LEARNER SUPPORT SERVICES, LEARNER INTERACTIONS AND RETENTION OF STUDENTS IN OPEN DISTANCE LEARNING PROGRAMMES: THE CASE OF SELECTED UNIVERSITIES IN KENYA

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A Thesis Submitted in Partial Fulfilment of the Requirements for the Award of the Degree of Doctor of Philosophy in Distance Education of the University of Nairobi.

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DECLARATION

This thesis is my original work and has not been presented for any award in any other University.

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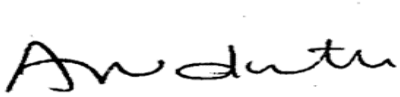
This thesis has been submitted for examination with our approval as the candidate's University Supervisors.



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DEDICATION

I dedicate this work to my wife Kemunto, our children Faith, Miriam, Sylvia, and Samuel, my grandson Gabriel Tumaini, my mother Leah Kerubo, my late father Ndege Ombaso, and the larger Ombaso family.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
ASS	Academic Support Services
B. ED	Bachelor of Education
CMC	Computer-Mediated Communication
CoI	Community of Inquiry
CoL	Commonwealth of Learning
COVID-19	Corona Virus Disease
CSS	Counselling Support Services
DE	Distance Education
DEPs	Distance Education Programmes
DL	Distance Learning
DV	Dependent Variable
FGD	Focus Group Discussions
ICT	Information Communication Technology
IV	Independent Variable
KESSP	Kenya Education Sector Support Programme
KII	Key Informant Interview
KU	Kenyatta University

LMS	Learning Management System
LSS	Learner Support Services
MKU	Mount Kenya University
MOOC	Massive Open Online Courses
NACOSTI	National Commission of Science Technology and Innovation
ODeL	Open Distance and E-learning
ODL	Open Distance Learning
PSO	Programme-Specific Orientation
SRQ	Student Response Questionnaire
STEM	Science Technology Engineering and Mathematics
TDT	Transactional Distance Theory
TSS	Technical Support Services
UNESCO	United Nations Educational Scientific and Cultural Organization
UoN	University of Nairobi
USAID	United States Agency for International Development
WWW	World Wide Web

ABSTRACT

This study examined the extent to which learner support services and learner interactions influenced the retention of learners in Open Distance Learning Programmes at selected universities in Kenya. The study examined seven objectives which were to: establish the extent to which Academic Support Services; Administrative Support Services; Counselling Support Services; Technical Support Services; combined learner Support Services and Learner Interactions influenced the retention of learners in Open distance learning programmes at the selected universities in Kenya, and to establish the extent to which Learner Interactions moderated the relationship between combined learner support services and retention of learners in Open distance learning programmes. The study was grounded on Tinto's theory of Institutional Departure, Moore's Transactional Distance Theory, and Bean and Metzner's theory of Non-Traditional Student Retention. The study used a cross-sectional survey design with a mixed methods approach targeting a population of 1990 students taking Bachelor of Education degree programmes by open distance learning. The sample size was 322 students who were randomly selected. The study used online survey questionnaires, focus group discussions and key informant interviews to collect data. Data was analyzed using descriptive and inferential statistics, where means, frequencies, percentages and standard deviations were determined, and hypotheses were tested to establish the relationships between study variables. The study made seven findings: Academic support services were significant predictors of student retention ($t=5.004, p<0.005$); Administrative support services were significant predictors of learner retention ($t=2.927, p<0.005$); technical support services were significant predictors of learner retention ($t=2.502, p<0.005$) and counselling support services were not significant predictors of learner retention($t=0.342, p<0.005$); combined learner support services of academic, administrative and technical were significant predictors of retention; Learner interactions were significant predictors of retention with regards to assignment difficulty ($t=3.632$, $p<0.05$), content structure ($t=2.356$, $p<0.05$), interactions with instructors ($t=2.607$, $p<0.05$), and feedback ($t=3.058$, $p<0.05$), whereas learner interactions in the use of Information communication technology ($t=0.306$, $p>0.05$) was not a significant predictor of learner retention in open distance learning programmes. The last finding was that learner interactions did not have a significant moderating influence on the relationship between combined learner support services and retention of learners taking open distance learning programmes. The study recommended intensification of all types of learner support services and enactment of a policy framework targeting training, certification, reporting and regulation of institutions offering distance learning programmes. Finally, the study suggested replication of a similar study targeting learners who drop out of distance learning programmes. The findings from this study would be useful in various ways: they could form an empirical basis for practitioners, instructors, administrators, managers, policymakers, researchers, and other stakeholders in university education on how learner support services need to be planned and provided in open distance learning programmes in Kenya. To the ODL managers, the findings of this study may be useful in formulating support services relevant to the unique needs of distance education students. Further, the findings will provide valuable insights into the influence of learner interactions in ODL institutions at the university level and specifically, target strategies for improving learner interactions. To the employers, the findings will give insights into how employees can be supported to continue learning while working without necessarily taking long study leaves.

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Distance Education (DE) learning originated in the US and Europe in the 1800s (Pregowska, Masztalerz, Garlinska, & Osial,2021). The Open Distance Learning (ODL) mode has undergone tremendous changes over time, from correspondence courses characterized by limited interactions and Learner Support Services (LSS) between the instructor, students, and the host institutions to the global Massive Open Online Courses (MOOCs). The present ODL has interactive features with accompanying learner support systems for students, teachers, and participants from around the globe (Ayse & Sercin, 2022). According to Mwaniki, Ireri, Chege, &Njihia, (2022), due to limited interaction and interactivity, and relevant learner support, distance education learning during this period suffered the worst criticism in terms of poor interactions, and lack of learner support services, and consequently characterized by high dropout rates and low retention.

Contrary to this, the new ODL programmes have been developed with in-built features to address the shortcomings in the precursor model, which are learner support services addressing unique student needs; creation of interactive learning materials, building the capacity of ODL staff on the use of Information Communication Technology (ICT), keeping them abreast with the with ODL philosophies and use of technology effectively for instruction, upgrading of ICT infrastructure and deployment of adequate human resource (Mwaniki, Ireri, Chege, & Njihia, 2022).

The concept of ODL is associated with the stages of technological development. It emerged from correspondence courses to Open Universities to the use of networks and multimedia web-based technologies. Different generations of ODL models are evident: first-generation is commonly known as, the correspondence model based on print technology mostly used in less developed countries. The second generation is the multi-media model, which encompasses text, audio, and computer-based materials, associated with face-to-face learner support and the use of television and radio to give live lessons. The third generation is called the tele-learning model, which involves using telecommunication technologies in real-time transmissions. The fourth generation is associated with flexibility approaches, employing

multimedia technologies. The fifth and current generation model embraces more intelligent and engaging multimedia internet-based access and use of online resources and computer-mediated communication (Bozkurt, 2019; Pregowska, Masztalerz, Garlinska, & Osial, 2021). This is the period when ODL programmes started gaining popularity. The courses became acceptable, and learners were assured of support. The increase in students seeking higher education was fueled by the desire of the working population to acquire more skills, high credentials and career growth (Pregowska, Masztalerz, Garlinska, & Osial, 2021). The number of students rose when the ODL qualifications gained local and global recognition as opposed to the early years when the programmes suffered negative perceptions and credibility challenges.

The factors that necessitated the choice and acceptance of DE courses were the emergence and rapid growth in information communication and Technology (ICT) which became the key driver in the delivery of learning and ensured the integration of student support and interactions. Further, the advent of ICT in DE enabled the existence of interactions in DE programmes; which have been categorized into four: student-to-student, student-to-content, student-to-tutor and student-to-interface (technology) interactions which were lacking in the early correspondence courses (Gikonyo, Ndiritu & Mboroki, 2014; Bozkurt, 2019).

The increased student numbers through ODL were spearheaded by the need of the working class to advance in careers by acquiring requisite skills motivated by the anticipated benefits of investing in education. This mode of study was convenient because of its various advantages and not limited in terms of space and time and can be done from the comfort of the learner. This merit for example, saw the increased participation of women in learning while they juggled between family and employment obligations. The result was a witnessed increase in participation of women in higher education around the globe (Njihia, Mwaniki, Ireri & Chege, 2017). Distance education has grown in a world witnessing tremendous social change, specifically in the rise of strife and internal and external conflicts. The impact of this growth is displacement and, in such circumstances offered the best alternative to enable continued learning during such desperate times. Factors of ICT growth, learner interactions and development of learner support services saw an increased demand and high

enrollments which led to the characterization of early ODL programmes with high attrition and failed retention rates (Aminudin, Navaratnasamy, & Saman, 2019).

The ODL's low retention rates are a serious problem for higher learning institutions globally,(Katy, Barreda, & Hein, (2021). However, few studies have been done in this area and this trend continues unabated. Studies report an eighty-two per cent (82%) probability of distance learners completing a course, whereas regular classroom learners have a ninety per cent probability (90%)of completing a similar course (Nurmalitasari, Zalizah A, & Mohammad, 2023). Similarly, a study in the United Kingdom Open University (OUUK), found that traditional classroom students had an eighty-five per cent (85%) likelihood of completing a course as opposed to a seventy-four per cent (74%) likelihood among the ODL students (Simpson & Sanchez, Developing Student Support for Open and Distance Learning, 2018).

Accordingly, studies estimated attrition rates in Europe and North America to vary from 20% and 30% and at time even greater while it was 50% in the Asian continent (Giennakopoulos,2017). The attrition rates in ODL programmes are between 10-20 % higher than in traditional universities and this is attributed to several factors emanating from specific ODL institutions, individual student's personal and situational factors (Giennakopoulos,2017). The African continent is not safe either. Studies estimate the dropout rates to be in the range of 50% plus (Musingafu, Mapurunga, Chiwanza, & Shupikai,2015). The major concern raised is that the causal factors are dynamic and that they keep on changing from context to context. It has been observed that Sub-Saharan Africa (SSA) is ranked least amongst the nations of the world in adopting (ICT) and ODL. This challenge is characterized by high dropout rates, weak instructor readiness, inadequate locally developed content, unreliable internet, and inaccessibility to personal ICT gadgets, low ICT literacy of the students occasioned by unreliable power supply (Nyerere, 2016). These are compounded by weak learner support systems and weak communication systems that do not offer opportunities for optimal learner interactions. Despite this knowledge of the unacceptably low retention in ODL programmes, no study has been conducted to determine the extent to which learner support services and learner interactions affect the retention of students taking ODL learning in Kenya.

In Kenya, ODL programmes have low retention rates as the biggest drawback. Studies report an attrition rate of over 15% among students taking education-related courses at the University of Nairobi (Mutuku, 2019), and attrition rates of 37% among students in ODL among private universities (Njoroge, Wangari & Gichure,2016). Further, a dropout rate of between 40-80% for some distance education programmes has been noted (Njihia, Mwaniki, Ireri, & Chege, 2017). Apart from merely reporting retention and highlighting learner support, it was reported that inadequate learner interactions negatively affect the retention of learners, (Geesje van de, 2020). All these studies cite possible causes to be related to institutional factors, learner's personal and situational factors, and instructor-oriented factors and others argue that they are related to several factors beyond the students, instructors, and respective institutions. However, from the studies cited, no known study has been undertaken to examine the effect of learner support services and learner interactions on the retention of students taking distance learning programmes in Kenyan Universities of Nairobi, Kenyatta University and Mount Kenya University.

