernando, 2017). Furthermore, Owlia and Aspinwall (2016) contend that satisfaction of students has a major role in shaping the authenticity and accuracy of provided services. According to El-Hilali, Al-Jaber and Hussein (2015), universities must provide acceptable services to maintain the stature and academic reputation and also influence student level of satisfaction. It is therefore, important for universities to understand the service quality dimensions that enable them attract, satisfy and retain students in order to grow their tuition-based revenues (Othman *et al.*, 2020).

Historically, the quality of university education was never a key priority, however, in the recent years; there has been increased interest in measuring the quality of service in the universities (Shaikh, 2019). Students' expectations have placed pressure on universities to be more competitive as those that offer quality services gain an added advantage in terms of attracting and retaining students (Dunja, 2017). Reason being that the primary characteristic of service quality is its commitment to measuring how delivery service level matches students' expectations, which contribute to their satisfaction (Khan & Fasih, 2014). A study by Rouf, Rahman and Uddin (2016) indicated that the long-term survival of universities lies in the provision of quality services. According to Allam (2018), traditionally universities endeavored to deliver high quality throughout their curriculums and processes. Nonetheless, universities are currently operating in a competitive environment therefore they must by all means endeavor towards delivering high-quality service to meet and exceed the needs of students (Joo, 2017). Service delivery in the universities has also been a matter of great concern to students in many countries. The increased competition among higher education institutions to attract highly qualified students towards achieving high academic profiles has forced them to focus more attention to service quality issues (Pang, 2016).

A study by Jaza, Mustafa and Ahmet (2020) pointed out that most academic institutions around the world have seen significant transformation because of the public demand for quality services. In light of this, competitive strategies towards quality education service provision can be developed consciously through integration of quality education service plan into an overall institutional management framework (Pedro, Mendes, & Lourenco, 2018). Negricea, Edu and Avram (2014) stated that for universities to attract students, they must understand the needs of the market and consequently develop strategies that help achieve satisfaction. Besides, students will always prefer institutions that provide better quality and satisfaction which either directly or indirectly affect their loyalty (Annamdevula & Bellamkonda, 2016).

Ali *et al.* (2016) concluded that universities should deliberately put in place mechanisms to assess, diversify, monitor and improve delivery of quality services they offer to students.

According to Onditi and Wechuli (2017), service quality construct in higher education identifies many dimensions such as competence of staff, reputation of the institution, delivery styles by tutors and lecturers, reliability, tangibles, responsiveness, sufficiency of resources, administrative services, and attitude support services among others. Amoako and Asamoah (2020) investigated indicators of education service quality measurement of universities in Ghana and found that the indicators vary from one institution to another and therefore concluded that researchers need to do more investigations on the quality dimensions that influence students' satisfaction. Additionally, service quality being a multi-dimensional construct requires more exploration since findings from numerous researches have been inconclusive and inconsistent on the dimensions that significantly contribute to students' satisfaction. This is because there has not been consensus among authors on the dimensions or the best model that could be used to evaluate service quality in the universities, consequently the area requires more exploration (Onditi & Wechuli, 2017).

1.1.4 Information Communication Technology (ICT)

The fundamental of ICT is comprised of software, hardware, networks, and media, which are primarily utilized to gather, present, process, store, and transmit information via voice, data, text, and images, as well as providing other services (Waleed et al., 2020). The emergence of information and communication technology has created new opportunities for education, especially in higher education (Harsasi & Sutawijaya, 2018). The advances in knowledge, methods and techniques associated to the field of information and communication technologies (ICT) has allowed significant changes in the educational practice (Harsasi & Sutawijaya, 2018). According to Yilmaz (2015), adoption of ICT in higher learning institutions has enabled continuous education through teaching, learning and research and this has made it possible for

students and lecturers to communicate as well as access resources from any place thereby saving time as well as cost.

The development of ICT has placed E-Learning as the paradigm of modern education where learning can occur anywhere and anytime, even where there is a geographical separation between students and teacher or peer students (Castaneda & Selwyn, 2018). E- Learning is a learning process that has enabled or supported using digital tools, the internet (web-based) and digital learning content (Mathevula & Uwizeyimana, 2014). It typically involves some form of interactivity and consultation, for example online interaction between the learner and teacher or peers (Mathevula & Uwizeyimana, 2014). This kind of learning has promoted independent and group learning, as well as reading of each other's ideas and views online (Hubackova & Klimova, 2014). Lecturers/ instructors can carry out online assessments and give students an opportunity to organize their learning by providing instant feedback, through tests or performance-based techniques (Araka *et al.*, 2020).

Use of ICT has also been embraced in libraries to provide teaching and learning materials to students and lecturers. This has eased, supported quick and timely access and transfer of information resources all over the world (Kore *et al.*, 2018). A study by Owino *et al.* (2014) on Service quality in Kenyan Universities: Dimensionality and contextual Analysis pointed out that managers of higher learning institutions must leverage on ICT to encourage learner-centered approach to teaching as opposed to the old tradition of teacher-centered approach to learning. Use of ICT would also provide access to online consultation and other online opportunities to enhance service delivery that would in turn lead to students' satisfaction (Amin, 2014).

1.1.5 History of the School of Business

The School of Business has its origin in the University of Nairobi. The School, formerly the Faculty of Commerce, came into existence in the academic year 1956/57 as part of the former

Royal Technical College which was inaugurated in 1956. The Faculty had special academic and professional relationship with the University of London between 1961 and 1965. During the foregoing period, Commerce subjects were taught under the Faculty of Special Professional Studies, which largely prepared students for the Intermediate Examinations of the Chartered Institute of Secretaries (UK), Association of Chartered and Corporate Accountants (UK) as well as other professional courses. Most of these courses were provided on part-time basis, particularly for students preparing for the Association of Certified and Corporate Accountants at both Intermediate and Final Levels. The conduct of these professional courses marked the beginning of the School of Business's academic history.

1.1.6 University Education in Kenya

The origin of university education in Kenya can be traced back to 1947, when the then colonial government came up with a plan seeking to establish a Technical and Commercial Institute in Nairobi (Bailey, Cloete & Pillay, 2013). In 1949, the plan mutated to encompass the East African region with the aim to provide higher technical education for the three territories of East Africa, namely Kenya, Uganda and Tanzania. However, it was not until 1951 that this concept received a Royal Charter, under the name of the Royal Technical College of East Africa. The College was initially designed to provide instruction in courses leading to the Higher National Certificate offered in Britain and to prepare matriculate students for university degrees in engineering, and commercial courses not available in Makerere in Uganda. The Royal Technical College of East Africa opened its doors to the first intake of students (A-level graduates for technical courses) in April 1956 to become the first Kenyan University (Nyangau, 2014).

A working party established in July 1958 recommended, among other things, that through a process of reconstruction and addition of appropriate facilities, the college be transformed into the second Inter-Territorial University College in East Africa, a recommendation that the East

African governments accepted. On 25 June 1961, the Royal Technical College was transformed into the second university college of East Africa, renamed the Royal College of Nairobi (Bailey *et al.*, 2013). Following Kenya's attainment of independence in 1963, the Royal College was elevated to the University College of Nairobi on 20 May 1964, following the establishment of the University of East Africa with Makerere, Dar-es-Salaam and Nairobi as constituent colleges. This constituted the first step towards the introduction and development of university education in Kenya to tackle the problem of lack of technical personnel (Koyi, Kiprono & Manyali, 2019). This in turn enhanced economic development in low economies by enabling them to catch up with the more technologically advanced countries (Bloom, 2014).

The exponential growth and expansion of university education both public and private in terms of number of institutions and students' enrolment led the government to establish the Commission for Higher Education (CHE) in 1985. The Commission was mandated to give charters and issue letters of interim authority (The Universities Act Cap 210B). Later, the Commission of University Education (CUE) was enacted to replace CHE in 2013 to regulate growth and quality of university education in Kenya (Commission for University Education, 2017). CUE has assured quality by setting standards and monitoring compliance to achieve global competitiveness. As result, universities are hard pressed by CUE to pursue excellence in service, both academic and non-academic with an aim to ensure students satisfaction (World Bank, 2016b).

Growth and increased pressure of competition in the industry has also left the universities with no alternative but to focus on student satisfaction (Kara, Tanui & Kalai, 2016). Devising strategies to attract students, creating efficient and effective learning environment are part of the plans implemented by the administrators in the institutions to link academic success to concepts such as retention and loyalty (Kara *et al.*, 2016). It is imperative that universities monitor the quality of their services and commit to continued improvement to respond to

students' needs (Lien, 2017). It is becoming a common practice for universities to identify dimensions which indicate quality service and root cause for dissatisfaction among students, as these are the key issues facing the institutions (Takaro, 2014). There were a total number of 75 universities in Kenya comprising of 52 public and 23 private chartered universities as at July 2022.

1.2 Statement of the Problem

Universities have come to appreciate the importance of student-centered philosophies and are using service quality as a differentiator and a path to success (Kumar, 2016). This is due to the wake of increased competition in the higher education sector in Nigeria that forced universities to commit to quality standards by adopting market-oriented strategies to distinguish themselves from competition and to maximize growth (Mustaffa, Rahman & Wahid, 2019). Quality standards of ISO 9001 of Kenya's sessional paper number 1, states that higher education institutions should provide adequate and qualified staff, adequate financing, academic resources such as library, technology, facilities and infrastructure (Government of Kenya, 2019).

Although most of the universities have been implementing the ISO quality standards in their operations, there are still concerns that expectations have not been met to achieve students' satisfaction (UNESCO, 2014). A study by Lodesso, Niekerk and Jansen (2018) on service quality and student satisfaction in Ethiopian public universities revealed that quality of services offered to students was poor, leading to students' dissatisfaction.

In Kenya, just as in other countries globally, university education has remained a critical sector due to its impact on economic development (Kara et al., 2016). As such, the sector continues to grow tremendously to meet the market demand for skilled labour and to accommodate the growing student population resulting from the 100% primary to secondary school transition policy by the Government of Kenya (CUE, 2020). The number of students enrolled in Kenya's

universities between the years 2017 - 2020 grew by 7.3 percent, which resulted to an increase in the number of government's sponsored students some of whom are sponsored in private universities (CUE, 2020). This rapid growth in student numbers has brought enormous challenges which include: inadequate academic resources like libraries, lecture rooms, technology, overcrowding, insufficient numbers of lecturers, degraded physical facilities, lack of the specialized equipment needed for particular fields of study and inadequate financing (CUE, 2017; Munene, 2016). As a consequence, universities continue to feel pressured by demands from the stakeholders as well as students' expectations on quality service (Mbote, 2019). Service quality remains a major concern as university practices have failed to provide students with the necessary skills, knowledge, competencies and physical resources (Kagundu & Marwa, 2017). Additionally, a study by Ogendi (2017) on the impact of quality services on student satisfaction in Higher Education in Kenya, asserted that most universities have failed to offer quality services which leads to dissatisfaction and eventual diminishing student numbers.

Since the quality of university services in Kenya continue to be a big concern to all stakeholders including students, it is in this view the study sought to establish the effect of service quality dimensions on student satisfaction in Schools of Business of chartered universities in Kenya.

1.3 Objectives of the Study

1.3.1 General Objective

To establish the effect of service quality dimensions on student satisfaction in Schools of Business of chartered universities in Kenya.

1.3.2 Specific Objectives

The specific objectives of the study are:

- i. To establish the effect of service tangibility on student satisfaction in Schools of Business of chartered universities in Kenya.

- ii. To assess the effect of service responsiveness on student satisfaction in Schools of Business of chartered universities in Kenya.
- iii. To determine the effect of service reliability on student satisfaction in Business Schools of chartered universities in Kenya.
- iv. To assess the effect of service accessibility on student in Schools of Business of the chartered universities in Kenya.
- v. To establish the moderating effect of Information Communication Technology on the relationship between service quality dimensions and student satisfaction in Schools of Business of chartered universities in Kenya.

1.4 Research Hypotheses

The research hypotheses that will guide the study are:

- H₀₁** Service tangibility has no effect on student satisfaction in Schools of Business of chartered universities in Kenya.
- H₀₂** Service responsiveness has no effect on student satisfaction in Schools of Business of chartered universities in Kenya.
- H₀₃** Service reliability has no effect on student satisfaction in Schools of Business of chartered universities in Kenya.
- H₀₄** Service accessibility has no effect on student satisfaction in Schools of Business of chartered universities in Kenya.
- H₀₅** Information Communication Technology has no moderating effect on the relationship between service quality dimensions and student satisfaction in Schools of Business of chartered universities in Kenya.

1.5 Justification of the Study

Service quality is a multi-dimensional construct requires more exploration since findings from numerous researches' have been inconclusive and inconsistent on the dimensions that

significantly contribute to students' satisfaction. This is because there has been lack of consensus among authors on the dimensions or the best model that could be used to evaluate service quality in the universities, consequently the area requires more exploration (Onditi & Wechuli, 2017). Therefore, the need for this research that investigated the service quality dimensions and students' satisfaction.

Findings of this study can be used to identify the key service quality dimensions which could sufficiently achieve student satisfaction. As a result, universities would be able to identify aspects of service quality dimensions that are more significant in terms of enhancing student satisfaction and therefore allocate necessary resources to improve service provision.

1.6 Significance of the Study

The GOK in pursuit of Vision 2030, whose focus is to propel Kenya into a newly industrialized nation status by the year 2030, envisions that universities will play an important role of mediating the attainment of the vision, through human resource training and development. Education and training at university level is expected to create a dependable and sustainable workforce in the form of human resource capital for national growth and development. To meet this obligation, universities must strive to contribute to the discovery of new knowledge, and to instill an appreciation of the value of the pursuit of knowledge. University education is highly valued and acclaimed by all and should be a priority of global policy or research funding in order to achieve set goals.

The findings of this study may therefore provide universities management with an effective guideline to develop the quality standards of service offered to the students. The study may also inform universities management on the dimensions of quality most important to students thus increasing their effectiveness in attempt to satisfy their students. The study may also benefit university employees as it will enhance their knowledge on what it takes to offer quality services in their day-to-day responsibilities and the benefits therein. The study findings could

also be a guide to university stakeholders including CUE, MOE and Government of Kenya (GOK) in developing essential education policies with regard to quality. CUE may benefit from the results of this study as it is the body that is responsible for regulating universities. The regulatory authority may draw frameworks on service quality dimensions most preferred.

The study will benefit marketers in formulating policies that improve service delivery. By addressing the identified factors and following the researcher's recommendations, marketers will benefit from the acquired knowledge when directing their marketing effort at consumers. The study is significant to scholars and researchers in the marketing and consumer behavior fields who may use the results as a basis for further research in the areas of service quality and satisfaction.

1.7 Scope of the Study

The study sought to explore the service quality dimensions and their effect on student satisfaction in Schools of Business of chartered universities in Kenya. Galloway (2015) argues that service quality encompasses the conformance with the requirements and needs of the students. Service quality dimensions under this study were tangibility, responsiveness, reliability and accessibility. Once students attain satisfaction, it leads to high level of loyalty, retention, referrals and word of mouth. The study population was only students from Business schools of chartered universities in Kenya, while the target population was second, third and fourth- year students. School of Business students' formed the majority in population as compared to other courses, refer appendix 4. The students were expected to be in a better position to analyze the variables under study in terms of service quality and customer satisfaction.

CHAPTER TWO

LITERATURE REVIEW

INTRODUCTION

This chapter begins with theoretical framework that features the theories upon which this study was anchored. This is followed by the proposed conceptual framework that presents a summary of the relationship between the study variables. The chapter also covers the empirical review on related studies guided by the objectives of the study. Critique of existing literature relevant to the study and research gaps are also covered in the chapter. The chapter ends with a summary of the reviewed literature.

2.1 Theoretical Framework

This study was anchored on various theories as indicated in this section. A theory is a proposition advanced to explain and predict a phenomenon. It is a set of interrelated definitions, constructs, and propositions that illustrate a methodical view of a phenomenon by explaining the relations among variables so as to predict the phenomena (Cooper & Schindler, 2014). Applicable theories that support this study are; The Hierarchical Service Quality Model, Information System Success Model, SERVQUAL Model and Expectancy disconfirmation theory.

2.1.1 The Hierarchical Service Quality Model

The proponents of this theory are Brady and Cronin (2001); they identify three quality service dimensions namely; the personal interaction quality, physical service environment quality and outcome quality. According to Brady and Cronin (2001), personal interaction quality deals with the experience that customers have with personnel who provide the services and it is one of the factors that influence customer satisfaction. Attitude, behaviors and expertise of the employee are sub-dimensions of the interaction quality.

Service environment quality includes the physical and social setting in which the institution operates such as physical facilities, cleanliness and availability of customer's personal space. Ambient conditions, design and social factors as the sub-dimensions of the physical environment quality. Walter *et al.* (2010) argues that the physical environment is crucial to customers because service delivery occurs in the physical environment where the design, production and delivery of the services are of value to customers. The interior and exterior of the physical environment can also create positive or negative experiences to customer (Walter *et al.*, 2010).

Outcome quality refers to the outcome of the services performance and represents what the consumer achieves from the service. The sub-dimensions that contribute to outcome quality are waiting time, tangibles and valence that affect service quality and contribute to customer satisfaction. Hensley and Sulek (2007) argue that customers become dissatisfied with a service if they have to wait for a long time to be served. Many service firms also worry about customer queues as it may elicit negative perceptions on the quality of customer service (Bielen & Demoulin, 2007). According to Caruana (2012), tangible resources within an institution include capital, access to capital and location (among others) while intangible resources consist of communication materials, knowledge, skills and reputation, entrepreneurial orientation, among others.

Valence is the post consumption of the overall outcome regardless of evaluation of specific aspects of service quality. Customers form service quality perceptions by evaluating services performance at multiple lends and ultimately combine these evaluations to arrive at an overall service quality perception (Brady & Cronin, 2001). Caro and Garcia (2007) used a seven-point Likert scale to measure the consumers' attitudes towards the items under the dimensions. Caro and Garcia (2007) used this model in their empirical research for measuring perceived service quality in urgent transport service industry and they emphasized this hierarchical

conceptualized and multidimensional model was a combining of (Rust & Oliver, 1994; Dabholkar, Thorpe & Rentz 1996) hierarchical RSQS model. The model improves the understanding of what defines service quality perceptions, how service quality perception is formed and how important it is, where the service experience takes place.

2.1.2 SERVQUAL Model

The Service Quality (SERVQUAL) Model was developed and implemented by three American marketing gurus; Parasuraman, Zeithaml and Berry, (1988) to explain why customers experience different quality levels than is expected. Parasuraman, Zeithaml, and Berry (1988), proposed the gap model that explains why customers experience quality differential. The gap model originally proposed ten dimensions of service quality which included reliability, responsiveness, competence, courtesy, communication, credibility, security, understanding/knowing the customer and tangibles. Parasuraman, Zeithaml and Berry (1988) tested the variables and reduced them to five factors to develop what is now referred to as the SERVQUAL model whose dimensions include reliability, assurance, tangibles, empathy and responsiveness. The factors of communication, credibility, security, competence and courtesy were combined into one dimension known as assurance while understanding and knowing the customer were collapsed into one dimension of empathy. In subsequent studies, Parasuraman *et al.* (1988) presented service quality as the degree of discrepancy between customers' expectations of the service and their perceptions of the service performance. They conceptualized this by constructing a 22-item scale instrument, the service quality model.

The service quality model has been widely applied as a tool for measuring service quality and customer satisfaction but scholars continue to question its completeness, operationalization and conceptualization (Kang & James, 2004). An instrument for measuring service quality might vary depending on the service context and hence no universal instrument can be applied to all service situations. A study by Summit *et al.* (2015) concluded that tangibility was the second

weakest dimension in the insurance industry. Scholars have developed other service quality models suited to specific industries, while others have customized the service quality (SERVQUAL) model to suit specific industries. This literature is evidence that the SERVQUAL dimensions need to be customized for specific industries. A study by Al-Azzam (2015) used the SERVQUAL model by dropping service assurance and replacing it with service security to propose five key dimensions of reliability, tangibility, empathy, responsiveness and service security in the banking industry in Jordan. Al-Hashedi and Abkar (2017) adopted the SERVQUAL model for the telecom mobile companies in Yemen and introduced network quality as a new service dimension. Tangibility and responsiveness were dropped and hence only four service dimensions were proposed for the telecom mobile companies in Yemen which include assurance, network quality, empathy and reliability.

Nyamona (2014), adopted SERVQUAL model for Kenya Power and Lighting Company but introduced a new dimension known as “technology”. The study proposed a total of six dimensions of reliability, empathy, responsiveness, assurance, tangibles and technology for Kenya Power and Lighting Company. Owino as quoted by Chege (2020) used SERVQUAL model for universities in Kenya; the study grouped the service quality dimensions into human element reliability, human element responsiveness, non-human elements and service blueprint was introduced as a new service dimension for the higher education sector in Kenya. The findings of the study indicated that service blueprint was the second most important dimension of service quality in Kenyan universities, after service reliability, hence making it a key component for evaluating service quality.

However, SERVQUAL model has received much debate regarding the validity and reliability to measure high contact service setting such as higher education (Silvia *et al.*, 2017). Furthermore, current development in higher education service quality management study suggested the employment of industry-specific measurement model to investigate service

quality in higher education for more understanding and meaningful findings (Silvia *et al.* 2017). Nevertheless, despite the criticism, SERVQUAL has been widely used in various contexts throughout other studies.

2.1.3 Information System (IS) Success Model

In the Delone and McLean (2004) IS Success Model, systems quality measures technical success; information quality measures semantic success and use, user satisfaction, individual impacts, and organizational impacts measures effectiveness success. The model suggests that an information system is created and contains various features which exhibit various degrees of system and information quality. Users and information system managers experience these features while using the system and are either satisfied or dissatisfied. The use of the information system influences the individual user in the conduct of their work. These individual impacts collectively result in organizational impacts (Delone & McLean, 2004).

IS success model measures the success of information systems and fosters net benefits for users or user groups (Delone & McLean, 2004). The model consists of different components; the quality component, which involves system quality, information quality, and service quality and the usage component, where the usage of the system and the resulting satisfaction is addressed. Another component of the model is the net benefits to the user. Customer support falls under the service-quality component as it is a type of a service.

Online student service fits into both information quality and system quality. Different tasks that online customers must perform and information tasks present in all phases of the operation process separates the two (Sterne, 1996). The net benefits are the ultimate impact of the system on the students as well as the institution (Delone & McLean, 2004). These technologies promote efficiency and effective delivery of services that are provided by universities which in turn enhance students' satisfaction (Yao & Zhao, 2010). In order to sustain and achieve greater

satisfaction with on-line services, provision of these services should be accessible and reliable at all times and this could enable the expectations of students to be met (Mishra *et al.*, 2010).

2.1.4 Expectancy Disconfirmation Theory (EDT)

Hoffman and Bateson (2010) noted that the expectancy disconfirmation paradigm is the dominant theory that has been used in the study of customer satisfaction in both the public and the private sectors. The main components of this theory are expectations, perceived performance, disconfirmation, and satisfaction. According to the foregoing researchers, the theory was developed by Richard Oliver between 1977 and 1980. It is a cognitive theory that seeks to debunk post-adoption satisfaction as a function of expectations, perceived performances, and disconfirmation of beliefs.

The central idea of this theory is that, expectations based on perceived performance leads to post-purchase satisfaction. In the case of the public sector, expectations and perceived performance result in post-service provision satisfaction (Hoffman & Bateson, 2010). Bryson and Daniels (2015) are some of the proponents of the theory who argued that the disconfirmation judgement formed inevitably affects customer satisfaction, whether with respect to the public or the private sector. Wells and Foxall (2012) have also extensively discussed perceived performance; they claim that perceived performance is about what customers' experiences are after using services whereby the customers determine whether their experience is worse or better than the previous services.

The EDT has received great support from researchers in various disciplines and has been widely used to evaluate satisfaction with different products and services, for example Liao *et al.*, (2011) with online consumer behaviour while Poister and Thomas (2011) used the model for motorists' satisfaction in state highways. Schwarz (2011) used EDT to evaluate customer satisfaction with information technology outsourced services. Lankton and McKnight (2012)

also used EDT to evaluate customer satisfaction with Information systems while Gregg (2013) used it with citizen satisfaction.

2.2 Empirical Literature Review

Empirical review covered other studies that have been carried out in the past that relate to the study at hand and it outlines the findings and conclusions of those studies. This section covered a review of all variables under study and these are; service tangibility, service responsiveness, service reliability, service accessibility. The section also captured the dependent variable, which is student satisfaction as well as information communication technology, the moderating variable in this study.

2.2.1 Service Tangibility and Student Satisfaction

Tangibility is the appearance of physical facilities, location, equipment, personnel and communication materials, (Paul, *et al.*, 2016). Sharmin *et al.*, (2016); Saliba and Zora (2018) considered tangibles as a distinct element, showing consistency across cultures. In the context of universities, tangibility may include the classroom environment, furniture, and buildings, well printed material, the appearance of the institution and teaching equipment (Mwiya, *et al.*, 2017). Appearance is improved by making the environment serene and attractive, instilling professionalism and ethical practices among staff members as well as promoting diversity in reference to equipment and facilities (Raphael, 2014). According to Alhkami and Alarussi (2016), well-maintained physical facilities, availability of teaching materials that are visually appealing and modern equipment may lead to a high score in the tangibles dimension for universities.