1.1.1 Learner Support Services in ODL Programmes

Learner support covers various services offered by universities and is aimed at enabling distance learners to succeed in their academic endeavours, (Hakan & Serpil, 2020). Learner support services have been have been conceptualized in different ways (Simpson & Sanchez, 2018). These services have been categorized in different ways. According to Berge (1995), technical, pedagogical, social, and managerial services are the primary areas related to academic skills. Aspects dealt with under pedagogical support include matters concerning welfare, student group activities, promoting issues to do with interactions of all stakeholders in ODL and reduction of the sense of isolation and loneliness. Under social support, aspects associated with course registration, coordination, lesson scheduling, organization, and evaluation are catered for in the managerial arm and services involved in dealing with technology-associated challenges are facilitated in the technical support division, (Hakan & Serpil, 2020). These are activities and services which are planned by the ODL institution to enhance student retention and they include organizational, intellectual, technological, and counselling support (Olugbara, Letseka, & Akintolu, 2023; Aminudin, Navaratnasamy, & Saman, 2019)

Studies have been carried out and agree that learner support influences retention rates. Further, institution staff enable the cultivation of student interactions which help in building a sense of belonging. However, it has been argued that learner support needs to be offered with the needs of individual learners in mind, basically developed to provide a remedy at the onset of early signs and trends of student departure from ODL programmes, (Friðriksdóttir, 2018; Dlamini, Rugube, Kunene, & Cosmas, 2021).

Stakeholders and practitioners agree that support services contribute in to the social and academic integration of students in ODL (Nurmalitasari, Zalizah & Mohammad, 2023). In particular, the institution may want to examine and devise orientation programmes, taking learners through titbits of coping with ODL, handling personal studies and responding to social challenges by providing counselling support services and technological services, (Perchinno, Bilancia, & Vitale, 2023).According to these scholars, counselling support and technical support help to address work, family and study issues and build ICT competence skills to enable smooth navigation in the learning management system and achievement of the ODL expectations. Also, the technical support component ensures regular communications and interactions among educators and students and the learning materials. Technical support needs to extend to the use of social platforms and access to technology tools (Olugbara, Letseka, & Akintolu, 2023).

Another support is the provision of financial aid. Studies on the effect of financial support on retention give contradicting results. It has been observed that learners receiving financial support were retained while others dropped. On the contrary, those who did not receive support were also retained, (Olugbara, Letseka, & Akintolu, 2023). This is an issue that demonstrates the need for administrative support services to promote retention. In justifying academic support, it has been argued that learners who were enrolled with a grade point average (GPA) of less than 2 did not significantly show any difference in retention. However, most educators believe that GPA and high subject scores in examinations are ranked among determinants of student withdrawal factors, and this lends support to the provision of academic support services, (Nurmalitasari, Zalizah & Mohammad, 2023).

Further, it has been argued that provision of all the support services of academic, administrative, counselling, and technical support should be regular regardless of the level of study in ODL whether undergraduate or graduate and without singling out even the year the learner is, (Moore & Greenland, 2017; Olugbara, Letseka, & Akintolu, 2023).

Learner support has been conceptualized as one of the elements in the subsystems of ODL which deals with designing, producing, and delivering instructional materials, (Moore & Greenland, 2017). This view propounds a system-oriented approach. Moore urges that the three subsystems are not enough to make ODL run effectively. Therefore, he advocates for the development of another subsystem, as "a backup safety net" which is learner support to help vulnerable; students who upon enrolment are highly likely to face unexpected challenges which cannot be foreseen by course designers, instructors, and administrators. Available literature describes vulnerable students as learners in need of extra support to enable them to achieve their learning goals. These learners have special needs and disabilities ranging from mental and physical health, behavioural difficulties, emotional disturbance, and financial constraints. Therefore, this study examined four learner support services; thus, administrative, academic, counselling, and technical that have been highlighted in the literature on ODL in the last decade, especially among interventions developed to address the challenge of low retention in ODL programmes, (Moore & Greenland, 2017; Shah & Cheng, 2018; Olugbara, Letseka, & Akintolu, 2023).

1.1.2 Academic Support Services

These services are aimed at providing an environment for collaborative learning and increasing interactivity amongst ODL stakeholders. Included in this category are services like study groups, support on request by educators, meetings, and seminars to guide learners in learning specific skills or bridging gaps and supervising student projects, (Muljana & Luo, 2019). Whereas non-academic support services are offered by the ODL institution to help learners address concerns in the non-cognitive dimension. When these are effectively addressed then the learner will be academically integrated and be encouraged to persist.

1.1.3 Administrative Support Services

This dimension of learner support deals with ensuring functional operations of recruitment, enrollment, registration, instruction scheduling, keeping records, and financial processes. Often these kinds of services are ignored, especially in the current web, and ICT based innovations. Database systems are very available, and learners can access and have control over administration processes. This notwithstanding, if these support systems are not well planned and managed, students will bear the brunt in terms of frustrations and the provision of services which may be below their expectations and consequently making them decide to withdraw from ODL programmes, (Kisimbii, 2019; Kisimbii, Gakuu, & Kidombo, 2020). Accessing learning resources digitally or even physically is important for the achievement of success in education. Learners are supposed to be given the same consideration in the provision of learning materials and resources. Surprisingly, conventional campus library services fall short of addressing the needs of distance education and thus the need to embrace new interventions for distance education students, (Kisimbii, Gakuu, & Kidombo, 2020). This type of support caters for emotional, operational, and administrative needs like registration and fees payment, student orientation, personal counselling, and technology issues.

Administrative support services are meant to address both academic and non-academic aspects of ODL. This is because ODL involves adult learners with work, study, and family obligations to fulfil. Counselling services are normally meant to address academic issues as well as emotional aspects (Bozkurt, 2019; Fu, 2022). Counselling is involved with the improvement of student communication skills, raising opportunities for group engagements, helping students to network with former students and get socially integrated, (Shah & Cheng, 2018; Wells, 2023). This support embraces even the emotional wellbeing aspects like handling personal issues bordering between learning and work balance. This support helps students with the management of their studies. It includes managing time well, coping with the course and striking a balance between study, work, and family obligations.

Administrative support is mostly targeted to help students by informing them of what is offered and guiding them in choosing the semester courses in various departments; (Wells, 2023). It involves raising awareness amongst students about the learner support services that

are available. This aspect of learning is important, yet often ignored or even completely not run efficiently. This factor in ODL bridges the gap between the previous education experience and the new university. This type of support has suffered heavily on the premise of digitization of the administration processes. That requires prospective students to do everything online. However, what is not given due consideration is the vulnerable students from the word go are already at a point of disadvantage. This will lead to isolation and loneliness and if not addressed early in the course leads to discouragement and eventually drop out, (Olugbara, Letseka, & Akintolu, 2023). This situation is described as the 'DE deficit'. Meaning that if all the academic aspects are well taken care of, learners are still prone to the challenges of getting integrated into the new community, (Wells, 2023). This contributes to the widening of the transactional distance in ODL.

1.1.4. Counselling Support Services

Counselling services are often targeted towards addressing academic and social issues, (Moore & Greenland, 2017; Wells, 2023). This support provides effective structures to address well-being, academic-related stress, and personal problems. Counselling support is the intervention between the learner, tutor and ODL institutions aimed at solving challenges related to academics and personal life. To them, counselling support is critical because ODL students are prone to problems of anxiety and loneliness and encounter various challenges ranging from divided attention between work and learning, family responsibilities, financial obligations as they fund themselves and psychosocial stress. This is even intricated by the challenge of utilizing new technologies that are ever-changing. These kinds of circumstances could in any way affect their studies and consequently, decisions to drop out (Bouhnik & Marcus, 2006).

1.1.5 Technical Support Services

Technical support services form an important component of distance learning programmes for both the learners and the lecturers. Technical support services ensure that the teaching staff and the learners have the requisite skills to enable them to utilize available technology and at the same time acquire the necessary skills to achieve their learning needs. According to Alvin, (2023), technological constraints may make ODL students withdraw from a course. Sife, Lwoga and Sanga (2020), in (Dlamini, Rugube, Kunene, & Cosmas, 2021).

1.1.6 Learner Interactions in ODL Programmes

Learner interactions owe their foundation from Moore's 1989 seminal work on distance education where he postulated four types of interactions which include learner to learner, learner to content, learner to the instructor, and finally learner to technology. The basis of this concept is that each learner differs with respect to fellow learners, instructors and the ODL institution. The learner-content interaction would mean the learner being able to learn and enjoy the content and create knowledge. Learner technology interaction means the ability of the learner to competently access content on the LMS, being able to navigate the system and able to post information using various platforms in the ODL. Accordingly, it is envisaged that if the learner can interact optimally with the instructor, content, and technology then the learner will be satisfied with the ODL and decide to persist and hence be retained. Of importance in this study is the examining the extent to which learner interactions moderate the relationship between learner support services and retention of learners in ODL programmes. According to (Katy, Barreda, & Hein, 2021) and (Musa, Rosle, Bararuddin, & Siti, 2020) learner interactions and communication are essential enablers in ODL.

It has been argued that collaborative learning, and student interactions and a supportive campus-environment impacts student retention (Saba, 2018). Student interactions account for a significant part of student retention, (Aminudin, Navaratnasamy, & Saman, 2019). Instructor –learner interaction has been raised as being important in ODL retention. This ensures immediate and meaningful feedback, (Katy, Barreda, & Hein, 2021). Other studies cited regular weekly prompting messages by email as being useful in reducing the distance associated with the teaching presence, (Aminudin, Navaratnasamy, & Saman,2019). This view has been supported by others who contended that instructor guidance through orientation programmes touching on responsibilities and expectations on the course will help reduce the distance. Literature indicates that design and use of content that is highly interactive making use of a variety of media during instructions as being instrumental in enhancing retention.

Learning content with increased interactivity triggers curiosity and providing regular and consistent feedback builds a sense of community which is a critical factor in achieving social and academic integration. (Geesje van de, 2020), argues that learner-content interaction happens when students are assisted by their instructors to generate knowledge by way of combining information with their pre-enrolment knowledge. He states that without learner-content interaction meaningful learning may not take place. He reiterates that interactions enable the exchange of ideas and knowledge between the creator of content and the consumer of the same. This type of communication is basically interpersonal and interactive, (Xiao, 2017). Learner-content interaction takes various forms like watching instructional videos, use of multimedia and researching using various search engines. The main driving force here is that the lecturer promotes student participation through course materials and assignments, (Arain, Munishi, & Khan, 2022).