A study on relationship between service tangibility and customer satisfaction revealed a significant relationship between tangibility of a service and customer loyalty (Magnusson & Sundin, 2014). Similarly, a study by Twaussi and A-Kilani (2015) established that tangibility dimension has strong influence on student satisfaction in the higher education industry. A study

on the relationship between service quality and student's satisfaction revealed that program quality has strong significant effect on student satisfaction (Osman & Saputra, 2019). A study by Saghier and Nathan (2013) established that there is a positive relationship between tangibility and customer satisfaction but no significant effect. Conversely, a study by Anantha, Arokiasamy and Huam (2014) found out there is no relationship between tangibility and customer satisfaction in retail banking sector in Malaysia.

In the higher education sector, Yousapronpaiboon (2014) on service quality and students' satisfaction in Thailand established low scores in all the five dimensions of service quality reliability, responsiveness, assurance, empathy and tangibility which indicated that students had poor perception of the service quality efforts of the education institutions. However, of all the five dimensions, tangibility dimension was awarded the lowest scores. A study by Wei (2019) on the impact of service quality on customer satisfaction of a Hotel at Johor Bahru, Malaysia found that tangibility had a greater score than other dimensions of service quality while empathy had the lowest score.

A study by Ogendi (2017) on impact of quality services on customer satisfaction in higher education sector: A case of private universities in Kenya, recommends that universities should improve quality of physical facilities such as buildings, which give first impression of the university and being competitive in terms of the courses offered to students. In another study that investigated the relationship between service quality and students' satisfaction in public universities in Kenya, Kara *et al.* (2016) concluded that service quality dimensions had a significant effect on student satisfaction. The results revealed some degree of inconsistencies as far as perceptions of the tangibility dimension in the service quality equation and how service quality might relate to satisfaction.

2.2.2 Service Responsiveness and Student Satisfaction

Responsiveness is defined as the willingness or readiness of employees to provide services (Khan *et al.*, 2018). Huang *et al.* (2018) defined responsiveness as the enthusiasm to encourage clients and to give them needed services. This includes; giving customers right information, keeping customers informed as to when services will be provided, prompt service to customers, willingness to help customers, readiness to respond to customers' request and giving them undivided attention. Uyoga and Lagat (2019) posited that responsiveness as speed, prompt customer service, less waiting time, short queuing time and timeliness of service delivery.

According to Yarimoglu (2014), responsiveness dimension is the readiness or willingness of staff members to be of assistance in the course of rendering services and focusing on giving the best service. Alhkami and Alarussi (2016) opined that responsiveness is important because customers feel more valued if they sense that the organization is taking action that respond to their expectations. Other authors posited that is the willingness to help clients and giving quick service; communicating to customers by the length of time they have to wait to get assisted and attention to their problems and concerns (Pakurar *et al.*, 2019)

With regard to universities, students' perception of service is affected by the personnel's willingness to help, ability to communicate when service will be delivered and the speed with which the service is provided. Based on empirical research by Kundi *et al.*, (2014) and Alaboodi (2019) findings revealed that responsiveness has an impact on students' satisfaction. Specifically, students who perceive university staff as being responsive will be more satisfied than those that do not. In their study, Jaza *et al.* (2020) found out that responsiveness dimension of service quality affects the achievement of satisfaction in the universities. This meant that if students received a high level of responsiveness from the staff, this enhances their satisfaction. An increase in the degree of responsiveness leads to an increase in service quality lifetime, which creates positive effect on an institution's credibility hence the expected satisfaction by

the concerned parties is achieved (Pakurar *et al.*, 2019). Results of a study by Sari (2023) showed that tangible factors significantly affect students' satisfaction, as these are factors that create an impression on students when entering the university. Moreover, university buildings form students' initial perception of service quality. Studies by Jaza et al (2020) and Peprah (2018) recommend that in order to enhance the effect of responsiveness dimension on service quality satisfaction, it is necessary for staff to have willingness to help students by responding to their requests promptly, providing individual attention and to be truthful by letting students know when services would be offered.

2.2.3 Service Reliability and Student Satisfaction

Reliability is the ability for a service provider to dispense accurate, competent and dependable services (Kubra & Orkun, 2017). According to Chege (2020), other indicators of reliability included providing services as promised, staff are sincere and dependable in handling service problems, performing service right the first time, maintaining accurate records that are error free. Service reliability is among the five dimensions of the SERVQUAL model that is considered the most dominant service quality dimensions in the insurance industry (Paposa *et al.*, 2019).

A study by Anim and Mensah (2015) examined the determinants of service quality among students in Ghanaian universities. By making use of the 5 SERVQUAL dimensions, it was concluded that empathy, responsiveness, assurance and appearance are respectively the four most important determinants of quality service in the universities. It was established that statistically significant and negative relationship exists between the dimension of reliability and overall service quality. Influence of reliability of service quality on customer satisfaction of Libyan E-Commerce customers established that there is a strong relationship between reliability and customer satisfaction (Hamed *et al.*, 2015).

A study by Iddrisu *et al.* (2015) on the relationship between reliability and customer satisfaction indicated that previous researchers have come up with differing conclusions, some of which found out that there is a significant and positive relationship between reliability and customer satisfaction while others established no significant relationship. Higher educational institutions that focus on satisfying customers should ensure there is accuracy in billing, proper record keeping and perform designated academic and non-academic services at the designated time (Iddrisu *et al.*, 2015).

A study by Amani (2017) on service quality in the higher education in Tanzania established that the reliability dimension was among most important dimensions of service quality. This meant that student perception of service quality would increase greatly if reliability dimension was improved. The ability to provide accurate and dependable service would improve students' perception of service quality and increase satisfaction; hence the study recommended that higher education institutions in Tanzania should come up with strategies to strengthen the reliability dimension. The skill of staff to uphold student information confidential, safe, and easy to retrieve when required will create a sense of trust within the staff (Husain *et al.* 2022). Furthermore, students expect skilled and experienced staff, transparency in the evaluation process, proper recording systems, and standard course content, thus increasing their satisfaction (Barua & Uddin, 2021).

Other studies that were conducted in different service sectors in Kenya to determine the relationship between reliability and customer satisfaction include a study by Okoth (2019) to assess the relationship between service quality dimensions and customer satisfaction in bakeries in Nairobi. The study established that there was significant positive relationship between service quality dimensions and customer satisfaction. A descriptive cross-sectional research design was used while convenient and simple random sampling technique was utilized to select 92 respondents. Additionally, Bosire (2018) conducted a study on service quality and

customer experience for mobile service providers in Nairobi, Kenya. The study applied a descriptive design to analyze the service quality dimensions of reliability, assurance, tangibility, empathy and responsiveness. Findings of the study established that reliability had significant influence on customer satisfaction of mobile service providers in Nairobi. The study recommended that there was need to boost the reliability dimension by improving on service consistency and ensuring that the service is available to the customers if and when required.

2.2.4 Service Accessibility and Student Satisfaction

Accessibility has been defined differently by different authors and these include Yarimoglu (2014) who defined accessibility as approachability and ease of contact the service is easily available by telephone, waiting time to obtain services is not too long, there are convenient hours of operation to a customer, and the service facility is in an appropriate location. Accessibility dimension concerns with the ease of contact, friendly, approachability and availability, convenience (with regard to little effort to access services and proximity (closeness in time and space) to get to an institution for services (Randheer, 2015).

According to Osman and Saputra (2019), accessibility means the ease and convenience with which customers can use the services that an organization offers. Approachability and ease of contact are important elements of accessibility that can lead to increased customer satisfaction. A study by Fonseca (2015) indicated that as one of the dimensions of service image, accessibility may have a significant direct or indirect influence on a bank's customer satisfaction and loyalty. Further, a study on student's perception of academic quality indicated that students become satisfied with the diverse features of quality academic service delivered by universities, specifically curricula, but also non-academic aspects such as; access to campus amenities and even campus reputation (Sokoli *et al.*, 2018). These findings confirm that the

entire measurements of quality service have a huge impact on student satisfaction, which in turn affect an institution's reputation.

According to Kara *et al.* (2016), customers' satisfaction is general attitude towards a service provider and the emotional reaction that expects service received is of higher quality. The authors further stated that student satisfaction is related to institutions having knowledgeable and specialized lecturers who can easily be accessed by students for consultation and are willing to provide feedback promptly. Wambugu (2018) carried out a study on effect of service quality dimensions on customer satisfaction among Government Huduma Centres in Rift Valley, Kenya and adopted a descriptive research design. A simple random sampling technique was adopted to select respondents from a target population of 7155 customers. The study adapted the SERVQUAL model, service reliability was analyzed alongside the dimensions of service efficiency, service access and customer responsiveness. Consequently, all the dimensions were found to be statistically significant to have influenced customer satisfaction in Huduma Centres.

2.2.5 Information Communication Technology and Student Satisfaction

The centre of ICT constitutes software, hardware, networks, and media, which are primarily utilized to gather, process, store, and transmit information in form of voice, text, and images (Waleed *et al.*, 2020). The two components of ICT are Information and Communication Infrastructure (ICI and ICT) (Twum & Peprah, 2020). The authors argue that use of ICT infrastructure in technology-enhanced learning enables efficient educational sustainability using ICT tools and their processes. ICT-improved education sustainability is the application of ICT in learning and teaching processes, delivery mechanisms, and designing effective assessment parameters to enhance knowledge among learners (Kirkwood & Price, 2014).

Universities are experiencing a paradigm shift, whether as a single and/or dual mode institutional transition or by moving from face-to-face delivery to distance and blended to

online learning. This is as a result of an ongoing digitization of higher education through use of technology (Castaneda & Selwyn, 2018). According to Yilmaz (2015), adoption of ICT in higher learning institutions has enabled continuous education through teaching, learning and research which makes it possible for students and lecturers to communicate as well as access resources from any place thereby saving time as well as other costs. For example, use of Electronic Learning which is a learning process that is enabled or supported use of digital tools, the internet (web-based) and digital learning content. It involves a form of interactivity and consultation which may include online interaction between the learner and peers as well as teachers (Mathevula & Uwizeyimana, 2014). This has encouraged individual and group learning and sharing of ideas as well as views among the learners (Hubackova & Klimova, 2014). Students' online assessment is expected to be carried out during or after the learning process as students need monitoring and feedback in order to see their deficiencies and mistakes. Instructors should be able to provide students with the opportunity to organize their learning by providing instant feedback, through tests or performance-based techniques (Araka *et al.*, 2020).

Libraries use internet to provide teaching and learning materials to students and lecturers. The library services provide access to data and knowledge that support informed research which is instrumental to achieving sustainable development goals in a country or in an institution (Bradley, 2014). Use of ICT in libraries has eased and supported quick and timely access and transfer of information resources to different parts of the world (Kore *et al.*, 2018). Introduction and implementation of online based library user programmes such as online tutorials on searching online resources and virtual tours of library collections have facilitated efficiency and effective operations of library services (Chissenga, 2014). ICT has brought other benefits in libraries including, provision of remote and round the clock access to user and provision of unlimited information from different sources Ashikuzzaman (2014). In addition, ICT has

enabled faster, cheaper and effective management of library operations hence minimizing information overload as information retrieval is made easier in computerized systems Ashikuzzaman (2014).

The disadvantaged groups have also been reached through ICT which has continued to support constant teaching and learning as lecturers have the opportunity to teach at any time (Asabere & Enguah, 2014). ICT also provides access opportunities to network for knowledge sharing, participation, and lifelong education is guaranteed (Dorobat, 2014). There are more expectations from society in terms of; easier access, quality information, more flexible approaches for example online consultation and other online opportunities in education which in turn would enhance teaching and learning (Buabeng-Andoh & Issifu, 2015). According to Bennett *et al.* (2017), assessment is an important factor for student engagement, as it has a critical impact on both student learning and certification. Despite the ubiquity of ICT applications, there have been few investigations into the contributing dimensions of ICT satisfaction in tertiary education sustainability (Islam, 2015).

According to Islam *et al.* (2019), satisfaction is the most recognized measurement of quality and usefulness in service delivery i.e. teaching and learning, accessing results and invoices/fee statement. A study by Reily (2017) on the relationship between service quality and student E-learning explains the E-service quality as one of the key determinants of the E-learning. Students' satisfaction is the judgment that the information and knowledge quality is coping with students' expectations. In this context, E-learning can improve the learning efficacy thus increasing and enhancing students' satisfaction.

According to Oduma *et al.* (2019), the highest quality of education associated with E-learning can go a long way to support the universities improve students' satisfaction. Bates (2014), globally, universities, including those in Africa, are transitioning or have already moved, from face to face to blended education where more of online learning has been adopted. Studies by

Nsamba (2019) and Zeglat *et al.* (2016) indicated that service quality has positive effect on students using E-learning. Further, studies posited that to promote student E-learning, service quality must have tangibility, reliability, responsiveness and assurance. A Study by Mammo and Ngulube (2019) investigated the effect of E-information on student learning and they concluded that E-information had a positive effect on students learning. However, universities are facing several problems to implement online learning system and hence the need to address the problems to ensure students satisfaction (Sidra, *et al.*, 2020).

2.2.6 Service Quality and Student Satisfaction

Service quality refers to the ability of a service provider to satisfy customer in an efficient manner and hence boost performance of an institution (Ramya *et al.*, 2019). Customer satisfaction has been defined as the degree to which service performance meets or exceeds the customer's expectations (Paricio, 2017). Customer satisfaction has been recognized as an important factor that may influence loyalty, retention, referrals and positive word of mouth about a firm's services (Belas *et al.*, 2014). In support of this, Shafei and Tabaa (2016) was of the view that customer satisfaction does not only influence customer referrals and repeat purchases but also impact positively on financial position of organizations. Hence, for a company to maintain a stable profit level in a fierce competitive market, it should strive to retain existing customers and increase the overall market share by attracting potential customers (Boohene *et al.*, 2015). For this study, customer satisfaction will be measured in terms of, customer loyalty, customer retention, customer referrals and positive word of mouth. Customer loyalty is defined as the psychological tendency of customers to trust in the product/service and brand of organizations and the repeat purchase after customer satisfaction (Ofusu-Boateng & Agyei, 2020). Customer loyalty is indispensable for any organization to acquire competitive advantage. This is because; loyal customers will help consolidate existing market, reduce marketing costs, enhance the core competitiveness and improve the long-term

business performance (Dayang *et al.*, 2019). High levels of customer satisfaction can lead to customer loyalty, firm's profitability, future revenues and higher market share, trust, customer retention as well as repeat purchase (Zhuang & Babin, 2015). Furthermore, attracting and retaining students are arguably important factor as what students say about an institution will shape potential student attitude towards the institution (Ngoma & Ntale, 2019). Student retention is the key factor in an institution that enhances long term relationship through pursuance of further studies by students in the same university (Nazir *et al.*, 2016). Additionally, retention of students will have strong effect on the particular education institution's profitability (Lee & Moghavvemi, 2015). There is need to understand students' expectations, being in possession of problem-solving skills, showing courtesy and giving individual attention is a priority to institutions in order to obtain students' loyalty, high retention and the ability to acquire new students (Gong & Yi, 2018).

Positive word of mouth is the advertising done by a satisfied customer who consciously and sometimes unconsciously becomes a crusader and a firm's advocate, influencing the views and opinions of potential customers concerning the firm's offering (Ahmad *et al.*, 2014). In the universities, word of mouth communication is important as it helps to hasten the process of decision making on the most preferred university by the potential students (Ozdemira *et al.*, 2016). Universities that offer students satisfaction will definitely gain a competitive advantage as a result of loyalty, retention, positive word of mouth and also students' future referrals (Mangini *et al.*, 2017). Moreover, the outcome for students' willingness to recommend the course or institution to others, maintain contact with the faculty, select the institution again for future study or join the alumni is as a result of their needs having been met consistently (Faizan *et al.*, 2016).

Students tend to favour universities that provide the service quality with conviction that their needs would be completing satisfied (Chen, 2016). Influential factors such as good service

quality and high student satisfaction will boost students' trust and increase motivation leading to improved image of the university (Annamdevula & Bellamkonda, 2016). Kundi *et al.* (2014) investigated the impact of service quality and customer satisfaction in higher education institution using a case study of Gomal University in Pakistan and a sample of 200 students. The study used the SERVQUAL instrument and findings showed significant and positive impact of service quality dimensions on customer satisfaction.

A study by Dachyar and Rusydina (2015) on the link between customer satisfaction and service quality in Jakarta's taxi industry in Indonesia found that customer satisfaction is greatly affected by six factors: company image, perceived value and perceived quality, customer expectations, customer trust and customer complaints. Pareek (2014) used empirical methods to establish the causal factors that affected the satisfaction of bank customers in India. The findings of the study showed that customer satisfaction was significantly affected by product attributes, employee characteristics, bank, tangibles, customer communication, and customer convenience. Moreover, service quality increases customer satisfaction, customer loyalty, market share, and profitability, and lowers costs for an organization (Khamis & Rashid, 2018).

Student Satisfaction Regarding Service Quality at Ethiopian Public Higher Education Institutions: A Case study by Lodesso *et al.* (2018) revealed that students' satisfaction in relation to service quality was insignificant. Most aspects of the service quality dimensions for example reliability and tangibles were considered weak by the students. The other dimensions that were somewhat of lesser importance were; responsiveness, assurance and empathy.

Service Quality Dimensions and Students' Satisfaction: A study of Saudi Arabian Private Higher Education Institutions by Azzam (2018) considered a small sample of only 160 students from a private university and this was a limited sample that would not be appropriate to generalize the findings of the study to all universities. While the researcher maintained best efforts to ensure that homogeneity existed between participants, the use of a convenient sample

could have introduced an element of bias to the investigation. However, the findings revealed that academic service (except responsiveness) showed statistically significant relationship between students' satisfaction and retention.

A study by Chukuakadibia *et al.* (2020) on Nexus of Service Quality, Student Satisfaction and Student Retention Private Colleges in South Africa used a non-proportional quota sampling, a non-probability sampling method to select study participants. However, it is not without its disadvantages, one of which is that according to Sekaran and Bougie (2013), results of studies that utilizes non-probability samples cannot be generalized. Findings of a study by Mwiya, *et al.* (2017) indicated there was existence of statistically significant associations between dimensions of service quality and student satisfaction. The study was limited to a sample of one public university hence the findings were not generalizable as there are a number of public and private universities that the researchers would have considered. This would help compare service quality and student satisfaction between private and public universities. The findings indicated that service quality performance dimensions (tangibility, reliability, responsiveness, empathy and assurance) are each significantly positively related to overall student satisfaction which in turn affects student behavioral intentions. On the contrary, a study on influence of service tangibility, teaching and learning, on students' satisfaction in universities by Kanori *et al.* (2020) revealed that there is no significant relationship between service tangibility related to teaching and learning and student satisfaction. The study adopted three dimensions of quality from the SERVQUAL model i.e. tangibility, responsiveness, reliability and introduce a fourth dimension (accessibility).

The studies of Alnaser *et al.* (2014) and Azam (2018) confirmed that the dimensions of ServQual are important for higher education institutions because they aid in the process of monitoring the quality of services received by students. Further, results showed that the dimensions had influence on the level of satisfaction among students. Khoo *et al.* (2017)

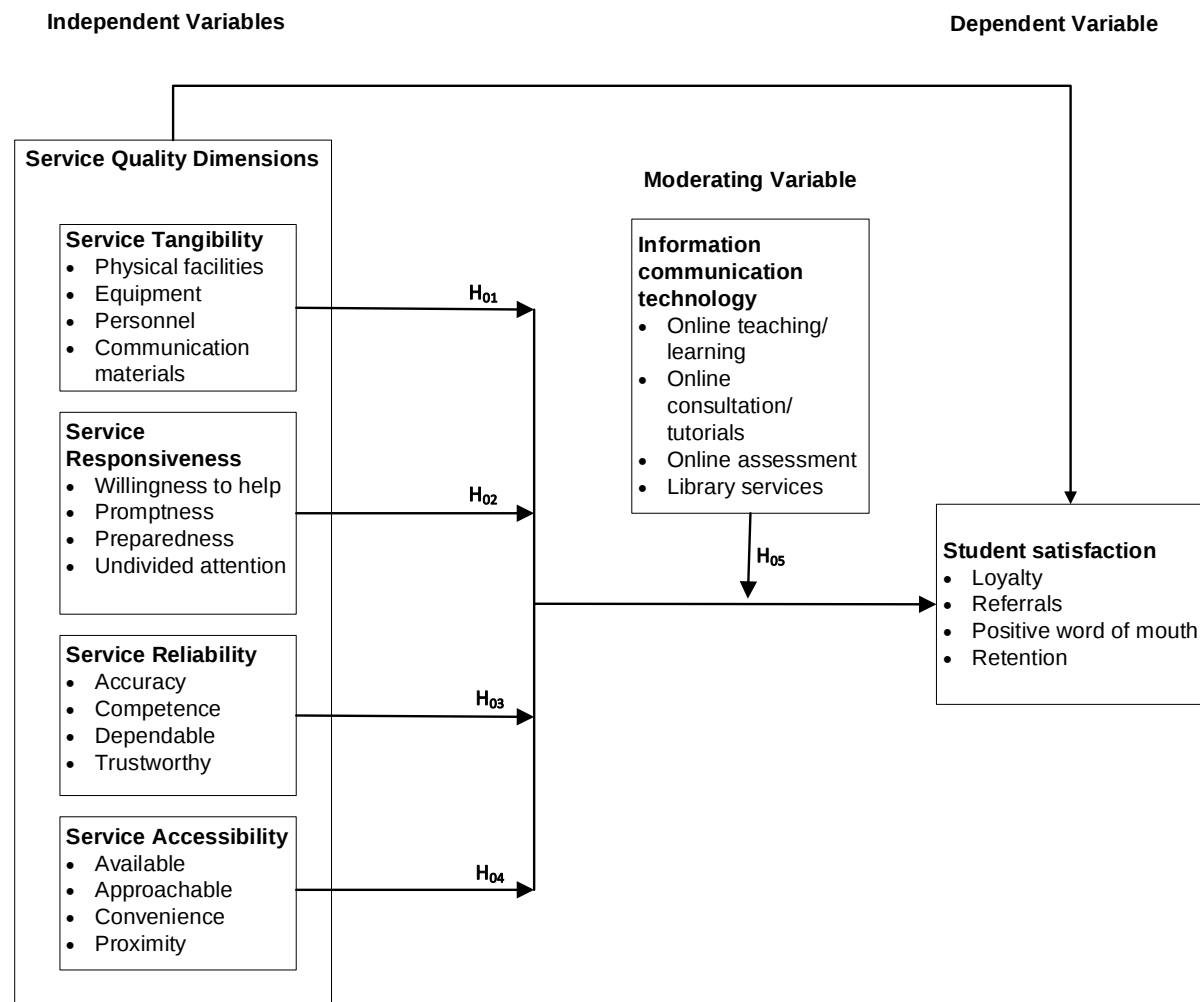
concluded that improving service quality could enhance students' satisfaction in private higher institutions, while empathy and assurance were the most critical dimensions of service quality that influenced students' satisfaction. On the other hand, Baniya (2016) reported that empathy and responsiveness are the most preferred dimensions of service quality by students and quality service is an important determinant of students' satisfaction.

A study carried out by Poturak (2014) on private universities service quality and students' satisfaction in Bosnia and Herzegovina used a sample of 300 respondents. Results indicated that service quality at the private universities had statistically significant effect on students' satisfaction. Mang'uvi and Govender (2014) examined perceived service quality and student satisfaction in Kenyan private universities using a sample of 522 students. The study used the HEdPERF framework to collect the research data. The conclusion from the study indicated that there was no empirical support for a positive and significant relationship between service quality dimensions and students' satisfaction in the universities. A study by Hwang and Choi (2019) on service quality and student satisfaction, institutional image, and behavioral intention in South Korea which adopted tangibles, reliabilities, responsiveness, empathy, and assurance as the service quality dimensions, found perceived institutional image to have highest significance on student satisfaction while reliability dimension had no significance influence on students' satisfaction. Hwang and Choi (2019) based their study private universities which in some instances could be operating differently from public universities; the current study therefore covered both public and private universities for comparison purposes

2.2.7 Conceptual Framework

The study adopted the conceptual framework in which the independent variables and the moderating variable were precursors to the dependent variable. The conceptual diagram identifies service quality dimensions as the independent variable and information communication technology was the moderating variable while student satisfaction is the

dependent variable. The study proposed a moderating variable (information communication technology) assumed to influence relationship between independent variables (service quality dimensions) and dependent variable (student satisfaction).



Source: (Researcher, 2023)

Figure 2.1: Conceptual Framework

The conceptual framework reflects the relationship between service quality dimensions (Independent variables) tangibles, responsiveness, reliability as well as accessibility and student satisfaction (dependent variable). The variable, Information communication technology was used in the assumption that it moderated the relationship between the independent and dependent variable or if it affected the strength and direction of the variables.

The framework also showed the joint relationship between service quality dimensions and student satisfaction.

2.3 Critique of Existing Literature Relevant to the Study

Although the SERVQUAL instrument is very popular in-service quality literature, it has been criticized from different perspectives (Jun & Palacios, 2016). One of the major criticisms of SERVQUAL is its use of gap scores to measure service quality. SERVQUAL was also criticized because of its unstable dimensionality and conceptualization and there is no agreement yet on the number of SERVQUAL dimensions as proposed by the original developers as dimensions appear to vary according to the type of service industry and country (Ramanathan *et al.*, 2018).