The instructor and the entire ODL institutions should embrace policies and guidelines that support flexibility, for instance, giving learners time extensions to hand in assignments or giving additional assignments when learners perform poorly. This will help learners to navigate the pressure of balancing work, studies, and family obligations (Moore & Greenland, 2017). It has been argued that educators should consult various theories, especially on ODL pedagogy to enhance their interaction strategies. They urge the adoption of the Community of Inquiry (CoI) approach in designing content, increases interaction and reduces the turnaround time for delivery of feedback to student assignments.

Educators and researchers argue that various types of interaction lead to the structuring of learning content. This includes the communications, engagements, dialogue, or involvements that happen amongst all the stakeholders in DE programmes, (Geesje van de, 2020). Of importance in this study will be learner interaction with the instructor, content, and technology. Using Moores'1989 interaction types, this study will specifically address learner-content interactions, learner-instructor interactions, and learner-technology interactions.

According to Norazrina, (2020), lack of immediacy in sharing of ideas and communication may create a gap in ODL in terms of classroom interaction, consequently making it difficult for the completion of academic work. Inadequate interactions among stakeholders in ODL have been highlighted as a big limitation of ODL (Napier, 2021).Adnan & Anwar, (2020), noted that limited access to the internet, technical and financial challenges make the attainment of success in ODL a big task. Mitigating against this challenge has been accorded priority among educators and researchers. Despite this, there is limited attention to the learner to content, learner to technology and learner to instructor interactions in the literature, especially as a strategy of increasing student retention in ODL.

1.1.7 ODL Programmes in Kenya

The adoption of ICT as the main driver of distance education programmes has gained acceptance among Higher Education institutions in Kenya. This is due to the many advantages associated with this mode of learning. In Kenya, ODL is aimed at increasing access and participation in higher learning (Nyerere, 2016). The first government policy on distance education was the Parliament Act of 1966 which guided the formation of the Board of Adult Education. The Sessional Paper No.1 of 2005 gives provision for the establishment of the Open University of Kenya and the use of ODL strategies for teaching and learning. Adopting the National ICT policy in 2006 made clear the strategy's aims, such as increasing access, to efficient and affordable ICT services. This policy is aimed at ensuring quality instruction in educational institutions, (Nyerere,2016). Further, the Ministry of Education (MoE) established the Kenya Education Sector support (KESSP) in 2005 which prioritized ICT integration.

Access to ICT facilities has been a major challenge in Africa, including Kenya. The computer-to-student ratio varies by sub-sector, with universities and colleges having a ratio of 1:45. According to the situational analysis survey of 2018, inadequacy of ICT equipment, internet connectivity, and digital content were the major challenges that were identified. Accordingly, Sessional Paper No. 1 of 2019 paved the way for the use of ICT as a key instruction delivery strategy in education and the same as was envisaged in the Universities Act, of 2012 on delivery of recognizes ODL learning (Republic of Kenya, 2021; Gatotoh, Keiyoro, & Gakuu, 2017).

Despite these measures, ODL programmes contend with various challenges, such as low availability of devices, internet connectivity issues, and limited capacity development (Republic of Kenya, 2021). Despite these efforts, many Kenyans still cannot secure places in the formal system of education especially in the national universities due to limited capacity.

The need for an educated workforce and taking advantage of optimal use of the limited resources, call for innovations and deployment of technology strategies that will necessitate the provision of education beyond the four walls of the classroom. These strategies are to ensure the use of ICTs and resources to foster public and private collaborations and integration of ODL curriculum to support distance education, (Wambua, Gakuu, Kidombo, & Ndege;2019). The Ominde Commission of 1964 was the first to recommend the use of correspondence education to bridge the human resource gap at independence. In 1967, USAID partnered with the University of Minnesota and established the Correspondence Course Unit (CCU), whose purpose was to facilitate the transition of P3 teachers to P2 through a two-year training programme. This was appropriate because at that time the concerned teachers were on average, with family obligations and work-related commitments.

The ODL programmes in Kenya experience several challenges. According to Kibuku, Ochieng and Wausi, (2020), these challenges range from practice, policies, ICT infrastructure, lack of e-learning theory, negative perceptions, quality concerns of over emphasis on e-learning technology at the expense of actual learning and lack of collaboration amongst key players in ODL (Republic of Kenya, 2021). An online review of studies on distance education reported a greater disparity on completion and performance between ODL students and traditional face-to (Wanderi, Samuel, & Itegi, 2019). Enrolment in ODL increased over the last decade due to the factors of the development of learner support services and meaningful teaching and learning (Kibuku, Ochieng,& Wausi, 2020). However, it was reported that enrolment rates in ODL programmes are equally low at universities. For instance, in Kenyatta University (KU), out of a student population of 70,000, only 5000 (7%) enrolled in ODL.

The study found that the factors contributing to this were insufficient ICT exposure, poor institutional administration, and learner support services, (Njihia, Mwaniki, Ireri & Chege,2017). Further, it has been cited in literature that DE courses are not designed to address unique learner needs, infrastructure and human resource constraints, (Kibuku, Ochieng, & Wausi, 2020).

The retention rate among students pursuing Bachelor of Education programmes was reported to be around 15% at the University of Nairobi (Kisimbii, Gakuu, & Kidombo, 2020). A similar study conducted among thirteen private universities found out that attrition levels stood at 37%, (Wang'eri, Njoroge,& Gichure, 2016). The study established a relationship between student-instructor interactions and student attrition. These challenges are mere indicators of the deep problems in ODL programmes that need immediate attention, especially when they consequently hurt the retention of the students. According to these studies, the beginning point in the search for solutions could be examining why learners drop out and which measures can be put in place to avert these causes, (Nyerere, 2016).

It has been acknowledged that the problem of low retention rates does not have a specific strategy to reduce it or one solution, but it depends on the context, the social planner and the several factors which come into play (Giannakopoulos, 2017). The issue of low retention rates or students dropping out of ODL programmes has far-reaching effects. It has been found that psychologically it affects students through feelings of inadequacy, being branded a ‘failure’ affects self-worthiness. It has been observed that students who drop out of ODL programmes probably have higher chances of sinking into deep stress and job (Simpson & Sanchez, 2018). It has been contended that females who drop out are more prone to gender violence than their counterparts who are first-degree completers (Giannakopoulos, 2017). To the ODL institution, low retention hurts the reputation and consequently may not attract more students to their programmes and are likely to lose students to those whose completion is guaranteed (Colin & Cele, 2017; Muljana & Luo, 2019).

Low retention is mostly associated with non-completion of studies and often leads to wastage of resources both fiscal and human. This wastage occurs when students take longer periods to complete studies as well as when they drop out. This phenomenon has the potential of lowering the status or reputation of an institution. Dropping out is viewed as a symptom of institutional failure (Muljana & Luo, 2019). Attrition adversely affects educational costs and access. Accessing education opportunities without a guarantee to complete is a waste of money. Furthermore, student withdrawal from education programmes evokes ethical issues and concerns. It is not financially proper to invest in a venture without assurance of yielding returns. Students need to be informed about the retention and graduation rates before enrolling because education is an investment. Attrition in ODL means a loss of income to the institution because another student could take that place, which remains vacant for the duration of the course.

Low retention undermines many of the undoubted achievements of ODL. It is due to these high dropout rates that universities offering ODL have decided to develop learner support services as a mitigation measure. The support services provided include interactions, orientation, guidance and counselling, feedback, tutoring, registration, supervision, and advisory support. The major aim of these services is to help adult learners keep pace with the new ODL environment and more specifically those learners who are vulnerable like the first-generation learners who are unprepared to learn in the ODL mode. Learner support services have been conceptualized in various ways. Normally, it means efforts to help learners overcome challenges brought about by the ODL environment coupled with the special circumstances surrounding the adult learners, for example, family and work-related concerns. The learner support approaches proposed in the literature are two-dimensional: proactive and holistic. The proactive learner retention services are those that are instigated by the institutions which bear in mind that students who experience challenges rarely seek help, that is, self- referral. The proactive approach, on the other hand, embodies early identification and follow up and taking corrective measures. The second approach denotes that the mitigation measures would engage a multi-disciplinary team cutting across all the various sections and disciplines at the university so that the learner's problems are given a very elaborate approach. This team may be comprised of academic, administrative and social representatives to help offer a holistic approach to the needs of the learners.

1.1.8 Retention of Students in ODL Programmes in Kenya

Retention is the ability of a learner to complete a particular course he /she is enrolled in, in a particular institution. In this context, the institution is said to have retained the student whereas the student is said to have persisted. The opposite of retention is attrition or dropping out because of various reasons. The student leaves without attaining the requirements of the course. This can be within a semester or a year or an entire degree programme. The indicators of retention in this study were learner satisfaction with the course; learner commitment to graduate; learner participation, satisfaction with institution choice and use of use of ICT.

In Kenya, most distance education institutions face challenges associated with the nature of ODL. A study conducted at the University of Nairobi reported a dropout rate of 15% among undergraduate students taking education-related programmes, (Kisimbii, Gakuu, & Kidombo, 2020; Gatotoh, Keiyoro, & Gakuu, 2017). Most public and private universities offering distance education programmes experience poor enrollment and poor learner support systems culminating in low completion and graduation rates Nyerere, (2016). Some of these institutions experiencing challenges in ODL include the University of Nairobi, Kenyatta University, Kenya Methodist University, and St Paul's University among the twelve that were surveyed.

A study among thirteen private universities found out that attrition levels stood at 37%. The study established an inverse significant relationship between learner-instructor interactions and student attrition, (Njoroge, Wangari& Gichure, 2016). From several studies so far, it has been reported that distance learning programmes face unacceptably high student withdrawal rates and low retention. These programmes record failed retention rates of between 10% and 20% higher as compared to traditional face-to-face learning. It has been estimated that dropout rates varied from 40% to 80% among students taking ODL (Njihia, Mwaniki, Ireri, and Chege, 2017).

From the foregoing background, students leave at the beginning of the academic year for a myriad of reasons ranging from personal preferences, profession-related, institutional-related, student-related, and program-related. Others are due to misconceptions by learners on the course credits and syllabus requirement, intellectual involvement, and unrealistic expectations. Other studies cite home-related and societal responsibilities and poor interaction with peers. Consequently, these learners feel isolated, and have poor institutional fit with the social system with very high probabilities of withdrawing from DE learning, (Giennakopoulos, 2017; Perchinno, Bilancia, & Vitale, 2023). The issue of motivation, especially for learners (ICT) skill limitations has been cited. Assumptions of ODL course developers and faculty concerning the utilization of ICT with ODL students, which in the long run shows that the skills possessed by these learners cannot be valuable in ODL contexts. This problem is even compounded by inadequate professional capacity building opportunities, especially aimed at addressing pre-admission skills and attitudes for the faculty. Attempts have been made to find solutions to this problem of high attrition rates. Further, it has been argued that provision of all the support services of academic, administrative, counselling, and technical support should be regular regardless of the level of study in ODL, (Arain, Munishi, & Khan, 2022; Moore & Greenland, 2017).

1.2 Statement of the Problem

From the background literature, ODL programmes in Kenya have serious retention challenges. Studies report higher dropout rates among distance learning students as opposed to those taking face-to-face mode of learning, (Wanderi, Samuel & Itegi, 2019). A study by Mutuku (2019) estimated an attrition rate of 15% among students taking distance-learning students in Bachelor of Education-related degrees. Nevertheless, a study by Njihia, Mwaniki, Ireri & Chege, (2017) attributed low retention to insufficient ICT exposure, poor administrative services, and learner support services. A similar study by Musingafu, Mapurunga, Chiwanza, & Shupikai, (2015), established that distance education programmes suffer from poor course designs, poor infrastructure, and human resource constraints. Studies among private universities estimated attrition levels of 37%; 1.7% of the students who were admitted in 2007/2008 dropped out and this translated to 3.2% education wastage (Njoroge, Wangari, & Gichure,2016).From several studies reviewed, the highest drawback in ODL programmes is the unacceptably high student dropout rate and low retention.

These programmes have failed retention of between 10% - 20% higher as compared to the traditional classroom mode of study. Another study estimated premature departure rates of students from distance studies from between 40% and 80% (Njihia, Mwaniki, Ireri and Chege, 2017). The distance learning challenges are further exacerbated by inadequate learner support services which lack optimal utilization of learner interactions. Accordingly, this problem is compounded by the instructional delivery systems both synchronous and asynchronous which are not fully integrated with features that enhance optimal interactions and integration, consequently impacting the retention of the students.

The ODL challenges in Kenya as identified by the MoE of the Republic of Kenya's key ICT policy documents (Digital Economy blue print 2019; National ICT Master Plan of 2014-2017; National education sector Strategic plan, (NESSP) 2018-2022; National curriculum policy 2018 and the National ICT policy 2018) include low availability of devices, internet connectivity issues, and limited capacity development and lack of due attention by the key policy documents with respect to ICT integration, policy formulation, digital content, capacity building and development of infrastructure. The ICT policy on education and training for example, observes low access to ICT resources on account of high costs, limited and poor internet connectivity, unreliable electricity, lack of reliable security, illiteracy, inappropriate and unregulated content, and negative attitudes as well as integration of ICT in teaching and training. This situation paints a groom picture of the implementation of ODL programmes in Kenya, since ICT is the main mediating factor in ODL.The issue of low retention in ODL programmes is detrimental. It is a recipe for depression, unemployment, family indebtedness and a reason for violence against women. In terms of professional growth, it delays career growth and negatively affects self-esteem of the students. Failed retention and high attrition impact the reputation of learning institutions and loss of tuition fees and underutilization of resources leading to low internal efficiency. The effects of attrition on society are not minimal either, attrition creates a shortage of human capital and denies society the advantages that are associated an educated population (Colin & Cele, 2017).This notwithstanding, studies that have been conducted on retention suffer from low response rates, marked by procedural differences among institutions and this has led to unending debate among researchers, stakeholders and practitioners on the issue of low retention as presented by various studies (Papia, 2016).

At the University of Nairobi for example, studies on distance education have been several. Bowa (2011), examined the extent to which learner support influenced the academic performance of distance education learners. The study revealed that learner support systems were weak and that they did not significantly influence academic performance. However, this study did not investigate the influence of learner interactions and retention and only sampled students from UoN. Similarly, a study by Kisimbi (2019), that LSS significantly influenced the retention of DE learners; hidden costs and learner characteristics significantly moderated the relationship between LSS and retention. However, the study did not examine learner interactions and the study only sampled participants from the UoN. Another study by Rambo and Odundo (2011) examined financing options used by distance learners at the UoN. Though the study did not study retention, the main finding was that over 70% of ODL learners face fee payment challenges and about 34% of them drop out annually and fees payment being the reason. All these studies point out study samples from the University of Nairobi, but they have not investigated how learner support services and learner interactions influenced retention in the context of public and private universities.

Against this backdrop, ODL institutions have put reasonable efforts towards developing interventions to address the retention of students, basically to intervene in the academic, administrative, technical, and social aspects of learning. Studies have shown that those LSS are critical in the retention of learners, yet there is scanty empirical evidence on the influence of LSS on the retention of learners in ODL programmes. Modest research has been done especially involving public and private Universities, except a few relating to LSS and academic performance or success (Kisimbii, Gakuu, & Kidombo, 2020). There is a paucity of research particularly addressing the influence of LSS on retention in unique settings and contexts, especially in public and private universities and among students taking ODL programmes in Kenya.

More specifically, there seems to be a knowledge gap in the factor of learner interactions and how it influences the retention of learners taking distance learning programmes. The current study, therefore, examined the extent to which LSSs influenced the retention of learners in ODL programmes.

In particular, the study determined the extent to which administrative, academic, technical, and counselling support services and learner interactions influenced the retention of learners taking distance learning programmes in Kenya. At the same time, the study explored the extent to which learner interactions moderated the relationship between learner support services and retention of learners in programmes offered by distance education in the selected public and private Universities in Kenya.

1.3 The Purpose of the Study

The purpose of the study was to investigate the influence of learner support services and learner interactions on the retention of students in ODL programmes at the selected Universities in Kenya.

1.4 Objectives of the Study

The study objectives were:

1. To establish the extent to which academic support services influence the retention of learners in ODL programmes at the selected Universities in Kenya.
2. To determine the extent to which administrative support services influence the retention of learners in ODL programmes at the selected Universities in Kenya.
3. To examine the extent to which counselling support services influence retention of students in ODL programmes at the selected Universities in Kenya.
4. To assess the extent to which technical support services influence retention of learners in ODL programmes at the selected Universities in Kenya.
5. To determine the extent to which combined learner support services influence retention of learners in ODL programmes at the selected Universities in Kenya.
6. To examine the extent to which learner interactions influence the retention of learners in ODL programmes at the selected Universities in Kenya.
7. To establish the extent to which learner interactions moderate the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya.

1.5 Research Questions

The study aimed to answer the following questions:

1. To what extent do academic support services influence retention of learners in ODL programmes at the selected Universities in Kenya?
2. To what extent do administrative support services influence retention of learners in ODL programmes at the selected Universities in Kenya?
3. To what extent do counselling support services influence retention of learners in ODL programmes at the selected Universities in Kenya?
4. To what extent do technical support services influence the retention of learners in ODL programmes at the selected Universities in Kenya?
5. To what extent do the combined learner support services influence the retention of learners in ODL programmes at the selected Universities in Kenya?
6. To what extent do learner interactions influence retention of learners in ODL programmes at the selected Universities in Kenya?
7. To what extent do learner interactions moderate the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya?

1.6 Research Hypotheses

The following hypotheses were tested at a 5% level of significance:

$H_0$1: Academic support services do not have a significant influence on retention of learners in ODL programmes at the selected Universities in Kenya

$H_0$2: Administrative support services have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya

$H_0$3: Counselling support services have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya

$H_0$4: Technical support services have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya

$H_0$5: The combined learner support services have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya

$H_0$6: Learner interactions have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya

$H_0$7: Learner interactions have no significant moderating influence on the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya

1.7 Significance of the Study

The findings from this study could be of benefit to instructors, administrators, learners, managers, policymakers, researchers, and other stakeholders in university education. To the instructors, the findings could guide on how learner support services of academic, administrative, counselling, and technical influence learner retention in ODL programmes. Thus, based on the findings, suggestions and recommendations can be used to better plan on how to increase retention. Moreover, the findings of this study will help adult learners. This will be more instrumental, especially in informing them on how to persist and navigate in the ODL environment. Especially on the balancing of work, family, and study obligations. Here the learners will be supported on how to access various support services and especially on how technology can be of critical importance.

Likewise, to researchers and scholars, the findings of this study may contribute to the body of existing knowledge on ODL. It may shed more light on the influence of learner support services of academic support, administrative support, counselling support, technical support and learner interactions on retention of learners in ODL programmes. This may inform practice in different ways, for instance in the design of content and delivery of instruction that is responsive to the ODL learners' contexts.

To the ODL managers, the findings of this study may be useful in identifying the unique needs of distance education students. By knowing this, the ODL managers will develop and innovate interventions and strategies relevant to the unique contexts and as a result increase student retention.

Equally, the empirical findings will guide administrators in other ODL institutions by giving insights, lessons, and suggestions on how to support learners even if the findings may not explicitly apply due to their limited generalizability. Further, the findings will provide valuable insights into the influence of learner interactions in ODL institutions at the university level. Most importantly, guide on the importance of interactions on retention in higher education, given that most studies on retention have been focused on secondary and primary schools.

Furthermore, this study may inform policymakers and the government on the influence of learner support and interactions on the retention of students. For instance, the study may highlight how the technological aspects and ICT in both variables may be taken advantage of to mediate against challenges exacerbating the problem of low retention by increasing learner interactions and interactivity. Also, to the employers, the findings will give insights on how employees can be supported to continue learning while working without necessarily taking long study leaves.

Finally, it will form a basis for further research in distance education. This may involve undertaking studies covering other factors apart from the current ones, for example, comparative studies on blended learning and conventional face to face learning hence making support more aligned to the expectations of the student and stakeholders involved in ODL programmes.

1.7 Delimitation of the Study

The study sampled students, lecturers, and technical staff who are involved in distance programmes at the three selected universities. The study data was only collected from students who were enrolled in distance programmes either purely virtual or blended and taking education-related undergraduate degree programmes during the period of the study. Kenyatta University, the University of Nairobi, and Mount Kenya University were purposively chosen because each of them has an established directorate with good experience of offering ODL programmes. Secondly, these institutions offer the ODL programmes of various blending ranging from web-based, blended and e-learning. Thirdly, these institutions have learner support systems that have been utilized over time, meaning that they could afford the study an opportunity to assess the influence of the variables of

interest. Fourthly, these universities have been accredited by the Commission of University Education (CUE) to offer Bachelor of Education degrees. Fifthly, these Universities have significant numbers of students under this mode of study. Finally, the study limited itself to the study of factors of counselling support services, academic support services, technical support services, administrative support services and student interactions and how they influenced retention of learners in ODL programmes.

The study selected undergraduate students taking Bachelor of education-related degree programmes through distance learning in any of the three selected Universities and the students were required to have working contact details (email address/telephone number) in their respective University learning management system or record and were willing to sign the study informed consent forms to enable them to participate in the study. On the other hand, the inclusion criteria for the staff were that they were employees involved in the running of ODL programmes or courses in the selected Universities and were willing to sign informed consent and voluntarily participate in the study.

1.8 Limitations of the Study

The study was confined to undergraduate students pursuing education-related programmes in ODL at the selected universities and therefore could only be generalized within the undergraduate programmes. The students are scattered all over the country and not confined to a specific locality according to the ODL centers. Thirdly, the ongoing effects of the COVID-2019 pandemic and containment measures were likely to affect study activities. To overcome these limitations the researcher designed an online research instrument to comply with the COVID-19 government containment measures. However, the researcher ensured there was adequate sampling to ensure the sample was representative and mitigated against low response rates associated with online surveys.