Service quality is a multi – dimensional construct and there is no consensus among authors on the dimensions or the best model that should be used to evaluate service quality in institutions of higher learning (Icli & Anil, 2014). The existing literature on the service quality construct in higher education identifies many dimensions such as competence of staff, reputation of the institution, delivery styles by tutors and lecturers, reliability, tangibles, responsiveness, sufficiency of resources, administrative services, and attitude of support services among others (Onditi & Wechuli, 2017). According to Ahmed and Masud (2014), service quality and student satisfaction of a higher educational institute in Malaysia found that administrative services were not significant while lecturer quality and quality of academic programmes had a direct and significant effect on students' satisfaction.

A study by Amoako and Asamoah (2020) investigated indicators of education service quality measurement of higher education in Ghana and found that the indicators vary from one institution to another. Truong, Pham and Vo (2016) took tangibles, reliability, responsiveness, assurance and empathy as variables of their studies and the findings differed according to the country of the study. According to Mohammed (2015), there are inconsistencies between

studies that have been carried out on the dimensions affecting service quality and customer satisfaction. This is because of various geographical context, cultural differences and negative/positive correlation between dimensions that affect service quality and customer satisfaction and thus provide an opportunity to make further study on this area. According to Gakobo *et al.* (2019), also argued that dimensions of service quality in higher education context vary from one institution to another, from one country to another and even from culture to culture, posing a contextual debate.

Findings of previous studies are however inconsistent and inconclusive on the dimensions that significantly contribute to students' satisfaction hence more research is required (Khan *et al.*, 2018). The lack of consensus arguably stemming from the subjectivity and context-specificity of the quality construct perforates the generalizability potential of service quality studies hence more research is required (Onditi & Wechuli, 2017). According to Chua as quoted by Kara (2018), the dimensions should be explored to provide deeper understanding of the educational service quality dimensions embraced by students and how the dimensions affect student satisfaction in specific higher education contexts. The current study is therefore seeking to establish the influence of service quality dimensions on student satisfaction in chartered universities in Kenya.

2.4 Research Gaps

Table 2.1: Summary of Knowledge gaps

Researchers	Study	Findings	Knowledge gaps	Methodology
Chukuakadibia, Nokulunga and Tumelo (2020)	Nexus of Service Quality, Student Satisfaction and Student Retention Private Colleges in South Africa	There is need for continuous improvement in all the variables of the study (Tangibles, Reliability Responsiveness Assurance and Empathy)	The study used a non-proportional quota sampling, a non-probability sampling method to	Stratified sampling used. This enabled proper representation within the sample.

			select study participants.	
Amoako and Asamoah (2020)	Indicators of education service quality measurement of higher education in Ghana	The study found that the indicators vary from one institution to another. The study findings emphasize the fact that technological, instructional and psychological environment jointly has implications for students' satisfaction of educational services	The study was based on three public universities in Ghana. Convenient sampling procedure was used.	Focused on public and private universities in Kenya. This enables a comparison between the public and private universities. Stratified sampling was used.
Azzam (2018)	Service Quality Dimensions and Students' Satisfaction: A study of Saudi Arabian Private Higher Education Institutions	The findings reveal that responsiveness has no sufficient contribution to explain students' satisfaction.	The study used of a convenient sampling. The study focused on private universities only. The research only considered a small sample of 160 students.	Used stratified sampling Focused on both public and private universities in Kenya Sample comprised of 400 respondents.
Twum and Peprah (2020)	The Impact of Service Quality on Students' Satisfaction	The results of the study showed that service quality and its dimensions of assurance, tangible, and responsiveness provide at the School of Business were very satisfied, however,	The study focused on one university, targeting students in School of Business The study considered a sample of 100 students	The study focused on six public and four private universities in Kenya The current study considered a sample of 400 students

		Empathy was moderately satisfied.		
Onditi and Wechuli (2017)	Service Quality and Student Satisfaction in Higher Education Institutions: A Review of Literature.	The research findings are service quality in higher is a multi – dimensional construct and there is no consensus among authors on the dimensions or the best model that should be used evaluate service quality in institutions of higher learning	The study used empirical literature.	Primary data collection was carried out using self-administered questionnaire
Mwiya, <i>et al.</i> (2017)	Higher Education Quality and Student Satisfaction Nexus: Evidence from Zambia	The findings in this study suggest that perceived responsiveness, empathy, assurance, reliability and tangibility each significantly influence overall customer satisfaction in public universities in Zambia.	The study focused on one public university. Correlational design was adopted. SERVPERF model was used in the study.	Focused on both public and private universities in Kenya This study adopted a cross-sectional descriptive design Adopted SERVQUAL model
Mang'uvi and Govender (2014)	Perceived service quality and customer satisfaction using student's perception of Kenyan private universities	The study concluded there was positive and significant relationship between the service quality dimensions and students satisfaction in the universities.	The study was limited to selected private universities in Kenya.	The study covered both public and private universities in Kenya
Kara, Tanui and Kalai (2016)	Educational Service Quality and	The study concluded that there was a	The study was limited to selected public	The current study focused on both public

	Students' Satisfaction in Public Universities in Kenya	moderate overall students' satisfaction in the universities.	universities in Kenya	and private universities in Kenya
Gakobo, Ochieng and Nzioki (2019)	Human Elements and their Influence on Student Satisfaction at Selected Public Universities in Kenya	The study established that reliability, responsiveness, assurance and empathy had significant influence on student satisfaction	The study was limited to 5 public universities in Kenya. The study adopted Descriptive research design.	The study proposed tangibility, reliability, responsiveness and introduces accessibility as independent variables. The study focused on both public and private universities. This study adopted a cross-sectional descriptive design.

Source: Researcher (2023)

2.5 Summary of Literature Review

This section outlines the summary of the literature that has been reviewed in this study. Various studies have been carried out on service quality dimensions and customer satisfaction and authors have come up with diverse conclusions.

As competition increases in the current turbulent university education business environment and with the emergence of knowledge as a driver of economic development, the institutions worldwide are facing immense challenges. The challenges include: inadequate essential resources, necessary to maintain high-quality standards, is reported to have had negative impact on quality of services leading to low students' satisfaction (Twum & Peprah, 2020). According to Schuller *et al.* (2014), universities must continuously build and maintain stronger relationships with students by providing them quality educational service and conducive learning environment. Peprah (2018) emphasized the need for universities to pay attention to

service quality in order to continually improve the learning environment for the students, meet the expectations of other stakeholders, demonstrate institutional effectiveness and gain competitive advantage.

According to Saravanan (2018), factors that can increase the satisfaction level of customers are knowledgeable employees, friendly employees, helpful employees, better service quality and quick service. Mwiya, *et al.* (2017) recommended that quick and timely response of the employees can increase the level of customers' satisfaction. Krishnomoorthy *et al.* (2016) concluded that in higher education industry student's considered teaching curriculum, staff competency, academic aspects and teaching methods the most significant variables.

Findings of Onditi and Wechuli (2017) concluded that academic and non-academic aspects should be included for effective evaluation of service quality and student's satisfaction in higher education top agenda. The study further suggested that universities should be aware of the important dimensions of service quality which are determined by the feedback of the students. Samithamby (2019) examined the retailers' service quality in selected retail outlets in Coimbatore city with a sample size of 384 respondents. They found that there was a relationship between responsiveness, attractiveness, assurance and reliable service. The study indicated that reliable service, price, and assurance more important factor which influences retailers' service.

CHAPTER THREE

RESEARCH METHODOLOGY

INTRODUCTION

This chapter covers the research methodology that was employed in this study. Kothari (2014) defines research methodology as a way of systematically solving a research problem; the theory of how research should be undertaken, including the theoretical and philosophical assumptions upon which research is based and the implications of these for the same. The chapter therefore covers: the research philosophy, research design, the target population, sampling frame, sample size and sample determination, sampling techniques, research instruments, instruments validity and reliability, data collection procedure, pilot study and data analysis methods.

3.1 Study Philosophy

Research philosophy is the foundation of knowledge on which underlying predispositions of a study are based (Robison, 2014). It is analyzed in two ways: ontology and epistemology. Ontology is the pre- methodological question that asks how we comprehend the social world. It is based on the reasoning that because of our gender, age, upbringing and life experience, we all view those around us with distinct ways (Eriksson & Kovalainen, 2015). There exist three epistemology positions and these are; positivism, realism and interpretivist. The positivistic philosophical foundation is based on real facts, objectivity, neutrality, measurement, and validity of results (Saunders, Lewis & Thornhill, 2016).

Positivism maintains that knowledge should be based on facts and no abstractions, thus knowledge is grounded on observations and experiments in contrast to the phenomenological paradigm of searching for inner meaning or the essence of things (Robison, 2014). Additionally, positivism reasons that an objective reality exists which is independent of human behavior and hence it is not created by the human mind. The phenomenological approach on

the other hand is perceptual as it looks at the qualities and phenomena that are subjective (Saunders, Lewis & Thornhill, 2016). Realism, on the other hand, suggests that there is a reality independent of the mind and what we experience is a sensation and images of the things in the real world, not the things directly (Saunders *et al.*, 2016). The Interpretivist philosophical foundation adopts a more personal and empathetic stance and enters the social world of research subjects to understand their world from their point of view rather than to generalize like the positivists do (Creswell, 2014). The constructionist paradigm is conceptualized as having aspects of both the post-positivist and interpretivist paradigms - ontological critical realism with epistemological subjectivism. Meaning is created through an interaction of the interpreter and the interpreted. Knowledge of the observed is constructed rather than discovered, (Crotty, 1998).

This study adopted Positivism philosophy, an approach which holds that knowledge is based on facts and ground on observations and experiments. According to Mitchell and Jolley (2017), the positivism research approach is used to determine the realistic occurrence of events in a particular social construct through application of scientific approaches. This allows for reporting of findings as observed, explanation of the new knowledge discovered and revelation of truth about reality (Robison, 2014). Generalizations can be made from the sample used to suggest that the researcher is 95% or 99% confident that the sample represents the population. With positivism philosophy, hypotheses were tested by statistical analysis and decision made on whether to reject or accept the null hypothesis.

3.2 Research Design

Research design is the comprehensive plan or structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data (Cooper & Schindler, 2014). Saunders *et al.* (2016) stated that research design is the general outline of how the researcher is going to answer the research questions. The design is also concerned with

the descriptions of phenomena or characteristics such as who, what, when, where of a subject population. Research design gives a clear direction on how to select the various sources and types of information required and defines the relationship among the variables of a study. Research purposes may be grouped into exploratory, explanatory, cross-sectional descriptive, correlational, diagnosis and experimentation (Zikmund *et al.*, 2014).

This study adopted a mix method approach where cross-sectional descriptive design was used to collect data from many different individuals at a single point in time, and both qualitative and quantitative data was collected. This supported the study's desired objectivity and allowed logistical flexibility required for data collection and data analysis (Blumberg *et al.*, 2014). Rahi (2017) asserts that cross sectional descriptive surveys are versatile in nature and therefore give accurate means of evaluating the information while enabling the researcher to confirm whether or not there are significant causalities among the variables. Thus, this approach was suitable for the study since questionnaires were administered to respondents at a given point in time. Questionnaire were used with an intention to collect comprehensive information on service quality dimensions in order to explain the relationship between dimensions and student satisfaction.

3.3 Study Population

Population under study is the whole group that the research focuses on (Kothari, 2014). Population comprises of all events or objects that have common characteristics and from which the researcher wants to generalize results (Cooper & Schindler, 2014). The population under the study were students of Business Schools of chartered public and private universities in Kenya. Chartered universities were chosen as they are accredited by the Government and are expected to adhere to the stipulated quality standards set by the Commission on University Education (CUE). Quality ISO standards include adequate and qualified human resource, adequate facilities to cater for the number of programmes on offer and providing students'

services that commensurate with their population. Universities are therefore required to provide adequate resources, facilities and uphold service quality to enhance satisfaction of students (CUE, 2014).

The target population was second, third and fourth-years students from Schools of Business of the chartered universities in Kenya. This category of students was selected because they have a longer period of interaction with services provided by universities and therefore had a better view of service quality. The choice of the schools was that business courses cut across all universities and also control the majority of student population in Kenya, see appendix 4. In addition, business students are taught units that expose them to service quality and customer satisfaction concepts thus this would enhance the quality of data. These units include Human and Public Relations, Principles of Marketing, Marketing of Services, Communication Skills and Customer Relationship Management among others. The students were therefore in a better position to address the variables of interest to the study.

Table 3.1 shows the total number of both public and private chartered universities and their corresponding students' population.

Table 3.1: Students' Population in Schools of Business

Universities Category	Number of Chartered Universities	Number of Students
Public	31	67, 905
Private	21	17, 433
Total	52	85, 338

Source: CUE (2021)

3.4 Sample Frame

Sampling frame is defined as the complete list of individuals or entities in the population from which a probability sample is drawn and to which study findings are to be generalized (Saunders *et al.*, 2016). The sampling frame of the study was a list of students from schools of business

of chartered universities. Sampling was done in two stages: stage one was sampling of the universities while stage two was sampling of students from the sampled universities.

3.5 Sample Size Determination

Sampling is the procedure of selecting a part of population on which research can be conducted, which ensures that conclusions from the study can be generalized to the entire population. While a sample in a research study refers to any group on which information is obtained. A sample enables a researcher to gain information about the population (Kothari, 2014). The sample size for both stages (universities sample and students' sample) was determined using a formula by (Yamane, 1974).

$$n = \frac{N}{1 + N(e)^2}$$

In stage one, N = 52 with an assumed level of precision of 0.3.

$$\begin{aligned} \text{Therefore } n &= 52 / 1 + 52(0.3 \times 0.3) \\ &= 10 \text{ universities} \end{aligned}$$

The 10 out of 52 universities make up the unit of analysis and are stratified as shown in Table 3.2 with their corresponding student population.

Table 3.2: Universities sample and Schools of Business Student Population

Universities	Number of Chartered Universities	Selected Universities	Students' Population
Public	31	6	9,283
Private	21	4	3,779
Total	52	10	13,062

Source: CUE (2021)

Stage two; the target student population derived from the sampled universities is 13,062.

Assuming the level of precision is 0.05, N= 1,062

Therefore, sample n becomes;

$$\begin{aligned} n &= \frac{13062}{1+13062(0.05)^2} \\ &= 400 \end{aligned}$$

The distribution of sample size of 400 across the sampled universities is as shown in Table 3.3 below.

Table 3.3: Sample Distribution for Selected Universities

UNIVERSITIES	Students' Population	Sample Size
Karatina University	1,063	33
Multimedia University	1,039	31
Masinde Muliro	2,302	72
Technical University of Kenya	1,021	30
Chuka University	1,249	38
Maseno University	2,708	85
African Nazarene University	1,010	28
Kenya Methodist University	1,151	35
Kabarak University	1,138	34
Pan African Christian University	480	14
Total	13,062	400

Source: CUE (2021)

3.6 Sampling Techniques

Sampling can either be probability samples or non-probability samples (Saunders, Lewis, & Thornhill, 2016). Probability samples are those based on simple random sampling, systematic sampling, stratified sampling, cluster/area sampling, whereas non-probability samples are those based on convenient/purposive sampling, judgment sampling and quota sampling (Kothari, 2014). Yamane (1974) formula was used to arrive at 10 universities out of 52 chartered universities as the unit of analysis of the study. The universities were further clustered into public and private where proportions were used to determine the number of universities in each cluster. Selection of specific universities was scientifically done using the random number tables; refer to appendix 5. Second, third and fourth-year students were chosen to form the sample unit for the study. This category of students was preferred because they have a longer period of interaction with services provided by universities and therefore have a better view of service quality.

3.7 Data Collection Methods

Data collection is the process of gathering information from the selected subjects in order to obtain answers to hypotheses and research questions (Faryadi, 2014). Researchers can use varied and different types of data collection tools that are deemed effective to their study (Kabir, 2016). These may include interviews, questionnaires, observations, focused group discussions among others (Leedy & Ormond, 2015). Interviewing involves asking questions and getting answers from participants in a study. A questionnaire on the other hand is an instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents. Observation gathers data by watching behavior, events or noting physical characteristics in their natural setting, (Kabir, 2016). Focused group discussions (FGD) on the other hand is an in-depth field method that brings together a small homogeneous group (usually six to twelve persons) to discuss topics on a study agenda (Kabir, 2016).

Questionnaires are the most commonly used method of data collection because they enable a researcher to save time, since it is possible to collect a large amount of information in case of a large population (Christesen *et al.*, 2014). To collect primary data, the study adopted a structured questionnaire to ensure the researcher's biasness did not interfere with the data collection process and for easy coding and analysis. The questionnaires were self-administered to students during the common units' classes. Questionnaires were randomly issued as this allowed each student to have an equal opportunity of being selected to take part in the exercise. Secondary data was also from published sources mainly articles in peer reviewed academic journals. Secondary data was also obtained from special Government reports including, sessional papers on higher education, economic surveys and Vision 2030. Additional information was sought from CUE and the Ministry of Education.

3.7.1 Questionnaire Design

The questionnaire was developed by the researcher in consultation with the study supervisors. It was structured into various sections and aimed at first capturing general information about the respondents and then specific information based on the research variables and sub-variables as indicated in the operationalization Table 3.4. The questionnaires were self-administered to the respective respondents who were asked to indicate their response on a four-level Likert scale, where 1 was reflected Strongly Agree, 2 - Agree, 3 - Disagree and 4 - Strongly Disagree. The questionnaire was constructed based on the variables operationalized on the table below.

Table 3.4: Variable Operationalization

Variable Name Dependent	Variable Definition	Variable Type	Measurement 4-Point Likert Scale
Student Satisfaction	The degree to which service performance meets or exceeds the customer's expectations.	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree
Loyalty	The psychological tendency of customers to trust in the product/service and brand of organizations and the repeat purchase after customer satisfaction.	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree
Referrals	The student willingness to recommend the course or institution to others.	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree
Word of mouth	Is the advertising done by a satisfied customer who consciously and sometimes unconsciously becomes a crusader and a firm's advocate, influencing the views and opinions of potential customers concerning the firm's offering	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree

Retention	A firm's capability to provide a customer not only a buying product, but together with a relationship pattern in a specific period of time.	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree
Independent Variable Service quality dimensions			
Service tangibility	This entails the appearance of physical facilities, location, equipment, personnel and communication materials.	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree
Service responsiveness	The willingness or readiness of employees to provide services.	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree
Service reliability	The service provider's ability to provide accurate, competence and dependable services (Kubra & Orkun, 2017).	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree
Service accessibility	The ease and convenience with which customers can use the services that an organization offers.	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree
Moderating Variable Information Communication Technology			
Online teaching/learning	Learning process that is enabled or supported by the use of digital tools, the internet (web-based) and digital learning content.	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree
Online consultation/tutorials	Involves some form of interactivity, which may include online interaction between the learner and their teacher	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree
Online assessment	Process of giving students feedback during or after the teaching and learning process.	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree
Library services	Provision of access to data and knowledge that support informed research which is	Ordinal	1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree

	instrumental to achieving set goals		
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Source: Researcher (2023)

3.7.2 Data Collection Procedures

The questionnaire was preceded by a letter of introduction from Technical University of Kenya to gain access to the universities under study. The researcher obtained a research authorization letter as well as a research permit from the National Commission for Science, Technology and Innovation (NACOSTI) for introduction purposes in order to comply with the Science and Technology Act, Cap 250 of the Laws of Kenya. The researcher then approached the Directors/Deans of Business Schools to seek permission to conduct this research. With permission granted, the researcher was able to reach out to students and give them the questionnaires. For ease of administration, questionnaires were issued to the respondents (second, third and fourth-year students) during their common units' lectures. To minimize subjectivity from students' responses, questionnaires were administered from fourth to sixth week as at this point in time, all students had reported and settled in their respective universities after end of semester break.

3.8 Pilot Testing

Pilot testing is a check of sound measurement which must meet the tests of reliability, validity and practicality (Zikmund, Babin, Carr & Griffin, 2014). The quality of research instruments and the accuracy of data collection procedures determine the outcome of the study (Kothari, 2014). A pilot test of 5% of the study sample of 20 respondents was carried out. According to Chan, Leyrat and Eldridge (2017), a pilot test of 5% to 10% of the study sample is sufficient. The respondents for the pilot study were not included in the final study; the respondents were derived from Kenyatta City Centre Campus and St. Paul's University, Nairobi Campus. From the pilot data, reliability and validity of the research instrument was tested. All aspects of the questionnaire were pre-tested including question content, wording, question difficulty and

instructions. The feedback obtained was used to revise the questionnaire before administering it to the study respondents.

3.8.1 Reliability

Reliability refers to the accuracy and precision of a measurement procedure (Cooper & Schindler, 2014). Reliability also seeks to determine if scores of items on a research instrument are internally consistent, stable and whether the test administration and scoring was consistent (Creswell, 2014). Guo *et al.* (2016) posit that consistency with questionnaire items are answered and individual's scores remain relatively the same, can be determined through the test- retest method at two different times. Cronbach's alpha is the most commonly used coefficient for approximation of reliability of test scores for structured questionnaires and for calculating internal consistency (Warren, 2014).

According to Saunders *et al.* (2016), internal consistency involves correlating the responses to each question to other questions in the questionnaire and measuring the consistency of responses. Cronbach's alpha values range between 0 and 1 where a value of 0 indicates no reliability, while 1 indicates high reliability (Warren, 2014). However, the threshold for interpretation of reliability of the research instrument is Cronbach's alpha value of 0.7. According to Tayakol and Dennick (2011), Cronbach's alpha values of less than 0.7 indicate that the research instrument is unreliable while Cronbach's alpha values equal to or greater than 0.7 indicate that the research instrument is reliable.

For this study, reliability was tested using Cronbach's Coefficient Alpha estimate. Factor analysis test was also run to indicate whether all the items are interrelated or whether there are some subsets of items, dimensions or factors that are more closely related to one another. The analysis helps determine whether the test is uni-dimensional or multidimensional (Christesen *et al.*, 2014). In this study, factor analysis was used to determine the interdependence of service quality dimensions and students' satisfaction.

3.8.2 Validity

Research validity refers to the correctness or truthfulness of an inference that is made from a research study so that the results reflect the differences among the participants drawn from the population (Cooper & Schindler, 2014). While absolute validity is difficult to establish, demonstrating the validity of a developing measure is very important in research (DeVellis, 2016). Additionally, validity of a research instrument could be improved by use of a pilot study (Creswell, 2014). There are four major types of validity; construct, criterion, content and face validity (Christesen *et al.*, 2014). The study used construct validity content and criterion validity.

Content validity was used to establish whether the instrument provided adequate coverage of the topic under study. Its measure is primarily judgmental based on how much the instrument represents the concept under study (Kothari, 2014). Construct validity was used to measure the degree to which an instrument results conform to predicted correlations and other theoretical propositions (Kothari, 2014) Criterion or concrete validity was used to establish the extent to which a measure is related to an outcome. It measures how well one measure predicts an outcome for another measure. For the study, the questionnaire was subjected to the experts under the study area and the study supervisors to check on their coverage and clarity.

3.9 Data Processing

After data was collected, it was edited to eliminate common mistakes and cleaned to ensure consistency. Questionnaires were checked to confirm completeness and quality of responses. A further scrutiny of the completed questionnaires was done to ensure accuracy, uniformity and consistency with other facts. The data was analyzed using Statistical Package for Social Sciences (SPSS) (2020) version 27. The use of SPSS helped the researcher to make the research work more scientific and reliable. Likert scale was used to provide a measure for

qualitative data obtained from students' responses on the questionnaire; they were then subjected to statistical processes.

3.10 Data Analysis

The study employed both descriptive statistical techniques and logistic regression analysis more specifically Multinomial Logistic Regression (MLR) methodology.

3.10.1 Descriptive Statistical Analysis

In this study, descriptive statistical techniques were used to determine the frequency distribution of independent and dependent variables as well as cross tabulation of the responses on the variables analyzed against the respondents' demographic statistics. Specifically, the study used cross tabulation to additionally undertake a preliminary test of the four stated hypotheses using nonparametric chi-square test.

3.10.2 Ordinal Logistic Regression (OLR)

The study used Ordinal Logistic Regression to model the relationship between ordinal response variable and the explanatory variables. The model groups data into two sets composed of first and second order constructs where the dependent variable is binary while the independent variables are nominal/ordinal (Ochola, 2013). The model assumes that the dependent variable is ordinal while the explanatory variables are continuous or categorical (Das & Rahman, 2011). In this study, both the main effect and the moderated effect were estimated.

3.10.2.1 Main Effect Ordinal Logistic Regression Model

This section presents the ordinal regression modeling methodology for predicting student satisfaction rating as a function of service tangibility, service responsiveness, service reliability and service accessibility ratings. Let k denotes number of predictors for a response y be $x_1, x_2, \dots, x_k$, where in this case $k=1,2,3,4$

Where

X_1 - Service tangibility

X_2 - Service responsiveness

X_3 - Service reliability

X_4 - Service accessibility

Y - Student satisfaction)

B_0 - The constant

B_k - The coefficient of the k^{th} variable

In ordinal logistic regression, instead of modelling the probability of an individual event, as is done in logistic regression, it should consider the probability of that event and all others above it in the ordinal ranking. The concern is with cumulative probabilities rather than probabilities for discrete categories or whether the independent variables are statistically significant or not.