1.9 Assumptions of the Study

The study made five assumptions. Firstly, that the study participants could be willing to provide accurate responses and readily participate in the study. Secondly, the prevailing COVID-19 pandemic would have been contained so that the negative effects of the disease could not affect study activities and outcomes. Thirdly, the responses from the key informants and focus group discussions would adequately represent the target population. Fourthly, the research instruments will elicit appropriate responses to adequately address the research questions. Fifthly, the researcher has the knowledge and ability to undertake the study. Lastly, the study respondents fully understand and interpret the research questions.

1.10 Definition of Significant Terms Used in the Study.

The following terms have been defined in the context of this study.

Academic support services:

According to this study, they include services offered by the ODL institution to enable the learner to deal with learning issues, specifically geared towards academic success.

Administrative Support Services:

They mean institutional roles and services offered to students aimed at helping them deal with administrative needs.

Attrition

It's the departure of students from programmes they get enrolled in for various reasons and therefore without completing the course in a particular institution.

Course completion

It's the enrollment of a learner in a particular course and progressing through, until the attainment of the minimum requirements for the ward of certification or award of relevant qualification.

Counselling Support Services:

According to this study, they are services offered to cater for the psychological and emotional well-being of ODL students.

E-learning: This is a type of learning in which part or whole course is delivered electronically or digitally in various forms. The course materials are accessed via smartphones, tablets and computers and the rest in person.

Fees payment: Ability of a learner in open distance learning programmes to pay for his education promptly.

Financial support services:

This is a service offered to ODL students and comprises availing financial statements, fee balances, information on sources of funding and payment platforms, and information booklets on scholarships, tuition costs, financial aid and bursaries.

Leaner-content interactions:

This is the process where the learner intellectually interacts with the subject matter content, both synchronously and asynchronously. This interaction takes various forms, like watching instructional materials, involving multimedia interactions, carrying out personal research and investigating any other educational issues and undertaking any assignments given by the instructors.

Leaner-Instructor Interactions:

This is where the lecturer shares with the learner the curriculum menu according to the study schedules, delivers the content, presents information, demonstrates, gives feedback and evaluates learners to check their progress.

Learner Interactions:

These are the opportunities afforded by ODL learners to engage with content and also share with subject matter experts and the learning delivery systems and technology. This study adopted Moore's three types of interactions which are learner-content, learner-instructor, and learner to technology interactions.

Learner participation:

This is the involvement of learners in the teaching and learning process. The activities involved are listening, watching, attending classes, taking assignments, discussions and contacting other students and lecturers through physical or electronic means.

Learner Support Services:

These are services offered to ODL students to address academic, administrative, technical, and emotional or psychological needs.

Learner-technology:

This is the interaction between the learner and the ICT technology deployed to deliver instruction.

Open Distance Learning Programmes:

This is synonymous with open distance and electronic learning, where delivery of learning and instruction is through various mediating technologies to transmit study materials.

Retention:

For this study, it meant to be enrolled in a course and being able to progress from one year to the next in the same study programme and the same institution of learning with the aim of completing the programme by graduating.

Technical Support Services:

These are technology-related support to enable learners to access course materials and to function in the ODL programmes.

1.11 Organization of the Study

This research study comprises five chapters. Chapter One highlights the background of the study, statement of the problem, study purpose, objectives, research questions, hypotheses, significance, delimitation and limitations of the study, theoretical underpinnings, and finally the conceptual framework. Chapter Two gives relevant literature on the study variables of retention, learner support services and learner interactions. Further, it presents the theoretical frameworks, conceptual framework and summary of studies that have been conducted and study gaps. Chapter Three presents the research methodology highlighting the research paradigm, study design, research approach and research methods. Chapter Four describes data analysis, presentation, discussion and interpretation of the study findings. Chapter Five highlights the study findings, conclusions, implications of findings as well as the recommendations.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents relevant empirical literature, theoretical frameworks, conceptual frameworks, and the identified knowledge gaps in student retention in distance learning programmes. The aim of conducting a literature review was to: help provide the context of the study topic; identify relevant seminal and scholastic materials in the field; acknowledge existing frameworks, methodology, theories, viewpoints, and hypotheses in the field; justify the research topic by noting misconceptions and avoid repeating what has been already researched. Further, articulate how the current study links with the existing knowledge, enable pointing out of errors, flaws, and gaps in similar studies in the past and add more insight into understanding and knowledge of the topic. Finally, it will help to refine the study problem, refocus the topic and contribute to the topic evolving and enable standardization and comparison of results with other findings (Sage, 2019).

2.2 Academic Support Services and Retention in Distance Education Programmes

This involves helping ODL students to succeed in their studies, basically targeting the academic dimension. These kinds of services comprise of tutoring, mentorship, supervision and academic advising. The provision of academic support is a very critical component ,especially targeting the diverse and unique needs of the student population in distance education(Dlamini, Rugube, Kunene, & Cosmas, 2021;Aminudin, Navaratnasamy, & Saman, 2019;Dlamini, Rugube, Kunene, & Cosmas, 2021; Geesje van de, 2020; Arain, Munishi, & Khan, 2022).According to a study by Hesrcu-Kluska, 2019), capacity building is importanmt to make instructors effective and efficient in the use of ODL delivery systems. Elsewhere, it was found that ODL lecturers lack competencies and skills that are crucial for their effective facilitation of teaching and learning. The problem of ill-preparation for ODL learners also encompasses poor user skills on use of (ICT), institutions cannot avail all types of presences, adequate interactions, and this is compounded by challenges in accessing technical assistance in a timely manner. Nevertheless, the support for vulnerable groups like women and those with various disabilities is lacking and a s a result access and retention in ODL is affected, (Nyerere, 2016). Academic support goes beyond the production and delivery of learning materials. It includes effective engagement

between the learners bearing in mind of prompt feedback, and allocating learning activities that encourage optimal participation, most importantly targeting the unique student needs in ODL programmes, (Shah& Cheng, 2018; Mapheleba, 2021).

Moore and Greenland (2017) and Imam,(2020), highlighted skills distance learning students need to possess which include cognitive, autonomy; managing academic pressure; confidence; scheduling and managing time and striking a balance between studies and other obligations. They advocated for a learner support model with four components of academic, counselling or emotional, administrative and technological. Despite the foregoing literature, there seems to be a knowledge gap regarding the role played by the educators when it comes to decisions of learners to drop out or remain enrolled. This knowledge will help shape up the intervention to curb attrition. Intellectual support has been found to enhance student retention in both ODL and the traditional face-to-face mode of learning, (Ayse & Sercin, 2022).

Arhin, Wangeri and Kigen (2017), agree with the foregoing view and note that ODL institutions are aware of the importance of learner support and its bearing on learning outcomes and eventually the retention of the students. Academic support includes academic advising which is concerned with building relationships with students in order to link them with their future careers and ambitions (Arhin, Wangeri, & Kigen, 2017; Mapheleba, 2021). Furthermore, Arhin, Wangeri and Kigen, (2017) and Geesje van de, (2020) agreed with the finding that the frequency of interactions with instructional advisors improves retention. They found that although academic advising in most institutions was not effective, not tailored to specific learner needs, still most of the students continued to express need for academic support and more interactions. As such, this calls for proactive means to boost student retention.

The argument is that, if the learner finds difficulty on the learning subject matter, it can form a basis for deciding to drop out (Arain, Munishi, & Khan, 2022). Despite the availability of this knowledge, few studies have been conducted to determine how academic support services influence the retention of ODL students.

Further, academic support also includes mentorship. This kind of support addresses intellectual and social concerns. Among the aspects considered under mentorship are exposing learners to strategies, tips, timetabling private studies and management of study stress and pressure. The major aim of this service is to ensure the ODL student goes through academic and social integrations (Tinto, Leaving College:Rethinking the Causes and Cures of student Attrition(2nd ed.)., 1993). According to Ayse and (Sercin, 2022),mentors enable dialogue between instructors and students, and this reduces the challenge posed by the transactional distance and leads to retention. More specifically they target setting academic goals, consistency and achievement steps. Here mentors offer the highest level of structural support.

Mentors focus on student information upon enrollment to target individual student needs. By so doing, they guide the student to set manageable and achievable objectives and targets. They encourage learners to identify their learning orientation, weaknesses, strengths, aspects to devote more time on, issues to do with evaluations and assessment and offering motivation to achieve set goals and milestones (Simpson & Sanchez, 2018). However, despite the existence of this knowledge in the literature little is known on how mentoring support can help students to persist, especially in the Kenyan context.

2.3 Administrative Support and Retention in Distance Education Programmes

Administrative support services are those services that are aimed at assuring the smooth running of systems of delivering ODL (Aminudin, Navaratnasamy, & Saman, 2019). According to (Alvin, 2023), non-academic support is more targeted to helping students by informing them what is offered, guiding the entire process of student recruitment, giving guidance on choosing the semester course in various departments. It involves raising awareness amongst students about the learner support services that are available. This aspect of learning is important yet often ignored or even completely not run efficiently. This factor in ODL bridges the gap between the previous education experience and the new University. This type of support has suffered heavily on the premise of digitization of the administration processes. ODL requires prospective students to do everything online. However, what is not given due consideration are the vulnerable students from the time of enrollment, who are already at a point of disadvantage. This situation is what (Simpson & Sanchez, 2018) call

the DE deficit. Meaning that, if all the academic aspects are well-taken care of, learners are still prone to the challenges of getting integrated into the new community. This contributes to the widening of the transactional distance in ODL.

The current study considered indicators administrative support such as program information, health services, financial support services, staff support services and student records. This service ensures an adequate supply of information regarding choice and course registration requirements and plays a coordinating role. It ensures the efficient delivery of all the functions within the ODL fraternity, (Aminudin, Navaratnasamy, & Saman, 2019; Adnan & Anwar, 2020). This arm of education also monitors and supervises learner interactions, and the support given to students as well assesses the need for deployment of additional resources for practical skills development like science labs, computers and appropriate software (Rang'ara, 2015; Dlamini, Rugube, Kunene, & Cosmas, 2021; Fu, 2022)

Studies by Kisimbii, Gakuu, and Kidombo, (2020) and Imam (2020) observed that financial support services comprise financial statements, fee balances, information on sources of funding and loans, payment procedures and payment platforms, information booklets on scholarships, tuition costs, financial aid, and bursaries. Further, it enrols the students in group welfare associations meant to address financial challenges. Financial support has been cited as having an impact on the retention of students from lower-income families (Li & Juliana, 2023). They further observed that ODL students drop out because of the many challenges they face, financial challenges being at the top of the list. Students who perceive that the present benefits of education exceed the future anticipated returns on investment can be strongly motivated to enrol and stay on (Sneyer & Witte,2018), financial aid has been known to sort out student liquidity constraints. Financial subsidies can help disadvantaged students to get upkeep. These grant-supported students will feel motivated to continue learning. Though financial aid reduces working time, there is no evidence that this time is devoted to learning. Consequently, financial support may have negative effects on success as the low probability of completion students are extrinsically persuaded or enticed to enroll due to affordable tuition fees. Much as this support seems important, the extent to

which this support influences retention remains unsubstantiated especially in the Kenyan context.

2.4 Counselling Support Services and Retention in Distance Education Programmes

This kind of support helps students with the management of their studies. It includes managing time, coping with the course, advising on striking a balance between work, study, and family. Counselling support services are often targeted towards addressing academic and social issues. This support provides effective structures meant to address well-being, academic-related stress, and personal problems. The service indicators are Psycho-social, orientation, mentoring and workshops/seminars support and time management, (Muljana & Luo, 2019). According to Shah and Cheng (2018), counselling support is the intervention between the learner, tutor and ODL institutions geared towards solving academic and personal problems with the potential of negatively affecting retention. This entails ensuring social integration and acceptance into the community of scholars. Katy, Barreda, & Hein, (2021) and Wells, (2023) argue that low integration is a serious barrier to the persistence and retention of learners in ODL programmes. To them, counselling support is critical because ODL students are prone to problems of anxiety and loneliness. This makes it even more difficult when they get compounded with inadequate study techniques which would contribute to the decision to drop out. Some of the interventions that have been deployed include academic, technical, and emotional support services, (Simpson & Sanchez, 2018). Psycho-social support targets personal life aspects like social challenges, which are highly likely to affect retention though not directly (Muljana & Luo, 2019; (Arain, Munishi, & Khan, 2022); (Dlamini, Rugube, Kunene, & Cosmas, 2021).

Orientation programmes as part of emotional support play a critical role in promoting student retention (Arhin & Wangeri, 2018). These programmes serve as links between recruitment and the initial phase of admission into ODL learning. Students' social and academic integration is critical to retention and success in distance education, it has been shown that students receiving counselling services have high chances to re-enrol the following semester. As much as these studies refer to counselling centres, little evidence exists regarding counselling services that aim at retaining academically high-risk students in DE. According to Muljana and Luo (2019), when students join university, they face many

challenges cutting across academic expectations, social integration and coping with the more unstructured learning environment. These transition hurdles face students in most cases when they are alone and are not able to get support from their families. Psychological counselling targets emotional aspects like social challenges, which are highly likely to affect retention though in an implicit manner (Wan & Elaine, 2023)

Some studies like that of Eddie, Edwin and Stephen (2018) and (Osoro & Callen, 2023) note that orientation support significantly influences the transition, adjustment and retention of learners. They contend that orientation support is not designed to address academic and social transition, instead is meant to give valuable information, and initiate the academic journey. They further asserted that orientation should be proactive and be configured around the needs of the students and not merely to introduce students to DEPs. Others suggested services such as attending to the administrative needs, creating social and academic communities, and building trust and strong bonds among key stakeholders in the learning process. They established that orientation programmes played a significant role in student decision of departure from distance education programmes.

A comparative interventions study on orientation by Arhin (2018) revealed that student orientation is highly correlated with student retention. The study sought factors associated with premature departure or retention during the two semesters, (Semester One, 2008 and Semester Two, 2009). The 2009 study established improved programme retention of between 57% in 2008 and 81.7%. Waller and Lipe (2013) studied differences between two types of orientation support where one targeted a specific course or programme (PSO). On the other hand, they considered the general orientation programme. The results revealed that PSO had a higher effect on student retention than the general one. However, the orientation types showed correlations with student retention. Arhin (2018), did a study on orientation programmes and retention and found that orientation programmes are significantly related to retention at $p>0.001$. So far, from the ongoing discussion, most of the studies are in agreement that orientation programmes influence the retention of DE students. However, these studies have not given an explicit extent to which the orientation programmes can predict student retention.

2.5 Technical Support Services and Retention in Distance Education Programmes

This is a very critical factor in the delivery of ODL. However, the major concern though is that even if the field of technology has tremendously evolved, the provision of leaner support services has not kept pace with the student needs in the technology mediated mode. Instead, the student support services have remained fairly the same (Dlamini, Rugube, Kunene, & Cosmas, 2021). Yet surprisingly, the new ODL mode requires completely new approaches to enable them respond to the needs of the ODL students, (Zuhairi, Karthikeyan, & Priyadarshana, 2020; Gatotoh, Keiyoro, & Gakuu, 2017)

Another important support is technical issues with innovations and frequent use of ICT. This has led to many changes in the provision of ODL. However, without appropriate policies and strategies on how learners can be retained may leave students easily confused by the diverse and huge volumes of information (Adnan & Anwar, 2020). The phenomenal growth in ICT is a challenge as well as an advantage. ICT provides a variety of choices, opportunities for interactions and use of several platforms by both students and staff. According to Shaw, Burrus and Ferguson (2016), Kibuku, Ochieng, & Wausi (2020), students and faculty should be adequately prepared to use platforms and technology deployed in the delivery of ODL programmes. However, to them, ICT has placed staff and faculty at crossroads, especially on how best interactions can be executed and how appropriate to keep the running costs low. Besides, some of the technologies in use are expensive and complicated and need regular capacity building and support for efficient utilization. Learners are also confronted with the choice between learning management systems (LMS) both Synchronous and Asynchronous. Some systems are not well integrated with interaction support. Hence learners have challenges of even navigating on the LMS. Perhaps what remains to be known is the extent to which ICT influences the decision to drop out of the ODL Programme by students. Dlamini, Rugube, Kunene, and Cosmas (2021), (Osoro & Callen, 2023), (Li & Juliana, 2023) argue that the challenges presented by ICT like lack of technical skills, inadequate interaction with students and the staff need to be addressed to avoid difficulties in accessing content and using the LMS. These issues, if not addressed, may lead to discouragement and students drop out. This kind of support cuts across several aspects such as preparing for examinations, how to set academic targets and making course choices in specific departments.

Students are assisted on how to succeed by Centre staff. These include information on career development; setting personal goals; provision of schedules for contact sessions and virtual classes; affordability of opportunities for practical learning, especially hands-on experiences in science and computer labs; and provision of relevant details on course requirements and evaluation procedures.

The availability of library services and resources has been noted to play a great role in enhancing retention in ODL programmes. In most conventional learning institutions ODL students are not given due consideration when it comes to library services (Kibuku, Ochieng, & Wausi, 2020). ODL institutions often experience serious shortages of learning materials and are often overstretched in meeting the needs of the learners. This is normally so when the universities are in dual mode. Accordingly, institutions have tried to come up with proposals on how to address these gaps. These are aimed at ensuring that library-related support is in tandem with the demands of learners in terms of handling study tasks as well as facilitating individual research. Included in this category are borrowing cards from multiple institutions and consortia (Kibuku, Ochieng, & Wausi, 2020). Further, observe that the dire need in ODL is availing instruction and providing learners with ample opportunities to carry out personal research. This has called for more equipment for libraries and resources accustomed to student needs. The services that are on offer in most ODL programmes are free mobile numbers to facilitate interactions with the involved staff, access to several E-books and digital access to other databases. The above literature points out that administration functions are critical parts of ODL. However, what remains to be known is the extent to which this support influences the retention of ODL students.

2.6 Learner Interactions and Retention in Distance Education Programmes

Learner interactions have been defined in different ways and various types have been identified by scholars and educators. Moore postulated learner-content, learner-instructor, and learner-learner interaction while Hillman, Wills, & Gunawardena, (1994) came up with the fourth type of interaction known as interaction with the system or technology. Learner interactions have been hailed for reducing the effects of transactional distance when integrated into course modules (Xiao, 2017; Ayse & Sercin, 2022).

Learner-instructor interactions according to Muljana and Luo, (2019) is a very important element of an education transaction. To them, the instructor should not be viewed as an optional facility or just a symbol representing the institution. This is because the instructor's frequent facilitation is essential to enable desirable outcomes. It should be noted that learner to instructor interactions is not solely limited to subject matter delivery (Xiao, 2017; (Ayse & Sercin, 2022). However, according to Geesje van de (2020), with technology that is dynamic, student-instructor interaction may be replaced with learner-content interactions by deploying different formats like videos, and audios.

According to Wan & Elaine (2023), the frequency and intensity of interactions between students and their instructors matters a lot in retaining and ensuring learners are satisfied with the ODL experience, this may include the way instructors respond to student emails and concerns, (Stone & Shea, 2019). The instructors are expected to regularly connect with the students to help close the transactional distance. Learner instructor interaction promotes effective learner subject matter mastery, (Pregowska, Masztalerz, Garlinska, & Osial, 2021). According to (Wan & Elaine, 2023), age and gender have been reported to significantly affect instructor-learner interaction, with males being more likely to have more formal interactions with faculty as compared to the females. To them any efforts to support students, should consider enhancing the quality and quantity of interpersonal engagements.

According to Pregowska, Masztalerz, Garlinska, & Osial, (2021), adult learners prefer student-tutor interaction and adult learners don't prefer student-to-student interaction. Further, Pregowska, Masztalerz, Garlinska, & Osial, (2021), argue that interactions build a sense of belonging and reduces loneliness. This ensures smooth integration and engagement of the learners. Xiao (2017) poses the following concerns: whether all Moore's three interactions are equivalent in contributing to and success in ODL, and why adult learners prefer student-content and student-teacher interactions to the other types of interaction. He contended that obtaining answers to these questions requires rigorous empirical evidence. Most of the literature cited above highlights the importance of this type of interaction in supporting the achievement of desirable learning outcomes. (Napier, 2021) observed that

learner-instructor interaction quality is important in reducing cognitive presence distance, a very important factor in retention.

Student-subject matter interaction is regarded as the measure upon which all the other interaction types can be assessed (Simpson & Sanchez, 2018). According to Pregowska, Masztalerz, Garlinska, & Osial,(2021), learner-content interactions takes various forms, like watching instructional materials, involving multimedia interactions, carrying out personal research and investigating any other educational issues. The role of the instructor is facilitative by performing three responsibilities: academic, emotional, and instructional. Academically, the teacher ventures into deeper instructional intricacies and simplifies them to the learner. In the affective domain, the instructor enables expressions of emotion. In terms of the actual delivery of content, the teacher does more in giving finer details, structuring, and monitoring learner activities. This responsibility serves to make sure learning takes place and safeguards against information overload in the ODL environment. Learner content interaction is the main feature of DE, (Geesje van de, 2020). Here the instructor should be able to design content and assignments that are addressed to the needs of the DE learner. Also, it denotes the amount of time the instructor will devote to designing and preparing the content (Norazrina, 2020).At the same time, (Azadeh, 2023) points out to coherence and relevance of content. Moore (2013) and Azadeh, (2023) view learner-content interaction as the process of engaging learners with content which enables the learner to interact with knowledge and as well take part in the creation of knowledge. This kind of interaction causes the learner to be curious about education, understanding and eventual transformation of perspectives on issues. Most studies on learner-content interaction have been premised on the traditional face-to-face classroom approach thus there is a need for research on ODL platforms.

Equally, studies on interaction are often attributed to human engagements. This type of interaction is usually associated with learning content and subject matter. However, the current gap for the ODL programmes is whether interaction can influence student retention. This is referred to as the current discourse in ODL. According to Moore (2013; Azadeh, 2023; (Kibuku, Ochieng, & Wausi, 2020) this kind of interaction has always been associated with social interactions from the early days of ODL development.