Hence the model the model is as follows

$$\text{Logit}[P(y \leq j)] = \beta_{j=0} + \beta_{j=1}x_1 + \beta_{j=2}x_2 + \beta_{j=3}x_3 + \beta_{j=4}x_4 \text{-----}(1)$$

This model uses cumulative probabilities up to a threshold, thereby making the whole range of ordinal categories binary at that threshold.

Also, let $p_0, p_1, \dots, p_{j-1}$ be the associated probabilities. The final main effect model of a response less than and equal to j is as given below:

$$[P(y \leq j)] = \frac{\exp(\beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4)}{1 + \exp(\beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4)} \text{-----}(2)$$

3.10.2.2 Moderated Effect Ordinal Logistic Regression Model

From equation 3 and still defining

X_1 - Service tangibility

X_2 - Service responsiveness

X_3 - Service reliability

X_4 - Service accessibility

Y - Student satisfaction)

B_0 - The constant

B_k - The coefficient of the k^{th} variable

Z - Moderating Variable (Information Technology Communication)

The moderated effect model is as follows:

$$\text{Logit}[(P(y \leq j))] = \frac{p_j}{(1 - p_j)} = \beta_{0i} + \beta_{1j}x_{1j} + \beta_{2j}x_{2j} + \beta_{3j}x_{3j} + \beta_{4j}x_{4j} + \beta_{5j}Z + \beta_{1j}Zx_{1j} + \beta_{2j}Zx_{2j} + \beta_{3j}Zx_{3j} + \beta_{4j}Zx_{4j} \text{-----} (3)$$

It is instructive to note that prior to undertaking the estimation of both the main effect and the moderate effect OLR model, a test of proportional odds assumption (a test of parallel lines) was undertaken leading to the rejection of this methodology and in its place its alternative, the Multinomial Logistic Regression (MLR) estimation as specified the section that follows.

3.10.3 Multinomial Logistic Regression (MLR) estimation

Multinomial Logistic Regression is the linear regression analysis to conduct when the dependent variable is nominal with more than two levels. Thus, it is an extension of logistic regression, which analyzes dichotomous (binary) dependents. In this study, the dependent variable, student satisfaction has 4 ordinal categories 1-Strongly Agree, 2-Agree, 3-Disagree and 4-Strongly Disagree. Like the OLR, two models of three equations each, the main effect and the moderated effect models are estimated.

3.10.3.1 Main Effect Multinomial Logistic Regression Specification

Multinomial regression is a multi-equation model similar to multiple linear regression. For a nominal dependent variable with k categories in this case $k=4$ the multinomial regression model estimates $k-1$ logit equations. At the center of the multinomial regression analysis is the task of estimating the $k-1$ log odds of each category. In this study $k=4$ ratings of student satisfaction, with the last category as reference multinomial regression estimates $k-1$ multiple linear

regression function of student satisfaction rating as a function of the four explanatory variables defined as follows:

For $j = 1, 2, 3, 4$

$$\text{Logit}(y = 1) = \left[\frac{P(y = 1)}{1 - P(y = 1)} \right] = \beta_0 + \beta_1 x_{1j} + \beta_2 x_{2j} + \beta_3 x_{3j} + \beta_4 x_{4j} \text{-----} (1)$$

$$\text{Logit}(y = 2) = \left[\frac{P(y = 2)}{1 - P(y = 2)} \right] = \beta_0 + \beta_1 x_{1j} + \beta_2 x_{2j} + \beta_3 x_{3j} + \beta_4 x_{4j} \text{-----} (2)$$

$$\text{Logit}(y = 2) = \left[\frac{P(y = 3)}{1 - P(y = 3)} \right] = \beta_0 + \beta_1 x_{1j} + \beta_2 x_{2j} + \beta_3 x_{3j} + \beta_4 x_{4j} \text{-----} (3)$$

Given that

X_1 - Service tangibility

X_2 - Service responsiveness

X_3 - Service reliability

X_4 - Service accessibility

Y - Student satisfaction)

B_0 - The constant

B_k - The coefficient of the k^{th} variable

3.10.3.2 Moderated Effect Multinomial Logistic Regression Specification

For the moderated effect case and by still letting Z – Moderating Variable (Information

Technology Communication)

The three logit equations as follows:

For $j = 1, 2, 3, 4$

$$\begin{aligned} \text{Logit}(y = 1) = \left[\frac{P(y = 1)}{1 - P(y = 1)} \right] = & \beta_0 + \beta_1 x_{1j} + \beta_2 x_{2j} + \beta_3 x_{3j} + \beta_4 x_{4j} + \beta_5 Z + \beta_6 Zx_{1j} \\ & + \beta_7 Zx_{2j} + \beta_8 Zx_{3j} + \beta_9 Zx_{4j} \text{-----} (4) \end{aligned}$$

$$\begin{aligned} \text{Logit}(y = 2) = \left[\frac{P(y = 2)}{1 - P(y = 2)} \right] = & \beta_0 + \beta_1 x_{1j} + \beta_2 x_{2j} + \beta_3 x_{3j} + \beta_4 x_{4j} + \beta_5 Z + \beta_6 Zx_{1j} \\ & + \beta_7 Zx_{2j} + \beta_8 Zx_{3j} + \beta_9 Zx_{4j} \text{-----} (5) \end{aligned}$$

$$\text{Logit}(y = 3) = \left[\frac{P(y = 3)}{1 - P(y = 3)} \right] = \beta_0 + \beta_1 x_{1j} + \beta_2 x_{2j} + \beta_3 x_{3j} + \beta_4 x_{4j} + \beta_5 Z + \beta_6 Zx_{1j} + \beta_7 Zx_{2j} + \beta_8 Zx_{3j} + \beta_9 Zx_{4j} \text{-----} (6)$$

3.11 Ethical Considerations

Ethics in research is about the appropriateness of the researcher's behavior in relation to the rights of those who become the subject of a study, or who are affected by it and protecting them from harm (Saunders, Lewis & Thornhill, 2016).

The researcher obtained a data collection letter from The Technical University of Kenya. Using the data collection letter from the University, the researcher requested for a data collection permit from the National Commission for Science, Technology and Innovation (NACOSTI) and the permit was granted. The study adhered to appropriate research procedures and all sources of information were acknowledged as far as possible. The researcher ensured that respect of human dignity, beneficence and justice, which are the principles of an acceptable code of conduct in any business endeavor.

Before the administration of the questionnaire, consent was sought from the respondents. The objective of the study was made clear to all respondents and confidentiality of their responses assured. Caution was exercised to ensure that participation is voluntary and that none of that the participants is coerced into taking part in the study. The questionnaire did not require personal details of the respondents but only the information about the universities.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

INTRODUCTION

This chapter presents the research findings on service quality dimensions and student satisfaction in Schools of Business of Chartered Universities in Kenya. Service quality dimensions that formed the study's specific objectives were; tangibility, responsiveness, reliability and accessibility. The study used both descriptive statistical techniques and logistic regression analysis, more specifically Multinomial Logistic Regression (MLR) estimation.

4.1 Response Rate

Response rate refers to the number of questionnaires sent to the field divided by the number which was completed and returned (Kabue, 2016). Out of the 400 questionnaires administered, 320 were filled and returned. This represented 80% of response rate. According to Mugenda and Mugenda (2018) 50% response rate is considered to be adequate, 60% to be good, while a 70% and above rate is considered to be very good. Therefore, an 80% response rate from this study was considered to be very good and satisfactory.

Table 4.1: Response Rate Per University

University	QUESTIONNAIRES		
	Total Distributed	Filled and Returned	Response Rate
African Nazarene University	28	19	4.8
Chuka University	38	29	7.3
Kabarak University	34	29	7.3
Karatina University	33	27	6.7
Kenya Methodist University	35	35	8.7
Maseno University	85	59	14.7
Masinde Muliro University	72	51	12.7

Multimedia University	31	30	7.5
Pan African Christian University	14	14	3.5
Technical University of Kenya	30	27	6.8
Total	400	320	80.0

Source: Researcher (2023)

4.2 Demographic Characteristics

This section presents the descriptive statistics and information regarding the demographic and general data derived from the questionnaires. The information sought included: the gender of respondent, age and year of study. Table 4.2 represents the results as follows.

Table 4.2: Demographic Characteristics

Demographic Characteristic	Respondents	
	Number	%
Gender		
Male	119	37.2
Female	201	62.8
Total	320	100.0
Age of Respondent		
18 – 22	167	52.2
23 – 27	89	27.8
28 – 32	23	7.2
33 – 37	8	2.5
38 and above	33	10.3
Total	320	100.0
Year of Study		
Year 2	183	57
Year 3	71	22
Year 4	66	21
Total	320	100

Source: Researcher (2023)

On gender of the respondents, Table 4.2, the findings of the study show that a higher number of females participated in the study. This was an indication that females are more socially willing to comply with request to share their opinions and views as well as being more communicative than their counterpart. According to a study by Onditi and Wechule (2017), on service quality and students' satisfaction in Higher Education Institutions it revealed that

there were more males as compared to the female counterparts. This was an indication of male dominance pursuing university education.

With regard to age of respondents, Table 4.2 shows that about fifty two percent (52.2%) of the respondents were aged between 18 to 22 years followed by respondents within the age group of 23 to 27 years at about twenty percent (27.8%). About 7.2% percent of the respondents were aged between 28 to 32 years while 2.5% were between 33 and 37 years. Lastly, about ten percent (10.3%) were above the age of 38 years. The predominance of the students in the 18–22 years' bracket is expected as it is reflective of the population of individuals that are characteristically enrolled in universities. The respondents were students who had joined universities direct from high school which justifies the largest number as majority join university at the age of 18 years and complete at the age of 22 years. This is supported by study of Muhammad *et al.* (2018) on Service Quality the Road Ahead for Student's Satisfaction which revealed that majority of respondents were between the age of 18 to 25 years as they were young students who had just completed high school education.

Last but not least, on year of study, respondents were required to indicate their year of study and it was found that majority were in year 2 with fifty seven percent (57%) while twenty two percent (22%) were in year 3 and twenty one percent (21%) were year 4 as indicated in Table 4.2. The study revealed that Year 2 students were the majority, an indication that year 3 and 4 were fewer in their classes as a result of discontinuation, repeating or even deferment. The groups could have been busy with their studies and therefore many were not in a position to return the questionnaires. This differs with a study by Mwiya, *et al.* (2017) on Higher Education service quality and student satisfaction in Zambia where only final year students were targeted because they had been at the university for more than 3 years; so they had more experience with the quality of various services and were willing to express their views by filling in the questionnaires.

4.3 Pilot Test

A pilot study was carried out to ensure reliability of the questionnaire which was done through selected respondents. The pilot involved a sample of 20 respondents which represented 5% of the sample size.

4.3.1 Reliability Testing

Reliability refers to the accuracy and precision of a measurement procedure (Cooper & Schindler, 2014). Reliability also seeks to determine if scores of items on a research instrument are internally consistent, stable and whether the test administration and scoring was consistent (Creswell, 2014). To test reliability of the research instrument, a pilot study was conducted in Kenyatta University City Centre Campus and St. Paul's University – Nairobi Campus. Test of reliability was done using Cronbach alpha which tests how well a set of items or variables measure a single uni-latent construct that is a coefficient of reliability or consistency.

Reliability is expressed as a coefficient with figures ranging between 0 and 1.00. The higher the figure above 0, the more reliable the test tool is. A threshold of a Cronbach Alpha of 0.7 and above is acceptable (Cronbach Alpha, 1951). Table 4.3 shows that service tangibility had a coefficient of 0.859; service responsiveness had a coefficient of 0.892; service reliability had a coefficient of 0.864, service accessibility had a coefficient of 0.854, student satisfaction had a coefficient of 0.895 and information communication technology had a coefficient of 0.828. The study constructs showed that the value of Cronbach's Alpha was above 0.700. This implied that the research instrument was adequate and reliable.

Table 4.3: Reliability

Variable	No. of Items	Cronbach's Alpha	Decision
Service Tangibility	14	0.859	Accepted
Service Responsiveness	9	0.892	Accepted
Service Reliability	7	0.864	Accepted
Service Accessibility	9	0.854	Accepted
Student Satisfaction	7	0.895	Accepted
Information communication Technology	6	0.828	Accepted

Source: Researcher (2023)

4.3.2 Factor Analysis

Factor analysis is a multivariate statistical method whose primary purpose is data reduction and summarization (Dhakal, 2017). Factor analysis was executed to find the patterns in data and to reduce data to manageable levels. It was used to analyze the factors that measured service tangibility, service responsiveness, service reliability, service accessibility, Information Communication Technology and student satisfaction.

4.3.2.1 Communalities

Communality of a variable is the sum of the loadings of the variable on all extracted factors. It represents the proportion of the variance in the variable that can be accounted for by all 'common' extracted factors. If the communality of a variable is high, the extracted factors account for a big proportion of the variable's variance. This means that the particular variable is reflected well via the extracted factors, and therefore the factor is reliable. A variable that has no unique variance has a communality of 1; one that shares none of its variance with any other variable has a communality of 0.4. Factor analysis was conducted on all items for each of the study variables. Items with factor loadings of less than 0.4 were dropped from the questionnaire and not included in the study.

4.3.2.1.1 Communalities Test for Service Tangibility

As shown in Table 4.4, the communality test results for all the statements regarding service tangibility attracted a coefficient of above 0.4 hence they were retained in the questionnaire.

Table 4.4: Communalities for Service Tangibility

Communalities	Initial	Extraction
Lecture halls and rooms have enough sitting space	1.000	.739
Cleanliness is maintained in the lecture halls and classrooms at all times	1.000	.713
Library has adequate sitting space for all students	1.000	.831
My university provides clean and well-maintained washrooms	1.000	.698
The staff in my university is passionate about their work	1.000	.823
The staff treat me with respect when delivering services	1.000	.883
The staff deliver services in a professional way	1.000	.803
My university provides up to date computers	1.000	.672
My university has adequate and well-equipped laboratories	1.000	.797
Laboratory equipment are always in good working condition	1.000	.821
My university has a well-stocked library facility	1.000	.723

Extraction Method: Principal Component Analysis.

4.3.2.1.2 Communalities Test for Service Responsiveness

According to Table 4.5 on the communality test results for statements regarding service responsiveness, all the sixteen statements attracted a coefficient of above 0.4 hence they were retained in the questionnaire.

Table 4.5: Communalities for Service Responsiveness

Communalities	Initial	Extraction
Staff in my university respond to students' enquiries in a courteous manner	1.000	.657
Staff in my university go out of their way to help	1.000	.648
Lecturers at my university are encouraging at all times	1.000	.742
The non-teaching staff communicates when there is service delay	1.000	.588
Staff offer quick services at all times	1.000	.793
Staff in my university communicate to students when services are to be offered	1.000	.720

Staff in my attend to my needs with commitment	1.000	.739
Staff pay attention to details on services sought by students'	1.000	.652
Staff is able to identify students' issues with ease	1.000	.557
The staff always provide right services at the right time	1.000	.703
The staff in my university provide services in a consistent manner	1.000	.705
The information provided by the staff is reliable	1.000	.669
Staff in my university are sincere when handling students' issues	1.000	.744
The non-teaching staff in my university have the right skills to offer services	1.000	.562
Lecturers in my university are highly competent in their areas of teaching	1.000	.813
Lecturers in my university deliver lectures in an effective manner	1.000	.875

Extraction Method: Principal Component Analysis.

Communality Test for Service Reliability

Table 4.6 shows that the communality test results for statements regarding service reliability attracted a coefficient of above 0.4 hence all statements were retained in the questionnaire.

Table 4.6: Communalities for Service Reliability

Communalities	Initial	Extraction
The staff always provide right services at the right time	1.000	.761
The staff in my university provide services in a consistent manner	1.000	.812
The information provided by the staff is reliable	1.000	.803
Staff in my university are sincere when handling students' issues	1.000	.846
The non-teaching staff in my university have the right skills to offer services	1.000	.638
Lecturers in my university are highly competent in their areas of teaching	1.000	.905
Lecturers in my university deliver lectures in an effective manner	1.000	.910

Extraction Method: Principal Component Analysis.

4.3.2.1.3 Communality Test for Service Accessibility

As indicated on Table 4.7, the communality test results for statements regarding service accessibility shows that the statements attracted a coefficient of above 0.4 hence they were retained in the questionnaire.

Table 4.7: Communalities for Service Accessibility

Communalities	Initial	Extraction
Lecturers are available to assist me at times	1.000	.769
Lecturers at my university readily provide additional reading materials to me when needed	1.000	.830
Staff render services during favorable hours	1.000	.803
Staff are friendly to me when attending to my needs	1.000	.829
Staff are easily reachable to provide me with the services i need	1.000	.794
Staff are kind when giving me services	1.000	.716
I can get services needed easily via different means used by my university	1.000	.474
The lecture rooms are easily accessed by the disabled students	1.000	.589
I can access my university with ease	1.000	.578

Extraction Method: Principal Component Analysis.

4.3.2.1.4 Communalities Test for Information Communication Technology

Communalities test results on Table 4.8 show statements regarding moderation effect of Information Communication Technology which attracted a coefficient of above 0.4 hence they were retained in the questionnaire.

Table 4.8: Communalities for Information Communication Technology

Communalities	Initial	Extraction
Internet is accessible to all students within my university	1.000	.582
I can easily access and share information with colleagues	1.000	.717
Lecturers in my university use online facility to teach effectively	1.000	.726
I can get online materials that are useful during research work	1.000	.612
I can easily find E-books and journals subscribed by my university	1.000	.579
I can easily consult my lecturers using ICT	1.000	.708

Extraction Method: Principal Component Analysis.

4.3.2.1.5 Communalities Test for Student Satisfaction

Table 4.9 shows the communality test results for statements regarding student satisfaction. All the seven statements attracted a coefficient of above 0.4 hence they were retained in the questionnaire.

Table 4.9: Communalities for Student Satisfaction

Communalities	Initial	Extraction
I would maintain contact with my university after completing	1.000	.565
I would select my university for further studies	1.000	.793
I would join the alumni of my university	1.000	.713
I will complete the course am undertaking in my university	1.000	.425
I would recommend friends to my university	1.000	.801
I would recommend family members to the university	1.000	.875
I get value for my money from my university	1.000	.657

Extraction Method: Principal Component Analysis.

4.3.2.2 Kaiser-Meyer-Olkin (KMO) and Bartlett's Test

KMO test was used to measure the suitability of data for factor analysis, i.e. to test the adequacy of the sample size while Bartlett's test of Sphericity was applied to test whether there was a relationship between independent variables (service quality dimensions) and dependent variable (student satisfaction) as shown in Table 4.10. KMO measures show the value of test statistic as 0.743 which is greater than 0.05. With the value of test statistic and the associated significance level, it indicated that there exists a high relationship among variables of the study.

Table 4.10: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.743
Bartlett's Test of Sphericity	Approx. Chi-Square	226.71
	df	445
	Sg	.000

Source: Researcher (2023)

4.4 Descriptive Statistics for study variables

This section analyzed the presents descriptive statistics for the independent variables (Service Tangibility) moderator (ICT) and the dependent variable (Student Satisfaction) as follows:

4.4.1 Service Tangibility

Service tangibility was measured using a 4-point Likert scale: 4) Strongly Agree (1) Agree (2) Disagree (3) strongly disagree (4). Tangibility aspects used in this study included physical facilities, equipment, personnel and communication material. According to the study, 9% of respondents strongly agreed, 75% agreed that lecture halls and rooms had enough sitting space while 3% disagreed and 3% strongly disagreed that lecture halls and rooms had enough sitting space. This was an indication that students were satisfied with university's lecture halls and rooms sitting space as the majority agreed that lecture halls and rooms spacious enough to accommodate them sufficiently.

The study established that cleanliness was maintained in the lecture halls and classrooms at all times as 19% of respondents strongly agreed and 80% of respondents agreed with the statement while 1% of the respondents strongly disagreed that cleanliness was maintained in the lecture halls and classrooms at all times as indicated on Table 4.11. This meant that students undertook their studies in clean and well-maintained lecture halls and classrooms and therefore, enhancing their level of satisfaction. In line with this, Kanori *et al.* (2020) revealed that appearance of such as physical facilities and equipment as well as teaching and learning service show strong association with students' satisfaction. In addition, a study by Al-Sheeb, Hamouda and Abdella (2018) showed that student satisfaction is attributed to four educational dimensions such as lecturer's expertise, programmes offered, conducive environment, and suitable classroom facilities.

According to the study, 9% of respondents strongly agreed while 85% of respondents agreed that the university library had adequate sitting space for all students. 2% and 4% disagreed and strongly disagreed respectively that the university library had adequate sitting space for all

students. With the majority agreeing that their university library had adequate sitting space was an indication that students have ample and sufficient space in the library to undertake their personal studies comfortably.

The study revealed that 6% of respondents strongly agreed whereas 84% agreed that their university provided clean and well-maintained washrooms. On the other hand, 9% disagreed and 1% of the respondents strongly disagreed that their university provided clean and well-maintained washrooms. Provision of clean and well-maintained washrooms stimulated positive feeling, reduced stress and led to improved concentration among students.

Additionally, the study revealed that 11% of respondents strongly agreed that staff in their university were passionate about their work, 85% agreed while 3% of respondents disagreed and 1% strongly disagreed that staff in their university were passionate about their work. This was evident that students' needs were attended to in an effective and efficient manner by staff in their respective universities. Moreover, the study revealed that 12% of respondents strongly agreed and 86% agreed that staff treated them with respect when delivering services while 1% of respondents disagreed and 1% strongly disagreed that staff treated them respect when delivering services. From the study, majority agreed of respondents agreed that staff treated them with respect when delivering services and this motivated and gave students confidence to seek for services from the staff. This concurs with a study by Douglas *et al.* (2015) that showed that students' satisfaction entailed receiving value for money such as promptness of feedback on performance, availability of staff to attend to student's needs, adequate textbook and teaching materials and the responsiveness of faculty on individual academic needs.

The findings of the study indicated that 13% of respondents strongly agreed while 84% agreed that staff delivered services in a professional manner as shown on Table 4.11. 2% of respondents disagreed strongly whereas 1% disagreed that staff delivered services in a professional way. Further, findings of the study revealed that 8% of respondents strongly

agreed while 88% agreed and on the other hand, 2% disagreed and 2% strongly disagreed that their universities provided up-to-date computers. Up-to-date computers allowed students to study and do their assignments effectively without disruptions. This implied that students were satisfied with the facilities offered by the universities. A study by Ogendi (2017) on impact of quality services on customer satisfaction in higher education sector: A case of private universities in Kenya, recommends that universities should improve quality of physical facilities such as buildings, which gives first impression of university facilities.

Study findings revealed that 8% of respondents strongly agreed while 86% agreed that their universities had adequate and well-equipped laboratories, as indicated on Table 4.11. 4% disagreed and 2% strongly disagreed that their universities had adequate and well-equipped laboratories. The study also found that 9% of the respondents strongly agreed and then 87% agreed that laboratory equipment were in good working condition at all times. This indicated that universities provided machines and equipment that were in good working condition. This contradicts a study by Kanori *et al.* (2020) that studied influence of service tangibility, teaching and learning on students' satisfaction in universities that revealed laboratories did not have adequate and up-to-date equipment for students use. 2% of the respondents disagreed and 2% strongly disagreed that laboratory equipment were in good working condition.

From the study findings, 12% of respondents strongly agreed and 86% agreed that their universities had a well-stocked library facility while 2% of respondents strongly disagreed with the statement. Results also indicated that 13% of respondents strongly agreed while 85% agreed that their universities provided adequate reference and reading materials. 2% of respondents disagreed that their universities provided adequate reference and reading materials.

According to the study, 12% of respondents strongly agreed that their universities provided visually appealing teaching/learning materials and 75% of respondents agreed, which is an

indication that students are able to assimilate what they are taught easily. In line with this, a study by Alhkami and Alarussi (2016) found out that well-maintained physical facilities, teaching materials that are visually appealing and modern leads to a high score in the tangibles dimension for a university. On the other hand, a minority of 1% disagreed and 2% strongly disagreed that their university provided visually appealing teaching/learning materials.

Study findings showed that 13% of respondents strongly agreed while 84% agreed that their universities communicated necessary information effectively. Conversely 2% of the respondents disagreed and 1% strongly disagreed that their universities communicated necessary information effectively. This is an indication that there were proper channels of communication as majority of respondents agreed university had clear means of communicating the required information and this helped students to feel part of the institution.

Table 4.11: Descriptive Results for Service Tangibility Dimension

Service Tangibility Dimension	SA %	A %	D %	SD %
The lecture halls and rooms have enough sitting space	9	75	3	3
Cleanliness is maintained in the lecture halls and classrooms at all times	19	80	0	1
The library has adequate sitting space for all students	9	85	2	4
My university provides clean and well-maintained washrooms	6	84	9	1
The staff in my university is passionate about their work	11	85	3	1
The staff treat me with respect when delivering services	12	86	1	1
The staff deliver services in a professional way	13	84	2	1
My university provides up to date computers	8	88	2	2
My university has adequate and well-equipped laboratories	8	86	4	2

Laboratory equipment are always in good working condition	9	87	2	2
My university has a well-stocked library facility	12	86	0	2
My university provides adequate reference/study materials	13	85	2	0
My university provides visually appealing teaching /learning materials	12	75	1	2
My university communicates necessary information effectively	13	84	2	1

Source: Researcher (2023)

4.4.2 Service Responsiveness

According to the study, Table 4.12 indicates that 10% and 86% of respondents respectively strongly agreed and agreed that staff in their universities responded to students' enquiries in a courteous manner. 2% of respondents disagreed and 2% strongly disagreed that staff in their universities responded to students' enquiries in courteous manner. Additionally, the study established that 9% of respondents strongly agreed while 88% agreed that staff in their universities went out of their way to help, 2% disagreed and 1% strong disagreed that staff in their university went out of their way to help.

The study findings also depicted that 12% of respondents strongly agreed and 86% of respondents agreed that lecturers in their universities were encouraging at all times. On the other hand, 1% disagreed and another 1% strongly disagreed that lecturers in their universities were encouraging at all times. This was an indicator that students were pleased and motivated to work hard in their studies as lecturers instilled confidence by encouraging them. Results also revealed that 8% respondents strongly agreed while 77% agreed that non-teaching staff communicated whenever there was service delay. 3% of respondents disagreed while 2% strongly disagreed that non-teaching staff communicated whenever there was service delay.

Further, the study found that 8% of respondents strongly agreed whereas 77% of agreed that staff offered quick services all the time. 4% of respondents disagreed and 1% strongly

disagreed that staff offered quick services all the time. From the study, it was also found that 10% of respondents strongly agreed and 87% agreed that staff in their universities communicated to students when services were to be offered. On the contrary, 4% of respondents disagreed and 1% strongly disagreed that staff in their universities communicated to students when services were to be offered.

The study show that a majority of respondents agreed that the universities were keen to communicate to students when services were to be offered. This being an indicator of how universities were keen to disseminate information hence keeping students well informed. This corresponds with a study by Peprah (2018) on service quality and students' satisfaction that recommended that in order to enhance the effect of responsiveness dimension on service quality satisfaction, it was necessary for staff to have willingness to help students by responding to their requests promptly, providing individualized attention and to be truthful by letting students know when services would be offered. This is in agreement with studies by Kundi *et al.* (2014) and Alabboodi (2019) that held the view that university students' perception of service will be affected by the personnel's willingness to assist students, ability to communicate when service will be delivered and the speed with which the service is provided.

According to Table 4.12, 9% of respondents strongly agreed and 87% agreed that staff in their universities attended to students needs with commitment while 3% of respondents disagreed and 1% strongly disagreed that staff in their universities attended to students needs with commitment. Further, results of the study show that 8% of respondents strongly agreed while 88% agreed that staff pay attention to details on services sought by students. In addition, 3% of respondents disagreed and 1% strongly disagreed that staff pay attention to details on services sought by students.

Table 4.12 shows that 8% of respondents strongly agreed and 86% agreed that staff were able to identify students' issues with ease. 3% of respondents disagreed and 3% strongly disagreed that staff were able to identify students' issues with ease.

Table 4.12: Descriptive Results for Service Responsiveness

Service Responsiveness Dimension	SA %	A %	D %	SD %
Staff in my university respond to students' enquiries in a courteous manner	10	86	2	2
Staff in my university go out of their way to help	9	88	2	1
Lecturers at my university are encouraging at all times	12	86	1	1
The non-teaching staff communicates when there is service delay	8	77	3	2
Staff offer quick services at all times	8	77	4	1
Staff in my university communicate to students when services are to be offered	8	87	4	1
Staff in my university attend to my needs with commitment	9	87	3	1
Staff pay attention to details on services sought by students'	8	88	3	1
Staff is able to identify students' issues with ease	8	86	3	3

Source: Researcher (2023)

4.4.3 Service Reliability

Service reliability has been organized on a four-point scale where: 1 represents Strongly Agree, 2 represents Agree, 3 represents Disagree and 4 represents Strongly Disagree. According to Table 4.13, 8% of respondents strongly agreed while 89% of respondents agreed that staff always provided right services at the right time. Conversely, 2% of the respondents disagreed and 1% strongly disagreed that staff always provided right services at the right time. From the research findings it was evident that student perception of service quality would increase greatly if reliability dimension was improved. The ability to provide accurate and dependable service would improve students' perception of service quality and increase satisfaction. This

conforms with a study by Amani (2017) on service quality in the higher education and established that the reliability dimension is an important dimension of service quality which results to students' satisfaction.

Results showed that 8% of respondents strongly agreed that staff in their universities provided services in a consistent manner while 88% agreed on the same. However, 3% of respondents disagreed and 2% strongly disagreed that staff in their universities provided services in a consistent manner. This indicated that staff provided befitting services to students and in an appropriate way as a biggest percentage of respondent agreed with the statement. Moreover, the study showed that 12% of respondents strongly agreed while 86 % agreed that information provided by the staff was reliable. On the other hand, 1% of respondents disagreed and another 1% strongly disagreed that information provided by the staff was reliable.

According to Table 4.13, 9% of respondents strongly agreed and 88% agreed that staff in their universities were sincere when handling students' issues, while a minority of 2% disagreed and 1% strongly disagreed that staff in their universities were sincere when handling students' issues. Results of the study showed that students' expectation to have their issues handled with sincerity were met. Staff also were reliable and consistent in the way they provided services which built trust among students eventually leading to increased satisfaction. This is consistent with findings of Yousapronpaiboon (2014) concluded that staff should communicate correct and accurate information and in a timely fashion; also, they need to clearly communicate when services will be offered to ensure students are content.

The study revealed that 11% of respondents strongly agreed while 86% agreed that non-teaching staff in their universities had the right skills to offer service. 2% of respondents disagreed and 1% strongly disagreed that non-teaching staff in their universities had the right skills to offer services. Table 4.13 results show that 13% of respondents strongly agreed that lecturers in their universities were highly competent in their areas of teaching. 86% agreed

while 4% of respondents disagreed and 1% strongly disagreed that lecturers in their university were highly competent in their areas of teaching. The study also revealed that 13% of respondents strongly agreed while 85% of respondents agreed that lecturers deliver lectures in an effective manner. 1% of respondents disagreed that lecturers deliver lectures in an effective manner while another 1% strongly disagreed on the same. This meant that students understood what they were taught as lecturers were effective as evidenced by the results that showed that majority agreed with the statement.

The study results also indicated that staff possessed that right skills and were highly competent therefore were able to deliver services in a satisfactory manner. This concurs with a study by Saravanan (2018) whose findings indicated that among factors that can increase the satisfaction level of customers are knowledgeable employees, helpful employees and being consistent and effective when delivering services.

Table 4.13: Descriptive Results for Service Reliability

Service Reliability Dimension	SA %	A %	D %	SD %
The staff always provide right services at the right time	8	89	2	1
The staff in my university provide services in a consistent manner	8	88	3	1
The information provided by the staff is reliable	12	86	1	1
Staff in my university are sincere when handling students' issues	9	88	2	1
The non-teaching staff in my university have the right skills to offer services	11	86	2	1
Lecturers in my university are highly competent in their areas of teaching	13	86	0	1
Lectures in my university deliver lectures in an effective manner	13	85	1	1

Source: Researcher (2023)

4.4.4 Service Accessibility

The study established that 13% of respondents strongly agreed and 84% agreed that lecturers were available to assist students at all times while 1% disagreed and 2% strongly disagreed that lecturers were available to assist students at all times. The study found that that students were able to reach to their lecturers with ease for consultation and guidance as majority agreed that lecturers were available to assist students at all times. This study coincides with a study by Kara *et al.* (2016) which stated that student satisfaction is related to institutions having knowledgeable and specialized lectures whom students can easily access for consultation and provide feedback promptly.

The study further revealed that 13% of respondents strongly agreed and 85% agreed that lecturers at their universities readily provided additional reading materials. However, 1% disagreed and another 1% strongly disagreed that lecturers at their universities readily provided additional reading materials when needed. This was an indicator that students were able to get a variety of reading materials that helped them acquire broader knowledge of their study areas. Therefore, the need for universities to ensure that reading materials are readily available and up to date to enhance students learning.

The study also found that 11% of respondents strongly agreed and 88% agreed that staff rendered services during favorable hours. On the other hand, 6% and 1% of respondents disagreed and strongly disagreed respectively that staff rendered services during favorable hours. According to Table 4.14, 9% and 88% of respondents strongly agreed and agreed respectively that staff were friendly when attending to students' needs. The study also established that 2% of respondents disagreed that staff were friendly when attending to students' needs and 1% strongly disagreed. Findings of the study served as a proof that students were able to build trust and a positive attitude towards the staff in their respective universities as majority agreed that staff were friendly when attending to students' needs.

Table 4.14 shows that 10% of respondents strongly agreed while 87% of respondents agreed that staff were easily reachable to provide services needed by students; 1% disagreed whereas 2% of respondents strongly disagreed that staff were reachable to provide services needed by students. This implied that students received services which they required with no inconveniences and this made them have a more favorable attitude towards their universities. In addition, the study found that 10% respondents strongly agreed and a majority 87% agreed that staff were kind when giving services to students. Nevertheless, 2% of respondents disagreed and 1% strongly disagreed that staff were kind when providing services to students. According to the study, 11% of respondents strongly agreed that they got services needed easily via different means used by their universities, 87% of respondents agreed while 2% of respondents strongly disagreed that that they got services needed easily via different means used by their universities. This was proof that the universities had various means to communication with students effectively which implied that there was proper flow of communication between the students and the universities. A study by Kara *et al.* (2016) on Educational Service Quality and Students' Satisfaction in Public Universities in Kenya stated that student satisfaction is related to universities having knowledgeable and specialized lecturers, who can easily be accessed by students for consultation at all time.

Further, the study found that 12% of respondents strongly agreed and 84% agreed that the lecture rooms were easily accessed by the disabled. This was evidence that universities embrace the disabled students by making adjustments to physical facilities for easy access. On the other hand, 1% disagreed and 3% strongly disagreed that the lecture rooms were easily accessed by the disabled students. The findings also revealed that 16% and 83% of respondents strongly agreed and agreed respectively that they could access their university with ease. 1% of the respondents strongly disagreed that they could access their universities with ease. As such, the study results implied that students valued the ease with which they could access

services from their universities as this made their learning atmosphere more conducive. This concurs with a study of Sokoli, Koren and Gutierrez (2018) on student's perception of academic quality that established that students become satisfied with the diverse features of quality academic service delivered by universities, specifically curricula, but also non-academic aspects such as access to campus amenities and even campus reputation.

Table 4.14: Descriptive Results for Service Accessibility

Service Accessibility Dimension	SA %	A %	D %	SD %
Lecturers are available to assist me at all times	13	84	1	2
Lectures at my university readily provide additional reading materials to me when needed	13	85	1	1
Staff render services during favorable hours	11	88	0	1
Staff are friendly to me when attending to my needs	9	88	2	1
Staff are easily reachable to provide me with the services I need	10	87	1	2
Staff are kind when giving me services	10	87	2	1
I can get services needed easily via different means used by my university	11	87	0	2
The lecture rooms are easily accessed by the disabled students	12	84	1	3
I can access my university with ease	16	83	0	1

Source: Researcher (2023)

4.4.5 Information Communication Technology

Results on Table 4.15 showed that 13% of the respondents strongly agreed while 84% agreed that internet was accessible to all students within their universities. 2% of respondents disagreed and 1% strongly disagreed that internet was accessible to all students within their universities. Results also indicated that 13% of the respondents strongly agreed that they could easily access and share information with colleagues using internet services, 85% agreed while 2% of respondents and 1% strongly disagreed that they can easily access and share information with colleagues using internet services as shown on Table 4.15. This is consistent with a study

of Waleed (2020) on Digital Communication: Information and Communication Technology (ICT) Usage for Education Sustainability that showed that ICT has had a tremendous influence on aspects of our lives (professional and personal) by improving knowledge sharing and increasing information and communication flow.

Further, findings of the study revealed that 13% of the respondents strongly agreed while 83% agreed that lecturers in their universities used online facilities to teach effectively. On the contrary, 2% of the respondents disagreed and 2% strongly disagreed that lecturers in their universities used online facilities to teach effectively. From the study results, there was evidence that lecturers were able to use technology to effectively teach students.

Findings of the study showed that 14% of the respondents strongly agreed, 85% agreed that they got online materials that were useful during research work. On the other hand, 1% of respondents disagreed with the statement. This indicated that ICT is quite useful to students as they could easily obtain materials for their research work or assignments given by their lecturers. According to the study, 13% and 85% of respondents strongly agreed and agreed respectively that they could easily find E-books and journals subscribed by their universities. 1% of respondents disagreed and 1% strongly disagreed that they could easily find E-books and journals subscribed by their universities. This was a clear indicator that students had an advantage of accessing diverse sources of information from E-books and journals provided by the universities. In turn, students were able to broaden their scope of knowledge in their areas of specialization.

The study found out that 21% and 75% of respondents strongly agreed and agreed respectively that they could easily consult their lecturers using ICT, while 2% of respondents disagreed and the other 2% strongly disagreed that they could easily consult their lecturers using ICT. Results showed that majority of students could easily consult their lecturers using ICT, therefore enabling them to constantly be in touch with lecturers, learn at any time and at any place

without necessarily being physically in touch with their lectures. This corresponds with Yilmaz (2015) who found out that adoption of ICT in higher learning institutions had enabled continuous education through teaching, learning and research which made it possible for students and lecturers to communicate as well as access resources from any place thereby saving on time as well as cost.

Table 4.15: Descriptive Results for Information Communication Technology

ICT	SA %	A %	D %	SD %
The internet is accessible to all students within my university	13	84	2	1
I can easily access and share information with colleagues	12	85	2	1
Lecturers in my university use online facility to teach effectively	13	83	2	2
I can get online materials that are useful during research work	14	85	1	0
I can easily find E-books and journals subscribed by my university	13	85	1	1
I can easily consult my lecturers using ICT	21	75	2	2

Source: Researcher (2023)

4.4.6 Student Satisfaction

Table 4.16 shows that 14% of the respondents strongly agreed while 83% of respondents agreed that they would maintain contact with their university after completing their studies. On the hand, 1% of disagreed and 2% strongly disagreed that they would maintain contact with their university after completing their studies. The study also found that 12% of the respondents strongly agreed and 83% agreed that they would select their university for further studies while 2% disagreed and 3% of the respondents strongly disagreed that they would select their university for further studies. The results indicated that majority of students would prefer to undertake further studies in their universities as their needs were always met.

Additionally, the study found out that 13% of the respondents strongly agreed and 85% agreed that they would join the alumni associations of their universities. In line with this, a study by Faizan *et al.* (2016) found out that measures of the student's willingness to recommend the

course or institution to others, maintain contact with the faculty, select the institution again for future study or join the alumni is as a result of their needs and wants having been met in the past. The study also revealed that 1% disagreed and 1% strongly disagreed that they would join the alumni associations of their universities.

Further, results showed that 92% respondents strongly agreed while 6% agreed that they would complete the course they were undertaking in their universities. This was a reflection of universities' ability to meet students' needs and exceed their expectations hence were delighted to the level of wanting to further studies in the same university. In line with this, a study by Mangini, Urdan and Santos (2017) found out that universities that offer students satisfaction will definitely gain a competitive advantage as a result of loyalty, retention, positive word of mouth and also students' future referrals.

Conversely, 1% of the respondents disagreed and also 1% strongly disagreed that they would complete the course they were undertaking in their universities. This indicated that a minority of respondents were discontented with the service provided by their universities and therefore would leave before completing their course. This is in line with a study by Kelmendi and Nawar (2016) that established that student retention had been a major challenge to the academic community as incidents that involve students leaving without completing their programmes had posed a great threat to the universities' reputation.

The study also found out that 13% 85% of the respondents strongly agreed and agreed respectively that they would recommend friends to their universities. On the other hand, 1% disagreed and 1% strongly disagreed they would recommend friends to their universities. Results showed that 12% and 84% of the respondents strongly agreed respectively that they would recommend family members to their universities, while 1% disagreed and 3% strongly disagreed they would recommend family members to their universities. Findings of the study indicated that the largest number of respondents stated that they would recommend their friends

and family to their university. This indicates that students have a lot of trust with the universities and this could lead to improved image of these universities. This was an indicator that students have a lot of trust with the universities and this could lead to improved image of these universities. This is in line with Chen (2016) who found out that students tend to choose and register at the universities that can get the best service quality which will subsequently lead to their satisfaction and thereby leading them to recommend others to join the universities.

Further, the study found that 13% of the respondents strongly agreed and 83% agreed that they got value for their money from their universities while 2% disagreed and 2% of the respondents strongly disagreed that they got value for their money from their universities. This is an indication that majority of respondents were happy and content with the services that were offered by their universities and also received value for their money. This is in agreement with a study of Douglas *et al.* (2015) showed that students' satisfaction entailed receiving value for money such as promptness of feedback on performance, availability of staff to attend to student's needs, adequate textbook and teaching materials the responsiveness of faculty on individual academic needs. Additionally, students who are satisfied with the services are more likely to pursue further studies at the same university, support the university as alumni and engage in positive word of mouth to friends, family, employers and other stakeholders about the universities (Mwiya, *et al.*, 2017).

Table 4.16: Descriptive Results for Student Satisfaction

Student Satisfaction	SA %	A %	D %	SD %
I would maintain contact with my university after completing my studies.	14	83	1	2
I would select my university for further studies	12	83	2	3
I would join the alumni of my university	13	85	1	1
I will complete the course am undertaking in my university	92	6	1	1

I would recommend friends to my university	13	85	1	1
I would recommend family members to the university	12	84	1	3
I get value for my money from my university	13	83	2	2

Source: Researcher (2023)

4.5 Analysis of Demographic Characteristics and study variables

In this section, analysis was performed to explore the relationship between the bio data of the respondents and study variables. It was believed that rating of perceived service quality dimensions (tangibility, responsiveness, reliability and accessibility) on the one hand and that of the outcome variable (student satisfaction) perceived to be influenced by the respondents' demographic statistics which in this study were respondents' gender, age and year of study. Given the perceived service quality dimensions and student satisfaction were assessed using a number of sub-constructs, prior to performing this analysis, the median rating for each of the study variables was determined with the subsequent results presented in the sub-section that follows.

4.5.1 Gender and Rating of Perceived Service Tangibility

An attempt was made to assess whether there is a relationship between gender and service tangibility with the results as shown in Table 4.17.

Table 4.17: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service Tangibility by Gender of Respondent

Gender	Rating of Perceived Service Tangibility Rating				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
Female	0(0%)	6(50%)	95(37%)	16(38%)	117
Male	5(100%)	6(50%)	162(63%)	26(62%)	199
Total	5	12	257	42	316

Note: ($\chi^2 = 3.827$, $df = 3$, $p = 0.281 > 0.05$).

From the table, majority of males (63%) and females (37%) disagreed with the that service tangibility dimensions' indicators are sufficient, this compared 11 out of 199 and 6 out of 117

that agreed that these service tangibility dimensions' indicators are in sufficient supply. A further analysis, using Chi-square test was undertaken to determine whether the gender of the students has an effect on their rating preference with their results as shown in (Table 4.17). Viewed from the perceived rating position, it is clear that majority of those who perceived service tangibility dimensions as sufficient were males with 100% rating the dimension at strongly agree level, 50% agreed, 63% disagreed and 62% strongly disagreed.

From the Chi-square test result, at 5% level of significance it was clear that there was evidence from the sample there is no relationship between the gender of respondents and rating of the perceived service tangibility ($\chi^2_3 = 3.827, p\chi^2 = 3.827, df = 3, p = 0.281 > 0.05 = 0.281 > 0.05$). Results show that the p-value was greater than the level of significance which was an indication that being a male or a female respondent had no influence on the rating of service tangibility. This is contrary to a study by Ying, Ahmad and Zainab (2016) that revealed tangible aspects do not appear to be perceived the same by the males and females. The tangible aspects of service were more important to differentiate the level of perceived quality for females and males which in turn affects the variance on satisfaction level. This indicated that females seem more focused on the tangible's cues in comparison to males.

Additionally, a study by Teeroovengadum (2020) on service quality dimensions as predictors of customer satisfaction and loyalty in the banking industry established that gender had a moderating effect on service quality environment on customer satisfaction. This was an indication that the environmental and quality of tangibles influences male customers' satisfaction more strongly than female customers' satisfaction.

4.5.2 Gender and Rating of Perceived Service Responsiveness

Table 4.18 presents results of the descriptive statistics and the hypothesized claim that there was no significant difference between the gender of the respondent and service responsiveness.

Table 4.18: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service Responsiveness by Gender of Respondent

Gender of Respondent	Rating of Perceived Service Responsiveness				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
Female	6(55%)	96(37%)	8(42%)	5(21%)	115
Male	5(45%)	162(63%)	11(58%)	19(79%)	197
Total	11	258	19	24	312

Note: ($\chi^2 = 4.365$, $df = 3$, $p = 0.225 > 0.05$).

It was clear from the results of the rating level of the agreement that perceived importance of service responsiveness a service satisfaction factor viewed from gender perspective, 11 out 312 (4%), 19 out of 312 (6%), and 24 out 312 (8%) strongly agreed, disagreed and strongly disagreed respectively with a majority 258 out of 312 (82%) agreeing with the assertion. Further, of the total respondents for each rating level, majority were males with 45% of them strongly agree category, 63%) agree category, 58% disagree and 79% strongly disagree.

From the Chi –square test results $\chi^2 = 4.365$, $df = 3$, $p = 0.225 > 0.05$ $\chi^2 = 4.365$, $df = 3$, $p = 0.225 > 0.05$ at 5% level of significance it was clear that there is no evidence from the sample to reject the null hypothesis. In this regard, results of the study revealed that is no statistically significant relationship between the respondents’ gender and their rating of service responsiveness. This is in line with a study by Mansoor (2017) on Impact of Gender Differences on Customer Satisfaction, Case of Educational Sphere that found out there was no significant relationship between male and female perceptions about the satisfaction or expectation levels with the service quality.

4.5.3 Gender and Rating of Perceived Service Reliability

The section presents and discusses descriptive statistics and test results of the hypothesis that there is no relationship between the respondents’ gender and their rating of the perceived service reliability (Table 4.19).

Table 4.19: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service Reliability by Gender of Respondent

Gender of Respondent	Rating of Perceived Service Reliability				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
Female	0(0%)	6(43%)	96(37%)	15(37%)	117
Male	2(100%)	8(57%)	163(63%)	26(63%)	199
Total	2	14	259	41	316

Note: ($\chi^2 = 1.384$, $df = 3$, $p = 0.709 > 0.05$).

From the results, it was clear that majority, 259 out of 316 (82%) of the respondents indicated they disagreed with the claim that service reliability is an important factor of service satisfaction. Regarding the distribution of respondents by gender across rating categories, majority were male respondents as demonstrated by 2 out of 2 (100%) under the strongly agree category, 8 out of 14 of the agree category, 163 disagree category and 63% of the strongly disagree category.

Regarding the Chi –square test results ($\chi^2 = 1.384$, $df = 3$, $p = 0.709 > 0.05$) at 5% of significance it can be concluded that there no evidence from the sample data to reject the hypothesis that there is no statistically significant relationship between the respondents’ gender and their rating of the importance of service reliability as a satisfaction factor. This contradicts a study of Mansoor (2017) where findings revealed that good customer service is induced by the gender of customers which can influence their rating of the quality of service provided by employees in an organization. Further, results of a study by Teeroovengadum (2020) show that gender has moderating effect on the relationship between service reliability and customer satisfaction.

4.5.4 Gender and Rating of Perceived Service Accessibility

Table 4.20 shows the descriptive statistics and Chi-square tests of the null hypothesis that there is no relationship between the respondents' gender and the rating perceived of services accessibility.

Table 4.20: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service Accessibility by Gender of Respondent

Gender of Respondent	Rating of Perceived Service Accessibility				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
Female	2(67%)	3(43%)	94(36%)	19(38%)	118
Male	1(33%)	5(57%)	164(64%)	31(62%)	200
Total	3	7	258	50	318

Note: ($\chi^2 = 1.290$, $df = 3$, $p = 0.732 > 0.05$).

As was evident from the above results, a majority, 164 out of 318 (81%) of all respondents disagreed with the claim that aggregate adequacy of service accessibility factors with 3 out of 318 (1%) giving strongly agree perception rating, 7 out of 318 (2%) agreed rating and 50 out of 318 (16%) strongly disagreed. Of the 258 respondents who rated perceived services accessibility at disagree level, majority (64%) were of male with the rest (36%) were female. Additionally, it was clear from the results that except for the strongly agree where majority were females as shown by the 2 out of 3 (67%), the pattern of male majority was maintained across the rest of the rating categories with 31 out 50 (62%) for the strongly disagree category, 5 out of 7 (57%) for the agree category.

On the Chi-square test results at 5% level of significance, it was concluded that there was no evidence from the sample data to reject the hypothesis that there is no statistically significant relationship between the respondents' gender and perceived adequacy of the aggregate service accessibility factors ($\chi^2 = 1.290$, $df = 3$, $p = 0.732 > 0.05$). In this view, the study established that the gender of a respondent had no influence on the rating of service

accessibility. A study by Mathies and Burford (2014) revealed similar results that observed gender had no influence on the way a customer may perceive access to the service offered by an organization.

4.5.5 Gender and Rating of Perceived Student Satisfaction

The section presents and discusses descriptive statistics and tests results of the hypothesis that there is no relationship between the respondents' gender and their rating of the status of student satisfaction with the services provided (Table 4.21).