This view has been supported by constructivism proponents, who argue that students learn optimally when they interact, (Xiao, 2017; Kibuku, Ochieng, & Wausi, 2020). This line of argument is grounded on the rapid and fast innovation in (ICT). Learner-learner interaction has gained much more support than the other types of interaction based on the Community of Inquiry Theory. The theory supports the view that learner to learner interactions build trust and bring a sense of belonging and reduces loneliness and isolation (Kibuku, Ochieng, & Wausi, 2020) contends that the education value of this interaction is determined by the uniqueness of tasks and how they align with the needs of learners. On the same note, Xiao (2017) acknowledges that learner-learner interaction may yield a high premium if it is integrated with course materials. Thus, they advocate a blend of the three types of interaction to achieve desirable outcomes. These scholars, support the view that the three types of interactions are important and should complement each other (Geesje van de, 2020).

Learner-technology interaction is another type that is crucial in ODL. This is because it's the one that mediates the ODL programme. This enables learners to get involved with interactive systems, machines and digital devices and artifacts. Technology supports ODL, the expectations of an efficiently functional technology as opposed to a psychological and functional barrier. The important consideration here is the way technical issues need to be addressed whenever they happen. The best approach would be immediate action, accessibility of the sought assistance and availed within the shortest practical opportunity (Pregowska, Masztalerz, Garlinska, & Osial, 2021).The utilization of ICT has its associated challenges. For example, (Kibuku, Ochieng, & Wausi, 2020) argue that ICT has negatively placed staff and faculty at crossroads, especially on how best interactions can be executed and how appropriate to keep the running costs low. Some of the technologies in use are expensive and complicated and need regular capacity building and support for efficient utilization. Some systems are not well integrated with interaction support. Hence learners have challenges even navigating on the LMS. The literature reviewed highlights the systemic challenges that DE students face. They do not expressly point out the extent to which they can moderate between factors of support and retention. Further, the knowledge gap is whether learner-technology interactions predict student retention in DE programmes in the Kenyan context. This study, we will consider the moderating influence of learner-Technology, learner-content and learner-instructor interactions.

2.7 Learner Retention in Distance Education Programmes

Open distance learning programmes experience unacceptably low retention and graduation rates, (Muljana & Luo, 2019; Radovan, 2019).ODL programmes report high dropout rates as opposed to the traditional face-to-face learning, (Xavier & Meneses, 2020; Quayyum, Zipf, & Dillon, 2019). The factors contributing to student drop out in ODL programmes are many, (Nurmalitasari, Zalizah, & Mohammad, 2023).Retention has been defined as the action of keeping students in a learning course up to the time the learner completes it or achieves the required academic objective, (Colin & Cele, 2017).Learner retention is a measure of performance in distance education programmes and even in conventional face to face learning,(Muljana & Luo, 2019; Nurmalitasari, Zalizah, & Mohammad,2023).

The challenge of low retention rates denotes poor performance and can adversely damage the reputation of an institution. According to Nurmalitasari, Zalizah & Mohammad, (2023), retention of the student is the presumption of satisfaction of learners' social and academic needs to enable them to continue with the learning programme. According to Tinto (1993), social and intellectual integration are important functional dimensions in the retention of students. According to Imam, (2020) proper learner support management improves learner integration in new institutions of learning. This is due to the unique circumstance in which ODL learners operate. They engage in activities related to work and education. Therefore, due to these factors they are bound to fail in completing studies due to employment and social obligations. This is why learner support is very crucial to help them navigate social and academic stress. Retention in higher education has been conceptualized in various ways to rope in several perspectives, other than just looking at it in terms of attrition. Retention may not necessarily mean being kept in the programme but being actively involved and making progress towards course completion. This implies that the achievement of credentials at course completion regardless of differences in pedagogy.

Several studies have recorded different statistics regarding retention and dropout rates in distance education programmes. According to (Azadeh, 2023), dropouts in ODL programmes are alarmingly higher as compared to the traditional mode of instruction. Completion rates continue to decline, estimated between 8% and 14% lower than in the traditional courses. Muljana and Luo, (2019), note that completion rates in ODL are claimed

to range from 10% - 20%, lower than the case in the face-to-face mode of learning. ODL courses have 82% course completion rates compared to 90 % completion in traditional classroom instruction. It has been reported that 85% of the students were able to complete their course in the traditional form of instruction, but only 74% completed the same courses in ODL, (Muljana & Luo, 2019). Bawa (2016), reports that distance education programmes register attrition rates of between 10% and 20% higher failures in retention compared to conventional traditional classroom instruction.

The rates of dropout in Europe and North America range between 20% and 30% or greater, whereas dropout rates among Asian countries are reported to hit 50% in some countries. Ayse & Sercin, (2022) reported a 50% dropout rate in distance education programmes in the USA. In Australia, dropout rates ranged from 35% to over 55% (Musingafu, Mapurunga, Chiwanza, & Shupikai, 2015). A college in the UK had an enrolment of 4000 students, and it registered a dropout of as low as 15%. This dropout from 15%-7.5% translated to an increased income of 7,500,000 pounds annually. Therefore, an improvement in retention can be quantified in monetary terms. A retention index, the reverse of dropping out, needs to be taken as a critical statistic in ODL. As such, we need to interrogate causal factors to the issue of learner dropout phenomena (Simpson & Sanchez, 2018).The action of withdrawal of learners whether temporarily or as a finality affects the learners' retention. Literature is available in studies reporting the times when and reasons for withdrawal of students from postgraduate programmes (Muljana & Luo, 2019). These results indicate that students were able to withdraw during the initial stages of the semester for various reasons from personal choices, to job-related and curriculum issues. Learners could withdraw due to misconceptions about course load, intellectual ability challenges and misconceptions in expectations. Learners take courses without bearing in mind their issues and individual characteristics such as entry behaviour skills. This is likely to put new students on the receiving end especially those used to highly structured traditional courses compared to the unstructured and challenging ODL one, which frustrates and discourages students, hence leading to dropping out.

Other issues associated with student dropout from ODL include marital commitment and social activities, weak social integration leading to ineffective interaction with peers with consequences of loneliness, anxiety, and incompatibility with the institution's social system (Shah & Cheng, 2018). Thirdly, the self-study nature of ODL has challenges of motivation, especially with learners with ICT skill challenges. ODL courses designers and educators make assumptions on technology navigation skills which culminate in issues with course designs. According to Simpson (2015), most faculty members have inadequate training on the way learners learn in ODL. The critical problem is that such instructors are not able to design, sustain interactions and active group participation atmosphere in their respective classes, integrate technology skills and overcome the resulting perceived lack of difference between ODL and face to face classes. Simpson (2015) found three reasons for the withdrawal of students from the UK Open University which were: poor academic performance, (43%); general family commitments, 37%; and job-related responsibilities at 30%.

Studies show that major issues and causes of dropout in ODL are multidimensional, (Musingafu, Mapurunga, Chiwanza, & Shupikai, 2015; Perchinno, Bilancia, & Vitale, 2023). The suggested factors likely to lead to attrition are poor service delivery, poor time management skills culminating in delays behind the expected schedules, difficulty course materials especially in Science Technology, Engineering and Mathematics related courses (STEM) and limitation of the shortage of resources. Sources of dissatisfaction emanate from poor clarity in modules and course materials, in the appropriate choice of programmes selection, underestimating course difficulty and time requirement of ODL and personal study preferences (Friðriksdóttir,2018; Kibuku, Ochieng, & Wausi, 2020). To reduce dropouts, education institutions should endeavour to re-examine academic integration-quality of tutorial and learning methods. Social integration-relational aspects, time management and self-management. Moore and Glenland (2017), contend that what matters in ODL is to address the needs of learners, especially issues dealing with instructional quality.

From a wide perspective, various actions and steps institutions may put in place to curb attrition include cultivating high and achievable expectations, improvement in academic and

social quality, ensuring quality and relevance of feedback, taking measures to improve academic and social integration in ODL, checking general improvement in quality learning and instruction (Katy, Barreda, & Hein, 2021). This resonates with extant literature linking student interactions to retention. A single factor focus on academic integration ignores to acknowledge the nature and complexity of the environment in which attrition is situated in an intricate interplay of factors whose outcome is attrition (Colin & Cele, 2017). According to Pauline and Luo (2019), retention is a function of the learner support system. Describing learner support as dealing with activities of managing staff to maximizes chances of successful completion of programmes. Arguing that strengthening LSS leads to an increase in retention especially in ODL. Aminudin, Navaratnasamy, & Saman, (2019), note that LSS should be responsive to the needs of vulnerable women and vulnerable groups to increase access and participation in education. (Bawa 2016; Katy, Barreda, & Hein, 2021; Arain, Munishi, & Khan, 2022), prescribe orientation programmes, faculty evaluations on technology fluency, interactions and support and training to create collaborative and transparent learning environs.

2.8. Theoretical Framework

Three theories of student persistence: Tinto's (1975, 1993) Theory of Student Departure, Bean and Metzener of 1985, Non-Traditional Undergraduate Student Attrition Model, and Moore's (1989) Transactional Distance Theory served as theoretical frameworks of this research study.

2.8.1 Tinto's Model of Institutional Departure

This theory was advanced by Vincent Tinto (1975, 1993). The theory borrowed from Spady's (1970, 1971), Conceptualization of Undergraduate Attrition Process. The major motivation of the theory was to seek an understanding of the longitudinal trend of acceptance into the academic community. Tinto argued that for the students to be fully assimilated into the new college, they needed to undergo stages of separation, transition, and incorporation. Tinto (1975, 1993) argued that these phases are characteristic of the first year of college enrollment. During separation, the learners are expected to collapse previous associations, for instance, secondary school friends, the family who have differing values, beliefs and conduct and embrace the new learning communities hosted in the new

institutions. At the time of separating and leaving the old communities, the learner is said to be undergoing transition and the end of transition is confirmed by integration into the new college community of learning. The final edition of Tinto's theory (1993) postulates that the college community has two systems: academic and social. Tinto posited that retention and persistence are dependent on the integration into the two systems.

Tinto guided that educational integration is determined by grade attainment and academic growth, whereas social incorporation is examined by the interaction of the student with university community members. Further, Tinto (1993) postulated that a distance learner enters a new institution with predetermined goals and commitments. The theory suggests that the continuous change in these goals and determination influence the decision to leave or being retained. Tinto (1993) theory added an amendment to his earlier version and noted that external commitments such as work, family and other responsibilities impact the initial and consequent goal modifications. This theory is relevant to this study because it focusses on the institutional factors which affect student retention, where learner support system comprising of administrative, academic, counselling and technical support are aspects of the institution. Further, this theory is about learner interactions with the learning institution resulting in social and academic integration. The theory recognizes the external factors within the context of the learner such as family, job commitments and how they affect the initial and subsequent goal commitments.