Table 4.21: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service tangibility by Gender of Respondent

Gender of Respondent	Rating of Perceived Student Satisfaction				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
Female	1(14%)	7(47%)	92(39%)	15(36%)	115
Male	6 (86%)	8(53%)	158 (61%)	27(64%)	199
Total	7	15	250	42	314

Note: ($\chi^2 = 2.175$, $df = 3$, $p = 0.537 > 0.05$).

The above results indicated that there was a significant majority, 250 out of 314 (80%) of the respondents who indicated they disagreed with the claim that they were satisfied with the aggregate service factors; of these, majority, 153 (61%) were male with the rest (39%) being female. It is critical to note the pattern of a significant majority of the male respondents also giving rating of 6 out of 7 (86%) under the strongly agree category, 8 out of 15 (53%) in the agree category and 27 out of 42 (64%) in the strongly disagree category.

Regarding the Chi-square test results $\chi^2 = 2.175$, $df = 3$, $p = 0.537 > 0.05$ at 5% level of significance, it can be concluded that there is no evidence from the sample data to reject the hypothesis that there was no statistically significant relationship between the respondents gender and their rating of the status of student satisfaction with the services provided. Hence being a male or female would not have influence on the respondents rating of quality of services offered in the university. This corresponds with a study of Mansoor (2017) on impact of

gender differences on customer satisfaction that established that gender has no significant influence on customer satisfaction. In addition, the impact of gender as a moderating variable on the relationship between perceived quality and customer satisfaction of Tunisian tourist websites. The results obtained confirm that the moderating role of gender indicated a difference in perception between male and female.

4.5.6 Age of Respondent and Rating of Perceived Service Tangibility

One of the key service quality factors is age of the user of the service. Therefore, identifying the significance of the age categories of the users on the evaluation of service quality is of utmost importance. Towards this end, this section presents the results of the descriptive statistics and the hypothesized claim that there is no significant difference between age and service tangibility as a dimension of service quality (Table 4.22).

Table 4.22: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service Tangibility by Age of Respondent

Age of Respondent	Rating of Perceived Service Tangibility				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
18 – 22	2(40%)	7(58%)	131(51%)	25(60%)	165
23 – 27	2 (40%)	4(34%)	70 (27%)	12(28%)	88
28 – 32	1(20%)	1(8%)	19(7%)	2(5%)	23
33 – 37	0 (0%)	0 (0%)	7 (3%)	1(2%)	8
38 and above	0 (0%)	0 (0%)	30 (12%)	5(5%)	32
Total	5	12	257	42	316

Note: ($\chi^2 = 6.666$, $df = 3$, $p = 0.879 > 0.05$).

From the results of the rating level of the agreement regarding the rating perceived importance of service tangibility as a service satisfaction factor, it can be seen that 5 out 316 (2%), 12 out of 316 (4%), and 42 out 316 (13%) strongly agreed, agreed and strongly disagreed respectively with a majority 257 out of 316 (81%) disagreeing with the assertion. Additionally, regarding the age distribution of within the rating categories, majority were in age group 18-22 with 40%

being in the strongly agree category, 50%) the agree category, 51% in the disagree category and 60% in the strongly disagree category.

The Chi-square test results ($\chi^2 = 6.666$, $df = 3$, $p = 0.879 > 0.05$) at 5% level of significance shows that there was no evidence from the sample to reject the null hypothesis which is that, there is no statistically significant relationship between the respondents age and their rating of service tangibility. This is contrary to a study by Herath and Ranjani (2011) that found out age of a customer had a significant impact on the evaluation of service quality. Thus, age plays a vital role in the way customers evaluate service quality that an organization provides. Further, a study by Soniela and Klaudeta (2015) on the influence of demographic factor on customer service quality perception found that the older age group of customers had a more positive perception about the bank visually appealing physical facilities; work environment; orderliness and cleanness of employees and premises.

4.5.7 Age of Respondent and Rating of Perceived Service Responsiveness

One of the key service quality dimensions evaluated in the study is service responsiveness, which essentially is how fast service providers respond to customer queries and/or the willingness for service providers to assist users and provide prompt services. Table 4.23 presents results of the descriptive statistics and the hypothesized claim that there is no significant difference between age of respondents and service responsiveness as a service quality factor.

Table 4.23: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service Responsiveness by Age of Respondent

Age of Respondent	Rating of Perceived Service Responsiveness				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
18 – 22	6(55%)	129 (50%)	10 (53%)	18 (75%)	163
23 – 27	2 (18%)	76 (29%)	6 (32%)	4(17%)	88
28 – 32	0(0%)	19 (7%)	1 (5%)	1 (4%)	21
33 – 37	1 (9%)	5 (2%)	2 (5%)	2 (4%)	8

38 and above	2(18%)	29(11%)	3 (5%)	3 (4%)	32
Total	11	258	19	24	312

Note: $\chi^2 = 12.416$, $df = 12$, $p = 0.413 > 0.05$

From the results, it was evident that majority, 258 out 312 (83%) of respondents were in the agree rating category of the perceived importance of service responsiveness as a service quality factor, with a majority of these (50%) being in the 18 – 27 age group. Of the 19 out of 312 (6%), 24 of 312 (8%) and 11 out of 312 (3%) who gave a rating of disagree, strongly disagree and strongly agree respectively, still a majority were from the same age group.

From the Chi-square test results ($\chi^2 = 12.416$, $df = 12$, $p = 0.413 > 0.05$) at 5% level of significance, it was clear that there is no evidence from the sample to reject the null hypothesis, that is, there is no statistically significant relationship between the respondents age and their rating of service responsiveness. This was an indication that age of a respondent does not influence the evaluation of service responsiveness of services offered in the university. Findings therefore contradict with the results of a study by Sein and Chey (2014) on demographic factors in the evaluation of service quality in Higher Education that established there was positive relationship between age and service quality dimensions rating. Additionally, the study revealed that younger respondents between 20- 24 years seemed more satisfied than other ages above 24 years.

4.5.8 Age of Respondent and Rating of Perceived Service Reliability

The section presents and discusses descriptive statistics and test results of the hypothesis that there is no relationship between the respondents age and their rating of the perceived service reliability (Table 4.24).

Table 4.24: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service Reliability by Age of Respondent

Age of Respondent	Rating of Perceived Service Reliability				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
18 – 22	1(50%)	8(57%)	129(50%)	25(61%)	163
23 – 27	1(33%)	4(29%)	77 (30%)	7(17%)	89

28 – 32	0(0%)	1(7%)	19(7%)	3(7%)	23
33 – 37	0(0%)	1(7%)	2(2%)	1(2%)	8
38 and above	0(0%)	0(0%)	28 (11%)	5(12%)	33
Total	2	14	259	41	316

Note: ($\chi^2 = 6.547$, df = 12, p = 0.8666 > 0.05).

From the results, it was clear that majority, 259 out of 316 (82%) of the respondents indicated they disagreed with the claim that service reliability is an important factor of service satisfaction. Regarding the distribution of respondents by age across rating categories, majority were in the 18 - 22 age group respondents as demonstrated by 2 out 2 (100%) under the strongly agree category, 8 out of 14 (57%) in the agree category, 129 out of 259 (50%) in disagree category and 25 out 41 (61%) in the strongly disagree category.

Regarding the Chi-square test results ($\chi^2 = 6.547$, df = 12, p = 0.8666 > 0.05) at 5% level of significance, it was concluded that there no evidence from the sample data to reject the hypothesis that there there is no statistically significant relationship between the respondents age and their rating of the importance of service reliability as a satisfaction factor. In this case, age of respondents has no influence on the evaluation of service reliability that are offered by a university. On the contrary, a study Hsiang and Sheng (2014) on customers' perception of service quality showed that age could influence the customers' perceptions of the tangibility and reliability dimensions of service quality.

4.5.9 Age of Respondent and Rating of Perceived Service Accessibility

Table 4.25 shows the descriptive statistics and Chi-square tests of the null hypothesis that there is no relationship between the age of respondent and the rating perceived of services accessibility.

Table 4.25: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service Accessibility by Age of Respondent

Age of respondent	Rating of Perceived Service Accessibility				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	

18 – 22	2(67%)	3(43%)	128(50%)	33(66%)	166
23 – 27	1(33%)	3(43%)	75 (29%)	9(18%)	88
28 – 32	0(0%)	1(14%)	19(7%)	3(6%)	23
33 – 37	0(0%)	0(0%)	8(3%)	0(0%)	8
38 and above	1 (14%)	0(0%)	28 (11%)	5(10%)	33
Total	3	7	258	50	318

Note: ($\chi^2 = 8.654$, $df = 12$, $p = 0.732 > 0.05$).

It was evident from the sample results that 3 out of 318 (1%) of the respondents strongly agreed, 7 out of 318 (2%) agreed, 50 out of 318 (16%) strongly disagreed and the majority 258 out of 318 (81%) disagreed. Additionally, majority of the respondents in all the rating categories were in the 18 – 22 age group with 87% being in the strongly agreed, (43%) in the agreed category, (50%) in the disagreed category and 66% in the strongly disagreed category.

On the Chi-square test results at 5% level of significance, it can be concluded that there was no evidence from the sample data to reject the hypothesis that there is no statistically significant relationship between the respondents age and their rating of service accessibility ($\chi^2 = 8.654$, $df = 12$, $p = 0.732 > 0.05$). In this regard, age of the respondents does not have any effect on the rating of service accessibility. This is in line with a study by Abdul and Abdullah (2016) on effect of ServQual and accessibility on customer loyalty through customer satisfaction that revealed that in as much as service accessibility can enhance customer satisfaction, age of a customer may not have an influence on the rating of the same.

In addition, a study by Soniela and Klaudeta, (2015) on the influence of demographic factors on customer service quality Perception in Albanian banking industry found strong evidence of the effect of age on service quality perceptions. That is, effective accessibility dimension of bank service quality was significantly higher for mature individuals compared to their younger counterparts. Overall, the findings suggest that service quality should be more closely tailored to age and not to other demographic characteristics.

4.5.10 Age of Respondent and Rating of Perceived Student Satisfaction

The section presents descriptive statistics and test results of the hypothesis that there is no relationship between the respondents age and their rating of the status of student satisfaction with the services provided (Table 4.26).

Table 4.26: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Student Satisfaction by Age of Respondent

Age of Respondent	Rating of Perceived Student Satisfaction				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
18 – 22	3(43%)	6(40%)	129(52%)	25(60%)	163
23 – 27	3(43%)	5(33%)	71 (28%)	9(20%)	88
28 – 32	0(0%)	2(13%)	17(7%)	4(10%)	23
33 – 37	0(0%)	1(7%)	5(2%)	2(5%)	8
38 and above	1 (14%)	1(7%)	28 (11%)	2(5%)	32
Total	7	15	250	42	314

Note: ($\chi^2 = 8.025$, $df = 12$, $p = 0.783 > 0.05$).

Study results show that majority of the respondents (250 out of 314) indicated they disagreed with the claim that students were satisfied with the services provided. Out of these, while majority 129 (50%) were in the 18-27 age bracket. It is also noteworthy that consistently this age group had a majority of the respondents across all the rating category with 43% in the agree category, 40% disagree category and 60% in the strongly disagree category.

Regarding the Chi-square test results $\chi^2 = 8.025$, $df = 12$, $p = 0.783 > 0.05$ at 5% level of significance it can be concluded that there was no evidence from the sample data to reject the hypothesis that there is no statistically significant relationship between the respondents age and their rating of the status of student satisfaction with the services provided. The results of the study contradict a study by Min and Khoon (2014) who found that there is significant influence of demographic factors (gender, age, level of study) in the evaluation of service quality. In other words, the demographic factors of students can play a moderating role in evaluating the service quality and satisfaction in higher education.

4.5.11 Year of Study and Rating of Perceived Service Tangibility

In terms of the number of years a student has taken in the University, the year of study was taken as an indicator of experience a student has acquired in receiving the service to be able to assess the level of satisfaction. Table 4.27 presents results of the descriptive statistics and the

hypothesized claim that there no significant difference between level of study and service tangibility.

Table 4.27: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service Tangibility by Year of Study of Respondent

Year of Study	Rating of Perceived Service Tangibility				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
Second	2(40%)	3(25%)	50(19%)	13(31%)	68
Third	1(20%)	1(8%)	59 (23%)	8(19%)	69
Fourth	2(40%)	8(67%)	148(58%)	21(50%)	179
Total	5	12	257	42	316

Note: ($\chi^2 = 5.239$, $df = 6$, $p = 0.514 > 0.05$).

It was clear from the results of the rating level of the agreement that perceived importance of service tangibility as a services satisfaction factor, 5 out 316 (2%), 12 out of 316 (4%), and 42 out 316 (13%) strongly agreed, agreed and strongly disagreed respectively with a majority 257 out of 316 (81%) giving a disagreeing with the assertion.

Further, of the total respondents for each rating level, majority were year four with 40% of the strongly agree level, 67%) agree, 58% disagree and 50% strongly disagree. The results may be considered consistent with assumption that rating of service tangibility dimension as a service satisfaction is a function of the number of years a consumer has used the service.

From the Chi-square test results ($\chi^2 = 5.239$, $df = 6$, $p = 0.514 > 0.05$) at 5% level of significance, it was clear that there is no evidence from the sample to reject the null hypothesis. In that respect, there is no statistically significant relationship between the respondents' year of study and their rating of service tangibility. Findings are in agreement with a study Min and Khoon (2014) that established among four demographic variables of their study nationality and gender were found as crucial variables in the evaluation of education services while age and year of study were not significant in the rating of service quality dimensions. On the other hand, according to Mwiya, *et al.* (2017) their study on Higher Education service quality and

student satisfaction in Zambia targeted final year students because they had been at the university for long enough, interacted with the quality of various services and would be in a better position to rating service quality dimensions objectively.

4.5.12 Year of Study and Rating of Perceived Service Responsiveness

With respect to year of study, Table 4.28 presents results of the descriptive statistics and the hypothesized claim that there no significant difference between level of study and service responsiveness.

Table 4.28: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service Responsiveness by Year of Study of Respondent

Year of Study	Rating of Perceived Service Responsiveness				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
Second	1(9%)	55(21%)	2 (10%)	9(37%)	67
Third	1(9%)	54(21%)	8(32%)	5(21%)	66
Fourth	9(82%)	149(58%)	11(58%)	10(42%)	179
Total	11	258	19	24	312

Note: ($\chi^2 = 8.644$, $df = 6$, $p = 0.195 > 0.05$).

From the results, majority (83%) of the 312 respondents rated the perceived importance of service responsiveness as a satisfaction factor with a majority (58%) being from year four and the rest (21%) shared between year two and year three each. Of the 19 out of 312 (6%), 24 of 312 (8%) and 11 out of 312 (3%) who gave a retaining of disagree, strongly disagree and strongly agree respectively, still a majority were from year four.

From the Chi-square test results ($\chi^2 = 8.644$, $df = 6$, $p = 0.195 > 0.05$) at 5% level of significance, it is clear that there was no evidence from the sample to reject the null hypothesis. Consequently, there was no statistically significant relationship between the respondents' year of study and their rating of service responsiveness. This agrees with a study of Min and Khoon (2014) in which year of study was found to have no significant relationship with service

responsiveness. Therefore, year of study had no influence on the respondents rating of the service responsiveness dimension.

4.5.13 Year of Study and Rating of Perceived Service Reliability

The section presents and discusses descriptive statistics and test results of the hypothesis that there is no relationship between the respondents' year of study and their rating of the perceived service reliability (Table 4.29).

Table 4.29: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service Reliability by Year of Study of Respondent

Year of Study	Rating of Perceived Service Reliability				Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	
Second	0(0%)	3(21%)	54(21%)	10(24%)	67
Third	0(0%)	1(8%)	54(21%)	13(32%)	68
Fourth	2(100%)	10(71%)	151(58%)	18(44%)	181
Total	2	14	258	42	316

Note: ($\chi^2 = 6.897$, $df = 6$, $p = 0.330 > 0.05$).

From the results, it was clear that majority, 258 out of 316 (82%) of the respondents indicated they disagreed with the claim that service reliability is an important factor of service satisfaction. Regarding the distribution of respondents by year of study across rating categories, majority were in fourth year as demonstrated by 2 out 2 (100%) under the strongly agree category, 10 out of 14 (71%) in the agree category, 151 out of 258 (58%) in the disagree category and 18 out 42 (44%) in the strongly disagree category.

Regarding the Chi-square test results ($\chi^2 = 6.897$, $df = 6$, $p = 0.330 > 0.05$) at 5% level of significance it can be concluded that there was no evidence from the sample data to reject the hypothesis that there there is no statistically significant relationship between the respondents' year of study and their rating of the importance of service reliability as a satisfaction factor. For the present study it is echoed by Min and Khoon (2014) whose study revealed that demographic variables such as year of study might influence the evaluation of service quality

and customer satisfaction, in spite of the fact that there is no unified effect and degree of influence.

4.5.14 Year of Study and Rating of Perceived Service Accessibility

Table 4.30 shows the descriptive statistics and Chi-square tests of the null hypothesized claim that there is no relationship between the respondents' year of study and the rating perceived of service accessibility.

Table 4.30: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived Service accessibility by Year of study of Respondent

Year of Study	Rating of Perceived Service Accessibility				Total
	Strongly Agree	Agree	Disagree	Strongly disagree	
Second	1(33%)	0(0%)	53(21%)	14(28%)	68
Third	0(0%)	1(14%)	53(21%)	14(28%)	68
Fourth	2(67%)	6(86%)	152(58%)	22(44%)	182
Total	3	7	258	50	318

Note: ($\chi^2 = 7.418$, $df = 6$, $p = 0.284 > 0.05$).

It was evident from the sample results that a minority (10 out of 318) at least agreed that accesses to services factors were adequate, this compared to 308 out of 318 (97%) who at least disagreed with this claim. Of the 258 respondents who rated perceived service accessibility at disagree level, majority (58%) were in year 4 with third and second year respondents sharing the rest at 21% each. Additionally, it was clear from the results that majority of the year fours rated perceived service accessibility with 67% strongly agreeing, 86% agreeing, 58% disagreeing and 44% strongly disagreeing.

On the Chi-square test results at 5% level of significance it can be concluded that there was no evidence from the sample data to reject the hypothesis that there is no statistically significant relationship between the respondents' year of study and their rating of service accessibility ($\chi^2 = 7.418$, $df = 6$, $p = 0.284 > 0.05$). The findings are agreement with a study by Martens (2017) that revealed that year of study had no significant influence on the

rating of service accessibility different customers are likely to experience service accessibility differently due to individual prerequisites and needs.

4.5.15 Year of study and Rating of Perceived Student Satisfaction

The section presents and discusses descriptive statistics and test results of the hypothesis that there is no relationship between the respondents' year of study and their rating of the status of student satisfaction with the services provided (Table 4.31).

Table 4.31: Results of Chi-square Test and Descriptive Statistics for Rating of Perceived student satisfaction by Year of study of Respondent

Year of study	Rating of Perceived Student Satisfaction				Total
	Strongly Agree	Agree	Disagree	Strongly disagree	
Second	1(14%)	2(13%)	54(22%)	9(21%)	66
Third	0(0%)	4(27%)	55(22%)	9(21%)	68
Fourth	6(86%)	9(60%)	141(56%)	24(56%)	180
Total	7	15	250	42	314

Note: ($\chi^2 = 3.361$, $df = 6$, $p = 0.762 > 0.05$).

From the results, it was clear that majority of the respondents (250 out of 314) rated indicated they disagreed with the claim that students were satisfied with the services provided. Out of these, majority 141 (56%) were in the fourth year with third and second years sharing the remaining frequency at 22% each. It is also noteworthy that those agreeing that student satisfaction was satisfactory were merely 22 out of 314 (7%) with the rest (13%) strongly disagreeing with the claim that they were largely satisfied with the level of services provision. Regarding the Chi-square test results ($\chi^2 = 3.361$, $df = 6$, $p = 0.762 > 0.05$) at 5% level of significance, it can be concluded that there is no evidence from the sample data to reject the hypothesis that there was no statistically significant relationship between the respondents year of study and their rating of the status of student satisfaction with the services provided. The study results contradict a study by Min and Khoon (2014) whose study revealed that the year of study would influence the assessment of service quality and customer satisfaction, in spite of the fact that there is no unified effect and degree of influence.

In regard to the results on crosstabulation on relationship between the respondents' bio-data and study variables, a certain pattern of response was observed. Reason being that results of Chi-square test and descriptive statistics for rating of the (independent, moderator and dependent variables) by respondents' bio-data (gender, age and year of study) were all found not statistically significant. As consequence, some level of subjectivity in the way respondents answered questions was clear owing to the fact that those who chose the evaluation category 'disagree' continued with same pattern on all statements in the questionnaire.

4.6 Ordinal Regression Model Estimation

The study had proposed to use the Ordinal Regression Model for purposes of predicting student satisfaction rating given the four predictive and one moderation variable. However, prior to the development of a full-fledged model, a test of parallel lines assumption was undertaken to determine the appropriateness of the selected model and take the next cause of action if the assumption is not met and that is to use Multinomial Logistic Regression (MLR) Model estimation.

4.6.1 Test of Parallel Lines Assumption

Table 4.32 shows the output for testing whether the main assumption of proportional odds for Ordinal Regression is met to enable the model to be estimated for the study.

Table 4.32: Test of Parallel Lines'

Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Null Hypothesis	213.527			
General	74.987 ^b	138.540 ^c	60	.000

The test of parallel lines is premised on the null hypothesis that the slope coefficients in the model are the same across the response categories, the rejection of the hypotheses ($p = 0.000 < 0.05$), would suggest that the model assumption of parallel lines is violate indicating that the proposed Ordinal Regression methodology is inappropriate as a modeling technique. This is the case as is evidenced in Table 4.32 ($\chi^2 = 138.540$, $df = 60$, $p = 0.000 < 0.05$).

According to William (2016), when this happens, Multinomial Logistic Model (MLR) analysis is used as an alternative methodology and hence the subsequent analysis.

4.7 Multinomial Logistic Regression Results (MLR) Estimation

This section reports and discusses the main effect and the moderated effect, MLR results. The intention is to construct a multinomial logistic model and use the model to make projection about the dependent variable in this case, the student satisfaction. It was anticipated that two forms of the MLR models were estimated, the Main Effect and the Moderated Effect models. In either case, the maximum likelihood estimation method of the beta coefficients are predestined to estimate parameters of the MLR models.

4.7.1 Main Effect MLR Model Estimation

4.7.1.1 Overall fit of Estimated MLR Model

Prior to the assessment of the effect of each of the four explanatory variables in the model, a determination of whether the model improves the ability to predict the outcome was undertaken. The results are presented in Table 4.33 which indicates the Model Fitting Information. The output provides the log likelihood estimate which is a measure of how much unexplained variability is in the data. That is, the change in the log-likelihood indicates how much new variance has been explained by the new model. The -2Log Likelihood in the table gives an intercept only value of 335.794 to the final value of 134.646, with a difference of 201.146, representing a statistically significant of change amount of variance explained by the final model. ($\chi^2_{12} = 201.148, p = 0.000 < 0.05$).

This implies that the null hypothesis was rejected which can be interpreted to indicate that the full model explains a significant amount of the original variability. In this study, the result shows that the full model with explanatory variables predicts the student satisfaction variable better than the intercept-only model alone.

Table 4.33: Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	335.794			
Final	134.646	201.148	12	.000

4.7.1.2 Goodness-of-Fit Test

The test provides results of the Chi-Square Goodness-of-Fit test used to assess the significance of the overall model. Both the Pearson and deviance statistic test the same thing; whether or not the predicted values differ significantly from the observed values. A statistically significant result on the "Pearson" measure indicates that the model is not a good fit for the data. The Goodness of Fit of the model in this study is as shown in Table 4.34.

Table 4.34: Evaluation of the Goodness of Fit of the Model

	Chi-Square	df	Sig.
Pearson	2710.740	90	.000
Deviance	120.787	90	.017

The table contains Pearson's chi-square statistic for the model (as well as another Chi-square statistic based on the deviance). These statistics are intended to test whether the observed data are consistent with the fitted model. In this case, the result gives a Chi-square of $\chi^2_{(90)} = 2710.740$, $p < 0.000$ implying the model does not fit the data well. This result is supported by Deviance test statistic as shown in Table 4.34, which gives a Deviance $\chi^2_{(90)} = 120.787$, ($p < 0.05$) which also implies that the null hypothesis is accepted and hence the model is apparently not a good fit. However, given the result found under Model information test criterion one would still proceed with the modeling process to estimate the desired MLR model. This is in line with a study by Chege (2020) on service quality dimensions and customer

satisfaction in the insurance industry in Kenya which concluded that any such results would still be suitable for estimating a multinomial regression model for predictive studies.

4.7.1.3 Pseudo R-square

In linear regression, R^2 (the coefficient of determination) summarizes the proportion of variance in the outcome that can be accounted for by the explanatory variables, with larger R^2 values indicating that more of the variation in the outcome can be explained up to a maximum of 1. For multinomial logistic and ordinal regression models, it is not possible to compute the same R^2 statistic as in linear regression so three approximations Cox and Snell, Nagelkerke, and McFadden are computed instead. From our results (Table 4.35), the two most often used Pseudo R-square estimates: Cox and Snell, and Nagelkerke. Cox and Snell's R^2 shows a value of 0.484, while Nagelkerke's R^2 shows a value of 0.686.

Table 4.35: Pseudo R-Square

Cox and Snell	.484
Nagelkerke	.686
McFadden	.541

From the results above, one would interpret the measures as that the model explains between 48.4% and 68.6 of the variance in the data which is a good result.

4.7.1.4 Evaluation of the overall effect of the Predictor variables

The statistics in the Likelihood Ratio Tests table (Table 4.36) are the same types as those reported for the null and full models of the Model Fitting Information table. Here however, each explanatory of the model is being compared to the full model in such a way as to allow the researcher to determine if each element should be included in the full model. In other words, does each predictor contribute meaningfully to the full effect?

Table 4.36: Likelihood Ratio Tests

Effect	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests		
		Chi-Square	df	Sig.

Intercept	213.687 ^a	.000	0	.
service tangibility	209.943 ^b	.	9	.
service responsiveness	248.395	34.708	9	.000
service accessibility	237.739	24.053	9	.004
service reliability	383296.839	383083.153	9	.000

The likelihood ratio test is based on -2LL ratio. It is a test of the significance of the difference between the likelihood ratio (-2LL) for the researcher's model with predictors (called model Chi-square) minus the likelihood ratio for baseline model with only a constant in it.

A significance at the .05 level or lower means that the researcher's model with the predictors is significantly different from the one with the constant only (all 'B' coefficients being zero).

It measures the improvement in fit that the explanatory variables make compared to the null model. Chi-square is used to assess significance of this ratio as in Table 4.36 to test that null hypothesis that there is no difference between null model and final model against that alternative that there is difference between null model and final model. The best case is to reject the null as is the result here with service responsiveness being significant at $\chi^2_{(9)} = 34.708$, $p = 0.000 < 0.05$, service accessibility significant at $\chi^2_{(9)} = 24.053$, $p = 0.004 < 0.05$ and service reliability significant at $\chi^2_{(9)} = 383083.153$, $p = 0.000 < 0.05$. The above results indicate, therefore, that all the predictors should be included in the estimated model.

4.7.1.5 Parameter Estimates of the MLR Model

In this context, the estimated parameters of the MLR model summarizes the effect of each predictor, where the ratio between each coefficient and its standard error squared equals the Chi square Wald statistic. The odds ratio (OR) for each category of the dependent variable (1-Strongly Agree, 2-Agree and 3-Disagree), relative to reference category (4-Strongly disagree) are available for each independent variable in the Exp(B) column. It is instructive to note that parameters with significant negative/positive coefficients decrease/increase the likelihood of the response variable category with respect to the reference variable category. When beta is positive/negative, then Exp (B) is higher/smaller than 1 which means that OR is Exp (B). The

estimates from the parameters obtained through the maximum likelihood estimation method for the final model are summarized in Table 4.37.

Table 4.37: Parameter Estimates Results

		Std.						Information
Student Satisfaction ^a		B	Error	Wald	Df	Sig.	Exp(B)	
Strongly Agree	Intercept	18.801	7.091	7.029	1	.008		
	service tangibility	3.611	1.627	4.924	1	.026	37.016	Significant
	service responsiveness	-2.877	1.221	5.555	1	.018	.056	Significant
	service reliability	-9.060	2.358	14.759	1	.000	.000	Significant
	service accessibility	.259	2.389	.012	1	.914	1.296	Not Significant
Agree	Intercept	26.285	4.086	41.389	1	.000		
	service tangibility	1.603	1.418	4.279	1	.038	4.970	Significant
	service responsiveness	-1.732	.989	5.071	1	.024	.177	Significant
	service reliability	-6.261	1.919	10.647	1	.001	.002	Significant
	service accessibility	-3.225	1.304	6.115	1	.013	.040	Significant
Disagree	Intercept	17.857	2.496	51.190	1	.000		
	service tangibility	-1.129	.587	3.995	1	.046	.323	Significant
	service responsiveness	-1.750	.435	16.154	1	.000	.174	Significant
	service reliability	.489	.959	.260	1	.610	1.631	Not Significant
	service accessibility	-2.996	.893	11.253	1	.001	.050	Significant

From the parameter estimates table, we can deduce the hypothesis of the study. In order to accept or reject the stated hypothesis, it is instructive to note that the explanatory variables

must be either significant or not over all the three rating categories i.e. SA, A and D. From Strongly Agree category of student satisfaction with the strongly disagree as the reference category, except for service accessibility ($p=0.914>0.05$), the predictors that were found to be statistically significant were service tangibility ($p=0.026<0.05$), service responsiveness ($p=0.018<0.05$) and service reliability ($p=0.000<0.05$). As mentioned earlier, in the interpretation of the logit coefficient is the odds ratio (EXP (B) where the Exp (B) is the effect of the independent variable on the "odds ratio". When the odds ratio is greater than 1 (which corresponds to a positive coefficient), then a one unit change in the independent variable would more likely affect the dependent variable by a value equivalent to odds ratio. Alternatively, when the odds ratio is less than 1 (which corresponds to a negative coefficient), then a one unit change in the independent variable would less likely to affect the dependent variable by a value equivalent to odds ratio.

On the Exp (B) results holding the rest of the three predictor variables constant, a one unit change in perceived service tangibility rating would more likely affect the student satisfaction 37 times. Similarly, for one-unit increase in perceived service responsiveness rating, it is expected that there will be .056 decrease in the log-odds and for a unit increase in service reliability will be accompanied by 0.000 decrease in the log – odds. While service accessibility is not statistically significant, a one-unit increase in the variable will increase the log-odds by 1.296. The estimated MLR predictive model for the “Strongly Agree” category is as shown in equation 1 below:

$$\text{Log} \left[\frac{\pi_1}{\pi_0} \right] = 18.801 + 3.611x_1 - 2.877x_2 - 9.060x_3 + 0.259x_4 \dots \dots \dots \text{Eqn. 1}$$

From “Agree” category of student satisfaction, service tangibility ($p=0.038<0.05$), service responsiveness ($p=0.024<0.05$), service accessibility ($p=0.013<0.05$) and service reliability ($p=0.001<0.05$) were found statistically significant compared to the reference category “strongly disagree. Again, a unit increase in service tangibility rating is expected to be

accompanied by 4.970 increase in the log-odds holding the other independent variables. Similarly, a unit increase in service responsiveness rating will be also be accompanied by 0.177 decrease in the log-odds. On the other hand, regarding the statistically significant cases, one unit increase in service accessibility and service reliability will be respectively accompanied by 0.002 and 0.04 decrease in the log-odds of the response variable. The estimated MLR predictive model for the “Agree” category is as shown in equation 2 below:

$$\text{Log} \left[\frac{\pi_1}{\pi_0} \right] = 26.285 + 1.603x_1 - 1.732x_2 - 6.261x_3 - 3.225x_4 \dots \dots \dots \text{Eqn. 2}$$

Lastly, for the “Disagree” category of student satisfaction only service reliability ($p=0.610>0.05$) was found not to be statistically significant compared to the reference category “strongly disagree” group. However, service tangibility ($p=0.046<0.05$), service responsiveness ($p=0.000<0.05$) and service accessibility ($p=0.001<0.05$) produced statistically significant results. As in the above case, it can be stated that a unit decrease in service tangibility rating and service reliability are respectively expected to lead to 10.323 and 1.631 increase in the log-odds of the response variable respectively. However, for the statistically significant cases, a unit decrease in service responsiveness rating and service reliability will respectively lead to 0.174 and 0.050 decrease in the log-odds of the response variable. The estimated MLR predictive model for the “Agree” category is as shown in equation 3 below:

$$\text{Log} \left[\frac{\pi_1}{\pi_0} \right] = 17.857 - 1.129x_1 - 1.750x_2 + 0.489x_3 - 2.996x_4 \dots \dots \dots \text{Eqn. 3}$$

In this study, the following four hypotheses about the explanatory variables (service tangibility, service responsiveness, service reliability and service accessibly) and the outcome variable (service satisfaction) had been designed to guide the study:

- a) **H₀₁** *Service tangibility has no effect on student satisfaction in Schools of Business of chartered universities in Kenya*

- b) **H₀₂** *Service responsiveness has no effect on student satisfaction in Schools of Business of chartered universities in Kenya*
- c) **H₀₃** *Service reliability has no effect on student satisfaction in Schools of Business of chartered universities in Kenya*
- d) *Service accessibility has no effect on student satisfaction in Schools of Business of chartered universities in Kenya*

In order to accept or reject the stated hypotheses, it is instructive to note that the explanatory variables must be either significant or not over all the three rating categories. Based on the results obtained in this study, it can be shown that only two of the four explanatory variables can be used to distinguish respondents across the three rating categories and these are service tangibility and service responsiveness, since they are statistically significant for each of the three rating categories. That is, there is no evidence from the sample to accept the hypotheses corresponding to these two explanatory variables. In conclusion, there is a statistically significant relationship between service tangibility and student satisfaction and service responsiveness and student satisfaction. In this regard, service tangibility has effect on student satisfaction in Schools of Business of the chartered universities in Kenya. This concurs with a study of Twaussi and A-Kilani (2015) on the impact of perceived service quality and student satisfaction in higher education that concluded tangibility dimension had strong influence on student satisfaction in the higher education industry. Though on the contrary, a study by Kajenthiran and Karunanithy (2015) on service quality and student satisfaction found that tangibility had no significant effect on student satisfaction.

Similarly, service responsiveness has effect on student satisfaction in Schools of Business of the chartered universities in Kenya. This is in line with a study by Jaza, Mustafa and Ahmet (2020) on impact of service quality on student satisfaction within higher education institutions that found out that the responsiveness dimension of service quality affects the achievement of

student satisfaction in the universities. This meant that if students received a high level of responsiveness from the staff, then this enhanced their satisfaction.

4.7.1.6 Model Predictive Accuracy

A perfect model would show only values on the diagonal-correctly classifying all cases. Adding across the rows represents the number of cases in each category in the actual data and adding down the columns represents the number of cases in each category as classified by the full model. The key piece of information is the overall percentage in the lower right corner of Table 4.38, which shows the model (with all predictors & the constant) is 89.8%% accurate.

Table 4.38: Classification Table

Observed	Predicted				Percent Correct
	Strongly Agree	Agree	Disagree	Strongly Disagree	
Strongly Agree	4	0	2	0	66.7%
Agree	1	0	8	0	0.0%
Disagree	0	1	241	7	96.8%
Strongly Disagree	0	1	11	28	70.0%
Overall Percentage	1.6%	0.7%	86.2%	11.5%	89.8%

4.7.2 Effect Multinomial Logistic Regression Model

The fifth hypothesis that guided this study was as follows

- e) **H₀₅** *Information Communication Technology has no moderating effect on the relationship between service quality dimensions and student satisfaction in Schools of Business of chartered universities in Kenya*

In order to test this hypothesis, multinomial logistic regression analysis was run to estimate the model as presented in the next sections.

4.7.3 Overall Model Fit

It is sufficient to note that if the p-value is less than the selected level of significance, in this case 0.05, then the model fits the data significantly better than the null model otherwise. The model with the predictors (full model) does not fit the data better than a model without the parameters (the null model). It is clear from the results that the estimated moderated effect

model fits that data well as can be seen from Table 4.39 $\chi^2_{21} = 246.498, p = 0.00 < 0.05$).

Table 4.39: Model Fitting Information

Model	Model Criteria	Fitting Likelihood Ratio Tests		
	-2Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	334.822			
Final	88.324	246.498	21	.000

4.7.3.1 Evaluation Goodness-of-Fit

The Goodness-of-Fit table contains the Pearson and Deviance Chi-Square tests, which are useful for determining whether a model exhibits good fit to the data. Non-significant test results are indicative that the model fits the data well. Either of the two tests may be used to indicate whether the model fits the data well or not; in this case the Deviance's Chi-Square test does so since $\chi^2_{108} = 80.312, p = 0.979 > 0.05$).

Table 4.40: Goodness of Fit

	Chi-Square	Df	Sig.
Pearson	213.799	108	.000
Deviance	80.312	108	.979

4.7.3.2 Predictive of Estimated MLR Model

There are two ways to assess percentage of variance in the data that is explained by the estimated moderated model and these are the Cox & Snell and Nagelkerke, & McFadden statistics with these being used to provide the lower and the upper bound of the percentage of the explained variance respectively. In this case, the results show that the percentage of the variance explained was 55.9%, 69.9% and 81% for Cox & Snell, Nagelkerke, & McFadden statistics respectively (Table 4.40).

Table 4.41: Pseudo R-Square

Cox and Snell	.559
Nagelkerke	.810
McFadden	.699

4.7.3.3 Overall contribution of each predictor and moderator variable to the model

This test is achieved using the Likelihood Ratio. Using the conventional threshold of 5% level of significance, when the p-value is less than 0.05, the individual predictor and or the moderated will be considered to significantly contribute to the overall model. From the results of this study and in the context of the moderated MLR model, each of the predictors and their moderated cases are statistically significant as shown in Table 4.42 below.

Table 4.42: Likelihood Ratio Test Results

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	98.396	10.072	3	.018
service tangibility	107.700	19.376	3	.000
service responsiveness	106.911	18.587	3	.000
service reliability	117.265	28.941	3	.000
service accessibility	98.756	10.432	3	.015
information communication technology	102.909	14.585	3	.002
service tangibility * information communication technology	110.855	22.531	3	.000
service responsiveness * information communication technology	104.128	15.804	3	.001

4.7.3.4 Evaluation of the effect of each predictor and moderator variable on Students**Satisfaction**

This evaluation is realized using the parameter estimates results as shown in the Table 4.43 below.

Table 4.43: Parameter Estimates

	B	Std. Error	Wald	df	Sig.	Exp(B)	
student satisfaction							
Intercept	-90.565	45.475	3.966	1	.046		

strongly agree	service tangibility	36.967	14.891	6.163	1	.013	1.134E+15	Significant
	service responsiveness	18.646	12.041	4.398	1	.036	1,253E+8	Significant
	service reliability	-15.376	6.589	5.446	1	.020	2.101E-7	Significant
	service accessibility	-.558	2.191	.065	1	.799	.572	Not Significant
	information communication technology	45.612	21.156	4.648	1	.031	6.4384E+19	Significant
	service tangibility * information communication technology	-9.757	4.309	5.129	1	.024	5.788E-5	Significant
	service responsiveness * information communication technology	-10.447	5.735	3.319	1	.048	2.905E-5	Significant
Agree	<i>Intercept</i>	12.252	22.874	.287	1	.592		Not Significant
	<i>service tangibility</i>	9.240	7.302	4.601	1	.031	10302.955	Significant
	<i>service responsiveness</i>	18.469	15.107	5.495	1	.019	1.05E+08	Significant
	<i>service reliability</i>	-19.273	10.791	4.190	1	.041	4.262E-9	Significant
	<i>service accessibility</i>	-2.987	2.296	1.692	1	.193	.050	Not Significant
	<i>information communication technology</i>	3.051	9.534	.102	1	.749	21.140	Not Significant
	<i>service tangibility * information communication technology</i>	2.640	4.907	4.289	1	.038	14.013	Significant

Disagree	service responsiveness * information communication technology	-8.998	6.324	7.024	1	.008	.000	Significant
	Intercept	-7.980	7.437	1.151	1	.283		Significant
	service tangibility	11.522	3.192	13.028	1	.000	1E+05	Significant
	service responsiveness	-6.209	2.538	5.984	1	.014	.002	Significant
	service reliability	-.246	1.024	5.058	1	.025	.782	Significant
	service accessibility	-2.773	.988	7.879	1	.005	.062	Significant
	information communication technology	7.351	2.428	9.165	1	.002	1557.366	Significant
	service tangibility * information communication technology	-3.426	.873	15.414	1	.000	.033	Significant
	service responsiveness * information communication technology	1.238	.731	4.871	1	.027	3.450	Significant

In this study, student satisfaction, the dependent variable consists of 4 categories 1-Strongly Agree, 2- Agree, 3-Disagree and 4-Strongly Disagree with the latter being used as the reference variable. From the model specification in Chapter 3 the analysis therefore results into three equation for each the three remaining categories of the dependent variables 1-Strongly Agree, 2- Agree and 3-Disagree. Using the referenced model specification and the results in Table 4.43, the equations for Strongly Agree, Agree and Disagree groups are respectively as follows:

$$\text{Log} \left[\frac{\pi_3}{\pi_0} \right] = -90.556 + 36.967x_1 + 18.646x_2 - 15.376x_3 - 558x_4 + 45.612x_5 - 9.757x_1 * x_5 - 10.447x_2 * x_5 \text{ -----Eq,1}$$

$$\text{Log}\left[\frac{\pi_3}{\pi_0}\right] = 12.252 + 9.240x_1 + 18.469x_2 - 19.273x_3 - 2.987x_4 + 3.051x_5 \\ + 2.640x_1 * x_5 - 8.998x_2 * x_5 \text{ -----Eq,2}$$

$$\text{Log}\left[\frac{\pi_3}{\pi_0}\right] = -7.980 + 11.522x_1 - 6.209x_2 - .246x_3 - 2.773x_4 + 7.351x_5 \\ - 3.426x_1 * x_5 + 1.238x_2 * x_5 \text{ -----Eq,3}$$

Where x1, x2, x3, x4 and x5 are service tangibility, service responsiveness, service reliability, service accessibility, service tangibility * information communication and technology and service responsiveness * information communication and technology.

Equations 1 - 3 were derived for each of the categories relative to the reference category, the strongly agree group, and they describe the relationship between student satisfaction on the one hand and the predictor and the moderating variables on the other. The results in Table 4.43 provide information comparing each student satisfaction rating against the reference category, strongly disagree. The first set of coefficients (the Strongly agree row) represents a comparison between the reference category (strongly disagree) with the other three categories.

From the results, it is clear that for service tangibility ($\chi_1 = 6.163, p = 0.013 < \alpha = 0.05$) service responsiveness, ($\chi_1 = 4.398, p = 0.036 < \alpha = 0.05$), service reliability ($\chi_1 = 5.446, p = 0.020 < \alpha = 0.05$), information communication technology ($\chi_1 = 4.648, p = 0.031 < \alpha = 0.05$), service tangibility * information communication technology ($\chi_1 = 5.129, p = 0.024 < \alpha = 0.05$) and service responsiveness* information communication technology ($\chi_1 = 3.319, p = 0.048 < \alpha = 0.05$) were statistically significant.

The next set of coefficients (the agree row) represents a comparison between the reference category (strongly disagree) with the other three categories. From these results, service tangibility ($\chi_1 = 4.601, p = 0.031 < \alpha = 0.05$), service responsiveness ($\chi_1 = 5.495, p = 0.019 < \alpha = 0.05$), service reliability ($\chi_1 = 4.190, p = 0.041 < \alpha = 0.05$) information

communication technology ($\chi_1 = 9.165, p = 0.002 < \alpha = 0.05$), service tangibility * information communication technology ($\chi_1 = 4.289, p = 0.038 < \alpha = 0.05$) and service responsiveness * information communication technology ($\chi_1 = 7.024, p = 0.008 < \alpha = 0.05$) were statistically significant.

Last but not least are the results relating to the “disagree” equation, From these results, service tangibility ($\chi_1 = 13.028, p = 0.014 < \alpha = 0.05$), service responsiveness ($\chi_1 = 5.984, p = 0.014 < \alpha = 0.05$), service reliability ($\chi_1 = 5.058, p = 0.025 < \alpha = 0.05$) Service accessibility ($\chi_1 = 7.879, p = 0.005 < \alpha = 0.05$), information communication ($\chi_1 = 9.165, p = 0.002 < \alpha = 0.05$), service tangibility * information communication ($\chi_1 = 15.414, p = 0.000 < \alpha = 0.05$), service responsiveness * information communication ($\chi_1 = 4.871, p = 0.027 < \alpha = 0.05$) were found to be statistically significant.

From these results, it is noteworthy that while service tangibility and service responsiveness remained significant across all evaluation categories compared to the reference category, service reliability as under a moderation effect environment became statistically significant. In conclusion regarding the fifth hypothesis, one must take cognizance of the requirement that; (a) the main predictors should have been statistically significant under the main effect environment and (b) the moderator interaction between the candidate variables should also be statistically significant across all categories in reference to the base category.

As a consequence of the above, one can conclude that the moderator variable ICT has a statistically significant moderating effect between service tangibility and student satisfaction and service responsiveness and student satisfaction. The hypothesis is hence rejected to the extent of these two predictor variables. Results show that ICT enhances use of teaching materials that are visually appealing, ethical practices among staff members and accelerating diversity in terms of equipment and facilities. This in line with a study by Yilmaz (2015) which found out that adoption of ICT in the universities had enabled continuous education through

teaching, learning and research and this makes it possible for students and lecturers to communicate as well as access resources from any place thereby saving time as well as costs. Additionally, studies by Nsamba (2019) and Zeglat, Shrafat and Al-Smadi (2016) indicated that the service quality has a positive effect on students using e-learning that leads to student satisfaction.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

INTRODUCTION

This chapter gives the summary of the study findings based on objectives. The findings are subsequently used to make conclusions and recommendations. The chapter further incorporates suggestions on areas of further research.

5.1 Summary of Findings

The general objective of the study was to establish the effect of service quality dimensions on student satisfaction in Schools of Business of chartered universities in Kenya. The specific objectives were to establish the effect of service tangibility on student satisfaction in Schools of Business of chartered universities in Kenya, find out the effect of service responsiveness on student satisfaction in Schools of Business of chartered universities in Kenya, determine the effect of service reliability on student satisfaction in Business Schools of chartered universities in Kenya, assess the effect of service accessibility on student in Schools of Business of the chartered universities in Kenya and establish the moderating effect of Information Communication Technology on the relationship between service quality dimensions and student satisfaction in Schools of Business of chartered universities in Kenya.

5.1.1 Service Tangibility and Student Satisfaction

From the results, service tangibility was found to be significant across the three evaluation levels which are strongly agree, the $p\text{-value} = 0.026$, agree $p\text{-value} = 0.038$ and disagree $p\text{-value} = 0.046$. The Exp (B) results and in each case holding the other variable constant a one-unit increase in service tangibility will be accompanied by 37.016 on the ‘strongly agree’ category, it is expected that there will be 37.016 increase in the log-odds holding the other independent variables constant. Results also indicated that a unit increase in service tangibility rating on the ‘agree’ evaluation category is expected to be accompanied by

4.970 increase in the log-odds holding the other independent variables constant. As in the ‘disagree’ evaluation category can be stated that a unit decrease in service tangibility rating expected to lead to 0.323 increase in the log-odds of the response variable respectively. Consequently, the null hypothesis was rejected and it was concluded that there was a statistically significant relationship between service tangibility and student satisfaction.

The findings of the study indicated that universities had adequate facilities and conducive environment for learning as well as equipped libraries with adequate space for the students. However, results also revealed that some classrooms were small and at times there were inadequate chairs and computers in the laboratory. This has been as a result of growth in the number of students admitted in the universities yet there has not been expansion of facilities to commensurate this growth.

The study findings reflect that physical facilities and conducive environment of universities could be an attraction aspect to new students. The infrastructure of the institution such as computer and library facilities, campus security and accommodation were also major elements that would be considered by students when choosing a university.

5.1.2 Service Responsiveness and Student Satisfaction

The study findings depicted that service responsiveness was a significant dimension on all the three evaluation categories; strongly agree p-value = 0.018, agree p-value = 0.24 and disagree level p-value = 0.000. The Exp (B) results indicate that for one unit increase in service responsiveness, it is expected that there will be .056 decrease in the log-odds holding the other independent variables constant on the ‘Strongly agree’ category while at the ‘agree’ category a unit increase in service responsiveness rating will be accompanied by a 0.177 decrease in the log-odds while at the ‘disagree’ category, a unit decrease in service responsiveness rating will lead to 0.174 decrease in the log-odds of the response variable.

From the results, it was clear that there was a statistically significant relationship between service responsiveness and student satisfaction, therefore rejecting the null hypothesis and adopting the alternative hypothesis. This was an indication that universities responded to students' enquiries in a courteous manner and also that staff would go out of their way to help. Additionally, staff offered quick services all the time and there was clear communication from relevant authorities all the time. This was worth noting that universities were keen to disseminate information in order to keep students well informed on all matters that affected them.

5.1.3 Service Reliability and Student Satisfaction

Results of the study indicated that there is no significant relationship between service reliability and student satisfaction. This was evidenced by the inconsistency of the variable rating by respondents on the three evaluation categories, at strongly agree $p\text{-value} = 0.00$, agree $p\text{-value} = 0.001$ while at disagree $p\text{-value} = 0.610 > 0.05$. Results show that at the 'strongly agree' category, a unit increase in service reliability will be accompanied by 0.000 decrease in the log-odds while at the 'agree' category regarding the statistically significant cases, one unit increase in service reliability will be accompanied 0.04 decrease in the log-odds of the response variable. Additionally, a unit decrease in service reliability rating is expected to lead to 1.631 increase in the log-odds of the response variable at the 'disagree' category. In this case, the null hypothesis (H_1) which stated that service reliability has no effect on student satisfaction in Schools of Business of the chartered universities in Kenya was accepted. From the findings of the study it was evident that service reliability was not rated or perceived a significant dimension that influenced student satisfaction among the respondents.

5.1.4 Service Accessibility and Student Satisfaction

Results showed that there is no significant and positive relationship between service accessibility and student satisfaction as indicated by the ratings on the three categories, strongly

agree, and agree and disagree. On the strongly agree evaluation category, the p-value = 0.914 > 0.05 indicated that there was no significant relationship between the independent variable and dependent variable. While on the agree and disagree categories p-value = 0.013 and 0.001 respectively indicated some level of significance nevertheless the threshold was not met since the variable rating for the three categories only two categories had significant with p values > 0.05 and therefore the null hypothesis was accepted. This was an indication that respondents did not perceive location of university (proximity and convenience), staff availability and approachability as aspects that influenced student satisfaction.

5.1.5 Moderating effect of Information Communication Technology on the relationship between Service Quality Dimensions and Student Satisfaction

Results indicated that while service tangibility and service responsiveness remained significant across all evaluation categories compared to the reference category, service reliability as under a moderation effect environment became statistically significant. However, in assessing whether ICT has a significant moderating effect on reliability factor, it is worth noting that variable (service reliability) should have been statistically significant under the main effect model estimation. Additionally, the moderator interaction between the candidate variables should similarly be statistically significant across all categories in reference to the base category.

As a result, it can be concluded that the moderator variable, ICT, has a statistically significant moderating effect between service tangibility, student satisfaction, service responsiveness and student satisfaction. The hypothesis was hence rejected to the extent of these two predictor variables. Results show that ICT has enabled teaching, learning and research and this makes it possible for students and lecturers to communicate. It has also enabled quick and timely access of information resources by students from any place hence saving on costs.

5.2 Conclusion

This section presents the conclusion of the study based on the research objectives that guided this study. Results of the MRL model indicated that service quality had a significant effect on student satisfaction in Schools of Business of chartered universities in Kenya. This was based on two service quality dimensions (service tangibility and service responsiveness) that were found to be significant across all categories under the main effect model and the moderated effect MRL environment.

From the results, service tangibility was perceived to be statistically significant effect on student satisfaction. This was confirmed by findings that revealed by the rating of the predictor across all the evaluation categories of the main effect model and the moderated effect multinomial model. This implied that universities had appropriate learning facilities which helped students to feel relaxed and motivated to work hard to pursue their studies successfully. Study findings indicated that physical infrastructure of a university such as computer and library facilities, campus security and accommodation were also major elements that would be considered by students when choosing a university. Therefore, universities needed to ensure security is maintained within the universities, equip the computer laboratories with up to-date computers and ensure maintenance is done regularly to minimize cases of breakdown during lessons. By so doing, any university can compete on a level playing ground with others as well attract and retain students.

Results indicate that service responsiveness had a significant effect on student satisfaction. According to the study, the variable was rated significant across all categories and this implied that staff commitment towards students' needs was commendable, they were prompt and committed to serve. On the other hand, results indicated that there were times when services delivery delay would be experienced and no communication would be given to explain the reason for the inconveniences. Consequently, universities required to device the best means to

communicate promptly to students when delays occur as this this could go a long way in keeping them well informed. This would in turn create a mutual understanding between universities and the student fraternity thus enhancing satisfaction among students.

Results of the MLR model indicated that service reliability had no significant effect on student satisfaction. Perceived rating of the variable was only significant on two categories while on the third 'disagree' category, the value was not significant. Hence the null hypothesis (H_{01}) was accepted and in this regard, service reliability had no significant effect on student satisfaction in Schools of Business of chartered universities in Kenya.

Results of the study showed that service accessibility was not rated significant across all the categories both on the main effect MLR model and on the moderated MLR model. This led to a conclusion that service accessibility had no significant effect on student satisfaction. This denoted that the university's location, convenience of access to staff when needed cannot have any influence on student satisfaction.

5.3 Recommendations

To Theory

The study provides a tool for measuring student satisfaction in Schools of Business of chartered universities in Kenya. Based on the empirical evidence, the study found out that the SERVQUAL model is unstable and insufficient on the basis of dimensionality, a stand that was backed by (Ramanathan, Win, & Wien, 2018). This implies that service quality theorists can unveil more dimensions as they appear to vary according to the type of service industry and country. The study found out that service tangibility and responsiveness were most rated dimensions of service quality that influence student satisfaction in Schools of Business of chartered universities in Kenya.

The study introduced service accessibility dimension that had not been explored sufficiently on service quality theory before, though results show that service accessibility had no

significant effect on student satisfaction. However, service accessibility dimension can further be explored in other studies of the different service industries targeting a different category of respondents.

The regulatory body CUE should encourage universities to carry out service quality assessment at regular intervals as this would help to identify and address service quality gaps that exist. The universities should also formulate and implement an effective service quality policy that is capable of facilitating continuous improvement on service quality.

To University Management

The study identified that service tangibility and service responsiveness were most important dimensions that enhanced student satisfaction. This means that boards of management of universities need to ensure that the learning environment is conducive to enhance student satisfaction. This could be achieved by ensuring that physical facilities, equipment, furniture as well as classrooms, lecture halls, washrooms are adequate and well maintained at all times. The study revealed that students considered conducive learning aspects when choosing a university.

The study revealed that computer laboratories lacked adequate computers and therefore boards of management of universities need to form committees that would be charged with a responsibility of regularly assessing the adequacy of facilities. This would ensure that the required equipment and machines are readily provided and maintenance is done regularly to minimize cases of breakdown during lessons.

To Policy Makers

The study found out that majority of universities did not have adequate lecture halls and rooms sitting space. Majority stated that classrooms were small, with limited sitting space and lack of comfortable furniture while other respondents indicated that lecture halls were sometimes overcrowded. It was also found that sometimes there was inadequate chairs and computers in

the laboratories were sometimes not in good condition and this would interrupt their lessons. Therefore, the Ministry of Education needs to ensure that the universities budgets are fully funded to facilitate provision of required infrastructure. The Ministry needs also to provide adequate financial resources to facilitate construction of classrooms and lecture halls to reduce congestion in the available facilities at the universities.

5.4 Limitations and Suggestions for Further Research

The study was limited to second, third and fourth year students of schools of Business of chartered universities in Kenya and conclusions made were based on data collected from these groups. The study therefore suggests that a similar study be carried out focusing other schools in the universities for comparison. The study results focused on four service quality dimensions; future research can explore more service quality dimensions in varying service context.

This study has limitations of the results as research was conducted using only bachelor degree students, future research could include master and doctoral students. The study was also limited to 10 universities, future study could consider a broader scope that would include a larger sample of universities as well as respondents. A comparison between public and private higher educational institutions' service quality gap scores should be explored.

5.5 Contributions of the Study

The study has made a significant contribution to the field of social science and most so marketing. Majority of previous social science studies used simple linear regression model despite the dependent variable being ordinal or categorical. However, this study used the multinomial logistic regression which has not been used previously by researchers in social sciences.

The findings of this study have contributed to the existing stock of knowledge in the literature of consumer attitudes towards service delivery. The study laid emphasis on the importance of

service quality dimensions that are considered to be of great influence to consumers perception of services offered by an organization. This awakens the management or practitioner in the education industry to be aware that as consumers, students have role to play in determining the dimensions that deliver utmost and desired satisfaction.

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APPENDICES

Appendix 1: Letter of Introduction

Jane Naitore Kimaita

P.O. Box 52428

NAIROBI

Dear Respondent,

My name is **JANE NAITORE KIMAITA** a student at the Technical University of Kenya, Department of Business Administration and Management. This survey research is a partial fulfillment of requirements for the award of PhD in Business Administration (Marketing). The purpose of the study is to assess the ***Service Quality Dimensions and Student satisfaction in Schools of Business of chartered universities in Kenya.***

The questionnaire forms an integral part of the study. I am therefore, kindly requesting you to assist in facilitating the completion of the questionnaire. The instructions for completing the questionnaire are indicated in the questionnaire itself. The survey will take about 20 minutes to complete.

Please be assured that the information and data you provide will remain secured and will only be used for scientific research purposes treated in total confidentiality. A copy of the research results will be provided upon request. If you have any enquiries, please feel free to contact the researcher using my contact details below.

Yours faithfully,

Jane Naitore Kimaita

ABBX/05422P/2021

Technical University of Kenya

Cell phone: 0722767707

Email: nkir2006@yahoo.co.uk

Appendix 2: Questionnaire

Part A: Background Information

Please tick (✓) or indicate your answer where applicable

1. Name of university: _____

2. Gender of respondent

Male ☐ Female ☐

3. Age of respondent

☐ 18 – 22 ☐ 23 – 27 ☐ 28 – 32 ☐ 33 – 37 ☐ 38 and above

4. Year of study: Second ☐ Third ☐ Fourth ☐

Part B: Service Tangibility (Physical Facilities, Personnel, Equipment and Communication Materials)

a) (i) Does your university offer good facilities for learning? Yes ☐ No ☐

(ii) State the reason for (i) above _____

b) In each of the following, indicate the extent to which you agree or disagree with the statement.

1) Strongly Agree (2) Agree (3) Disagree (4) Strongly Disagree

	Physical Facilities	1	2	3	4
1	The lecture halls and rooms have enough sitting space				
2	Cleanliness is maintained in the lecture halls and classrooms at all times				
3	The library has adequate sitting space for all students				
4	My university provides clean and well-maintained washrooms				
	Personnel				
1	The staff in my university is passionate about their work				
2.	The staff treat me with respect when delivering services				
3	The staff deliver services in a professional way				
	Equipment				
1	My university provides up to date computers				

2	My university has adequate and well-equipped laboratories				
3	Laboratory equipment are always in good working condition				
4.	My university has a well-stocked library facility				
	Communication Materials				
1.	My university provides adequate reference/study materials				
2.	My university provides visually appealing teaching /learning materials				
3.	My university communicates necessary information effectively				

Part C: Service Responsiveness (Willingness to Help, Promptness, Undivided Attention)

a (i) Are you happy with the services rendered by your university? Yes ☐ No ☐

(ii) State the reasons for (i) above

b) In each of the following statements, indicate the extent to which you agree or disagree with the statement.

1) Strongly Agree (2) Agree (3) Disagree (4) Strongly Disagree

	Willingness to Help	1	2	3	4
1	Staff in my university respond to students' enquiries in a courteous manner				
2	Staff in my university go out of their way to help				
3	Lecturers at my university are encouraging at all times				
	Promptness				
1	The non-teaching staff communicates when there is service delay				
2	Staff offer quick services at all times				
3	Staff in my university communicate to students when services are to be offered				
	Undivided Attention				
1	Staff in my university attend to my needs with commitment				

2	Staff pay attention to details on services sought by students'				
3.	Staff is able to identify students' issues with ease				

Part D: Service Reliability (Accuracy, Dependable, Competence)

In each of the following, indicate the extent to which you agree or disagree with the statement.

(1) Strongly Agree (2) Agree (3) Disagree (4) Strongly Disagree

	Accuracy /Dependable	1	2	3	4
1	The staff always provide right services at the right time				
2	The staff in my university provide services in a consistent manner				
3	The information provided by the staff is reliable				
4	Staff in my university are sincere when handling students' issues				
	Competence				
1	The non-teaching staff in my university have the right skills to offer services				
2	Lecturers in my university are highly competent in their areas of teaching				
3.	Lectures in my university deliver lectures in an effective manner				

Part E: Service Accessibility (Availability, Approachable, Convenience, Proximity)

a) (i) Is your university in a preferred location? Yes ☐ No ☐

(ii) States reasons for (i) above

b) In each of the following, indicate the extent to which you agree or disagree with the statement.

1) Strongly Agree (2) Agree (3) Disagree (4) Strongly Disagree

	Availability	1	2	3	4
1	Lecturers are available to assist me at all times				
2	Lectures at my university readily provide additional reading materials to me when needed				

3	Staff render services during favorable hours				
	Approachable				
1	Staff are friendly to me when attending to my needs				
2	Staff are easily reachable to provide me with the services I need				
3	Staff are kind when giving me services				
	Convenience and Proximity				
1	I can get services needed easily via different means used by my university				
2	The lecture rooms are easily accessed by the disabled students				
3	I can access my university with ease				

Part F: Information Communication Technology (Online teaching/learning, Consultation/tutorials)

a) (i) Does use of ICT in your university make delivery of services more efficient?

Yes ☐ No ☐

(ii) State reasons for (i) above

b) In each of the following, indicate the extent to which you agree or disagree with the statement.

1) Strongly Agree (2) Agree (3) Disagree (4) Strongly Disagree

	Online teaching/learning and Assessment	1	2	3	4
1	The internet is accessible to all students within my university				
3	I can easily access and share information with colleagues				
3.	Lecturers in my university use online facility to teach effectively				
	Consultation /Tutorials				
1.	I can get online materials that are useful during research work				

2.	I can easily find E-books and journals subscribed by my university				
3.	I can easily consult my lecturers using ICT means				

Part G: Customer Satisfaction (Customer Loyalty, referrals, Positive word of mouth, Retention)

a) (i) Are the services offered in the university meet your expectations? Yes ☐ No ☐

(ii) State reasons for above

b) In each of the following, indicate whether you agree or disagree with the statement.

1) Strongly Agree (2) Agree (3) Disagree (4) Strongly Disagree

	Customer Loyalty and Retention	1	2	3	4
1	I would maintain contact with my university after completing my studies.				
2	I would select my university for further studies				
3	I would join the alumni of my university				
4	I will complete the course am undertaking in my university				
	Referrals and Word of mouth				
1	I would recommend friends to my university				
2	I would recommend family members to the university				
3	I get value for my money from my university				

Appendix 3 Enrolment by Cluster in Public and Private Universities

Table 44: Enrolment by Cluster in Public and Private Universities

Cluster	Public Chartered University	Public Constituent University Colleges	Private Chartered University	Private Constituent University Colleges	LIA	Grand Total	Proportion
Agriculture, Forestry, Fisheries and Veterinary	28346	72	545	0	43	29006	5%
Arts and Humanities	32638	34	3985	701	923	38281	7%
Business and Administration	97763	923	28001	269	7246	134202	24%
Law	3756	0	3165	0	308	7229	1%
Education	99734	2039	19108	483	1194	122558	22%
Engineering, Manufacturing and Construction	29647	17	686	0	0	30350	5%
Health and Welfare	29817	56	8145	602	531	39151	7%
Information and Communication Technology	25016	118	8825	19	2474	36452	6%
Natural Sciences, Mathematics and Statistics	47566	219	1753	0	133	49671	9%
Services	9902	24	950	0	863	11739	2%
Social Sciences, Journalism and Information	48889	348	15566	587	1016	66406	12%
GRAND TOTAL	453074	3850	90729	2661	14731	565045	100%

Source CUE, (2020)

Appendix 4: Random Number Table

Table 45: Random Number Table

97480	23999	17110	21623	42870	81265	43683	32271	78059	55890	40978	64288
72622	95891	23469	15619	68885	41380	94565	12672	30875	78550	43853	95569
55661	4639	93629	49723	26278	72828	26375	76996	68424	77280	59777	95266
10820	68698	29486	32424	61970	49656	95894	98639	18859	42509	53316	18914
17807	66773	91568	8986	13811	33988	31234	35817	67130	6157	24752	91925
19872	27709	19229	69845	73218	43491	48065	20695	52013	27662	70358	84784
29560	46009	37184	41394	18140	86843	82552	85840	14783	14647	33805	61019
49411	16348	10281	61096	91251	93985	27181	26934	34595	47911	87649	62805
6168	16252	65884	27841	29551	18984	34942	27673	11152	63516	12411	90912
13209	72341	98636	69703	33205	69175	79860	63790	89529	43472	55629	35614
4291	63094	26931	20875	67030	83658	71161	95334	13260	95340	20192	65795
60575	82256	63397	35294	34619	51097	89144	74429	13812	38034	43366	99430
26006	33722	44971	89103	65588	34103	64833	13429	21894	85765	26228	78956
58726	27209	74530	74886	98735	88644	83155	59263	86600	13056	84750	68292
4496	30005	99306	72858	59097	53763	60176	99649	23693	48475	57146	55020
43422	84581	78906	53473	90715	73114	15375	10276	30940	26628	22569	20837
36361	65630	3307	31794	44170	65800	67872	55130	80271	34451	35939	58535
34403	24212	65076	94814	99778	27429	31396	98646	81317	30576	15827	34589
85256	18844	22229	17905	26144	90827	43450	76615	11649	10549	32690	9133
96425	28369	10372	47734	32746	48088	10184	26737	73740	93913	4057	22643
69489	42801	48543	15010	59463	83545	35688	75512	75442	31334	59269	94147
54071	41235	61810	73276	57383	99888	2042	74712	91923	3495	34617	4190
45951	55495	91535	83387	86977	88363	31184	54807	99270	69876	4200	74996
51351	80035	86942	46491	44748	1240	58713	68289	5687	82710	21008	2907
42042	57047	69610	23809	10160	34878	58185	34813	93830	82123	10946	57253

Appendix 5: Work Plan

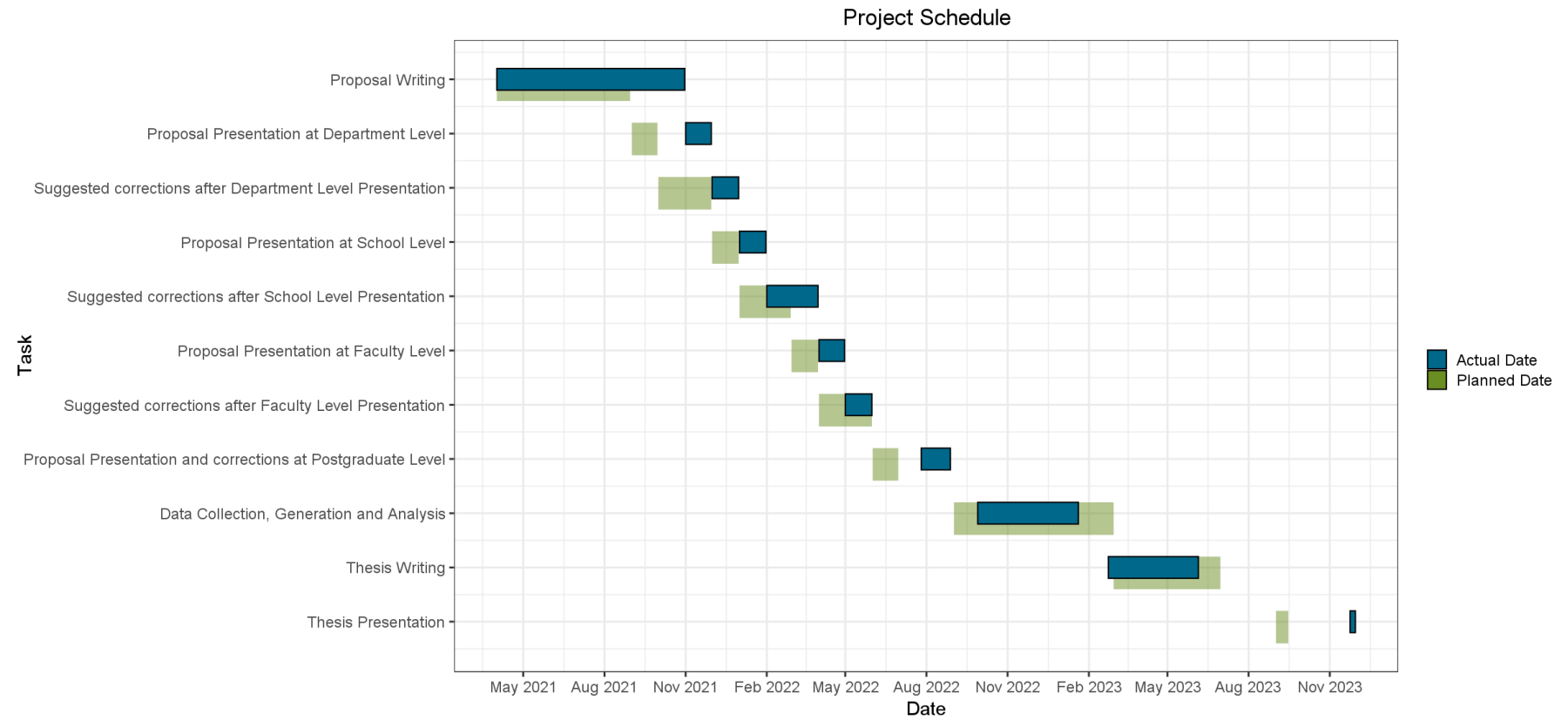


Figure 2: Work Plan

Appendix 6: Budget

Table 46: BUDGET

S. NO.	ITEM DESCRIPTION	AMOUNT (KSHS)
1.	Transport and subsistence	80,000.00
2.	Communication (Internet)	10,000.00
3.	Stationery	10,000.00
4.	Laptops/Software/Antivirus	36,000.00
5.	Desktop/Software/Antivirus	24,000.00
6.	Printer/Accessories	8,000.00
7.	Photocopying	10,000.00
8.	Research Assistants	60,000.00
9.	Binding	20,000.00
10.	Conferences/Workshops	150,000.00
11.	Anti-Plagiarism Tests	6,000.00
12.	Books/References	30,000.00
13.	NACOSTI Permit	2,000.00
14.	Subtotals	446,000.00
15.	Contingency (20% of Subtotal)	89,200.00
16.	Grand Total	535,200.00

Appendix 7: List of Chartered universities in Kenya (Public and Private)

Table 47: List of Chartered universities in Kenya (Public and Private)

UNIVERSITIES
Public
01.University of Nairobi
02. Moi University
03. Kenyatta University
04. Egerton University
05. Jomo Kenyatta university of Agriculture and Technology
06. Maseno University
07. Masinde Muliro University
08. Dedan Kimathi University of Science and Technology
09. Chuka University
10. Technical University of Kenya
11. Technical University of Mombasa
12. Pwani University
13. Kisii University
14. University of Eldoret
15.Maasai University
16. Jaramogi University
17. Laikipia University
18. South Eastern Kenya University
19. Meru University
20. Multimedia University
21.University of Kabianga
22. Karatina University
23.Kibabii University
24. Rongo University
25. Cooperative University
26. Taita Taveta University
27. Murang'a University
28. Embu University
29. Machakos University

30. Kirinyaga University
31. Garissa University
Private Universities
01. University of East Africa, Baraton
02. Catholic University of East Africa
03. Daystar University
04. Scott Christian University
05. United States International University
06. African Nazarene University
07. Kenya Methodist University
08. St. Paul's University
09. Pan African Christian University
10. Strathmore University
11. Kabarak University
12. Mount Kenya University
13. African International University
14. Kenya Highland Evangelical University
15. Great Lakes University of Kisumu
16. KCA University
17. Adventist University of Africa
18. KAG East University
19. Umma University
20. Presbyterian University of East Africa
21. Aga Khan University

Source: CUE (2021) Chartered Universities in Kenya

Appendix 8: Research Authorization Letter



THE TECHNICAL UNIVERSITY OF KENYA

Halle Selassie Avenue, P. O. Box 52428, Nairobi, 00200, Tel: +254 (020) 343672, 2249974, 2251300, 341639,
Fax: 2219689, E-mail: vc@kenpoly.ac.ke, Website: www.tukenya.ac.ke

Office of the Director School of Graduate and Advanced Studies

REF: ABBX/05422P/2021

15th September, 2022

The Chief Executive Officer
National Commission for Science, Technology and Innovation
NACOSTI Building, Off Waiyaki Way
P.O. Box 30623 - 00100
Nairobi, KENYA.
Tel: 020 400 7000/0713788787/0735404245.

Dear Sir/Madam,

REF: APPLICATION FOR RESEARCH PERMIT

This is to inform you that **Ms. Jane Naitore Kimaita** is a registered PhD student in the Department of Business Administration and Entrepreneurship, School of Business and Management Studies, The Technical University of Kenya. The course is offered by Research and Thesis. The title of her Thesis is **"Service Quality Dimensions and Student Satisfaction in Schools of Business of the Chartered Universities in Kenya."**

Ms. Kimaita has defended her research proposal and is currently proceeding for field work which will involve data collection using approved surveys and research methods.

This is to kindly request you to issue her with a research permit.

Prof. Joseph O. Lalah
Director- School of Graduate and Advanced Studies
& PROFESSOR OF CHEMISTRY

File Copy: SGAS Student File
JOL/smm.



Appendix 9: Research Permit

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 975572	Date of Issue: 14/October/2022
RESEARCH LICENSE	
	
This is to Certify that Ms.. Jane NAITORE Kimaita of Technical University of Kenya, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Chartered Universities on the topic: Service Quality Dimensions and student satisfaction in Schools of Business of the Chartered Universities in Kenya for the period ending : 14/October/2023.	
License No: NACOSTI/P/22/20775	
975572 Applicant Identification Number	 Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
	Verification QR Code 
NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.	
See overleaf for conditions	

Appendix 10: Results of Plagiarism Test

SERVICE QUALITY DIMENSIONS AND STUDENT SATISFACTION IN SCHOOLS OF BUSINESS OF CHARTERED UNIVERSITIES IN KENYA

ORIGINALITY REPORT



Publications

Kimaita, J. N., Kabue, H., Ochola, P., & Kiriinya, S. N. (2023). Influence of Service Tangibility on Student Satisfaction in Schools of Business of Chartered Universities in Kenya. *International Journal of Research and Innovation in Social Science*, 7(9), 642-647. doi: <https://dx.doi.org/10.47772/IJRISS>

Kimaita, J. N., Kabue, H., Ochola, P., & Kiriinya, S. N. (2023). Service Quality Dimensions and Students' Satisfaction in Selected Chartered Universities in Kenya: A Multinomial Regression Application. *Innovare Journal of Education*, 11(5), 27-32. doi:<https://dx.doi.org/1022159/ijoe.2023>