2.8.2 Bean and Metzner Non-traditional Undergraduate Student Attrition Model

This theory was advanced by Bean and Metzner in 1985. This theoretical model aimed to address the departure of a unique type of learner. They were described as commuters or part-timers and were deemed older than 25 years old. The proponents of this theory wanted to explain the phenomenon of student attrition based on interactions between the student and student attitudes and the learning institution. This theory asserted that the students learning through distance education have more influence externally than from within the institutions they study. This theory explains learner attrition or non-retention based on four variables: background factors which encompasses demographic characteristics, previous school performance in high school and the time devoted to studies; academic performance, intention and decision to leave, basically affected by academic and emotional factors and

finally, environmental factors which enshrine finances, working hours and family obligations. To this theory, situational factors may promote or discourage the retention of learners. To them, if the environmental circumstances are fine or conducive, the result will be hanging on until completion. For example, if the learners receive encouragement from their parents or make convenient travel and employment schedules, they will prefer to be retained even if the academic results they posit will be poor. They further argue that non-academic excellence is a big reason for learner attrition from ODL programmes. Further, the theory urges that apart from academic reasons, learners can withdraw from ODL studies due to social and emotional issues. Nevertheless, the theory gives importance to student background factors especially relating to previous learning experience, demographic factors, strengths and weaknesses and attitude of the learner. Finally, environmental factors make a great contribution to student attrition decisions. The factors in perspective are the social economic standing of the learner, the time they can avail for studies, work and meeting family responsibilities and the ease of transferring to other institutions. This theory was adopted for the study because it appropriately resonates with the study as it highlights the unique circumstances and variables that have the potential to influence learner retention of distance learners, which the study sought to investigate.

2.8.3 Moore's Theory of Transactional Distance

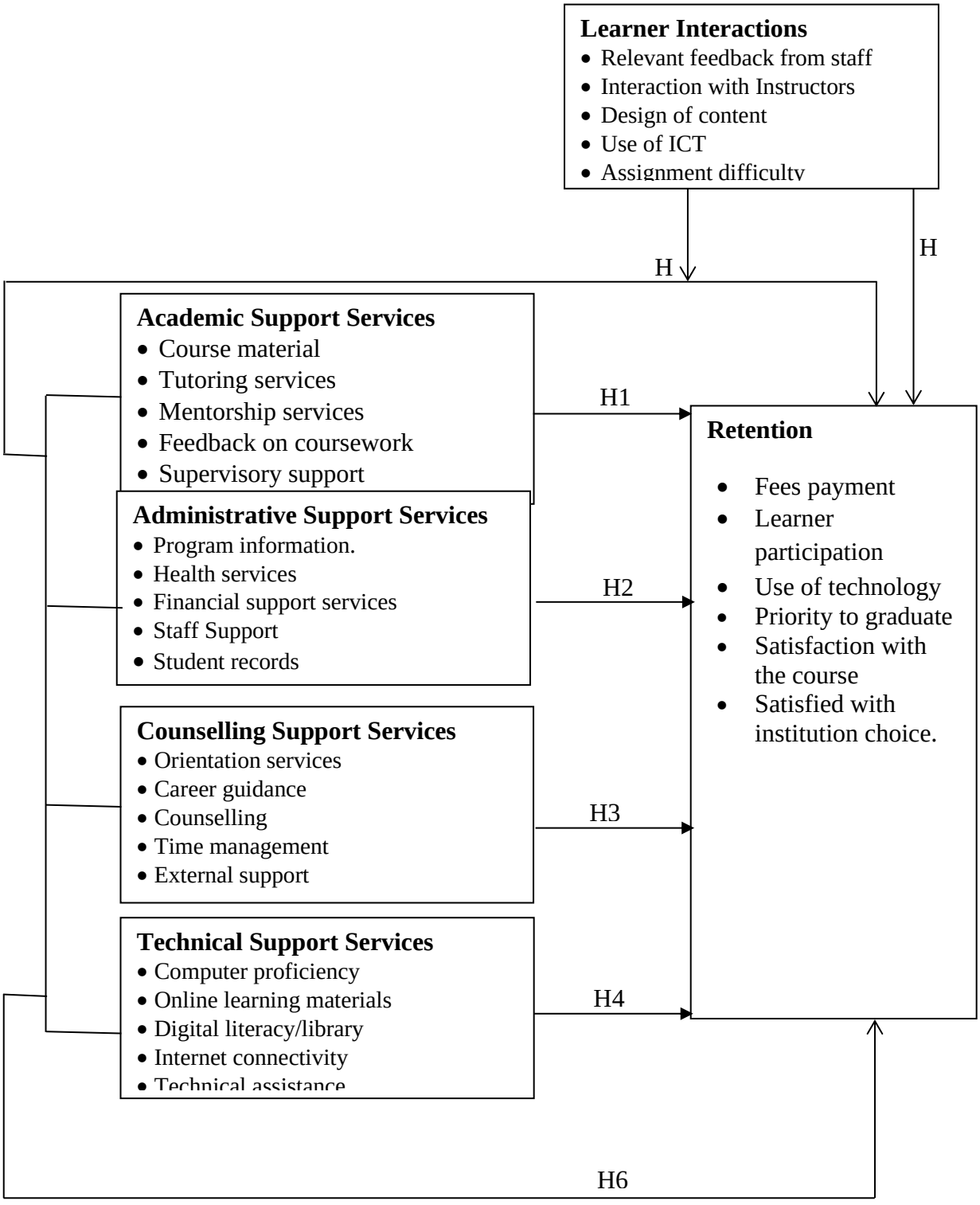
This theory was advanced by George Moore in 1989. The main tenets of the theory are the existence of a transactional distance between the giver of instruction and the receiver of the instruction in distance learning. Moore describes this separation as not being necessarily physical but rather a psychological one. Moore argues that for meaningful learning to take place, this separation of physical and psychological needs to be mediated. This theory suggests that learner support through mediation using technology (ICT) will work to reduce the potential for misunderstanding and interference with learning. Secondly, Moore highlights three factors that may affect transactional distance. Moore & Greenland, 2017), identified three variables that play a role in reducing the transactional distance which are: structure of the subject content, learner interactions (dialogue) and activities amongst the main stakeholders in ODL and learner independence. The structure comprises elements like course materials, the design and organization and the use of various media of delivery. This means that if the program structure is very rigid, less structured, and less interactive the

perceived transactional distance will be high and therefore hindering the learning. As such, poorly designed courses without inbuilt interactive features within the course materials and appropriate learner support systems may lead to attrition in ODL programmes. This theory was chosen because it is the most relevant and suitable for this study. The theory addresses the ODL characteristics such as separation between student and instructor, the structure of course materials, the need for mediating of the learning process as a transaction and the quality of learner independence and the instructional activities which in this study are the learner support services and learner interactions.

2.9 Conceptual Framework

Figure 1 shows the study's conceptual framework which shows the relationship among the independent variables, the moderating variable, and the dependent variable.

Figure 1: Conceptual Framework showing a relationship between learner support services, learner interactions and retention in ODL programmes.



From the conceptual framework in figure1, it was hypothesized that four variables influenced retention of learners in ODL programmes which are: academic support, counselling support, technical support, and administrative support. All these factors will be moderated by the provision of an environment where three types of learner interactions thrive which are: student to the lecturer, student to content and student to technology.

These factors are aimed at overcoming the transactional distance challenges associated with learning at a distance normally experienced by ODL learners as advanced by (Moore & Greenland, 2017). It is the absence of all the variants of presences that matter to bridge this transactional distance gap. This deficit can only be reduced by empirically determining whether learner support and interactions influence student retention in ODL programmes. This study posits that if the institutions address the needs of students by availing all types of support (academic, administrative, counselling, and technical), then learners will be socially and academically integrated, they will be satisfied with the services and quality of the ODL programmes and be willing to fully participate and continue learning. The provision of learner support will enhance student participation as can be manifested in multifaceted learner interactions. These factors will provide a ground for learner-centered pedagogy which will lead to high retention as will be indicated by the retention indicators. It is anticipated that the utilization of learner support services as can be measured by availability and frequency of utilization can boost retention in ODL programmes. Further, it is the position of this study that the moderating factor is learner interaction, specific dimensions of learner-instructor, learner-technology and learner-content. The argument is that, if a learner is accorded all four categories of support, then we need to find out the extent to which learner interactions moderated the relationship between learner support provided and learner retention in distance learning programmes.

2.10 Summary of Literature Review

The challenge of low retention is well articulated in literature ranging from 10%-80% in distance education programmes around the globe (Bawa 2016;Ayse & Sercin, 2022; Xavier & Meneses, 2020). Equally, literature has highlighted the causal factors of low retention in distance education programmes which have been associated with ODL institution level, instructor level, student characteristics and behavioural variables. The institutional factors

include the provision of support services holistically covering all the academic and non-academic systems in ODL. This aspect should be tailored to address the individual needs of learners. The issue of adequacy of learning materials, feedback on assignments and tasks, relevance and currency of the content has been highlighted as key in the retention of ODL (Itasanmi & Oni, 2020). Bawa (2016) notes social, technological, and emotional issues stemming from learners, instructors and specific ODL institutions.

Some studies pointed to challenges associated with the course load, intellectual ability challenges and misconception in expectations. These challenges are occasioned by highly structured traditional courses compared to unstructured ODL with the potential to frustrate and discourage students, hence leading to dropping out, (Alvin, 2023). Muljana and Luo, (2019), claimed that marital commitment and social activities are bound to consume students valuable time supposed to be invested in studies. Students without social integration may be unable to interact effectively with peers and consequently, feel lonely and incompatible with the institutional social system and decide to withdraw from the programme. Another issue is technology assumptions especially concerning navigation skills which culminate in challenges with course designs. Learners who are not proficient technologically are highly likely to drop out. It has been reported that instructor related factors such as qualifications, personal attitudes, and abilities of ODL could also influence the retention of ODL learners (Azadeh, 2023). According to Azadeh, (2023), most faculty have inadequate training on the way learners learn in ODL; are unable to design, sustain interactions and active group participation atmosphere in their respective classes and cannot integrate technology skills in the delivery of learning. On the other hand, the causes of low retention in ODL have been described as multidimensional, (Musingafu, Mapurunga, Chiwanza, & Shupikai, 2015; Muljana & Luo,2019; Ayse & Sercin, 2022). However, some of the contributing factors that have been suggested including poor service delivery, poor time management skills culminating in delays behind the expected schedules and difficult course material, (Ayse & Sercin, 2022). Despite the outlined causal factors, various stakeholders have tried to come up with solutions to overcome increased attrition which include review and re-examination of academic integration in terms of quality of tutorial and learning methods. Social integration, especially concerning relational aspects, time management and self-management. Others have advocated a responsive approach to the

needs of learners, especially issues dealing with the quality of instruction delivery and integration, (Shah& Cheng, 2018).

Other interventions that have been tried are the cultivation of high and achievable expectations, improving academic and social quality, checking quality and relevance of feedback, taking measures to improve academic and social integration in ODL, checking general improvement in quality learning and instruction, (Simpson & Sanchez, 2018). Enhancing learner interactions of all kinds has also been suggested as a factor that may increase retention, (Hesrcu-Kluska, 2019). Finally, literature has pointed out learner interactions of a learner to learner, learner to the instructor, learner to content and learner to technology. Noting that without optimal interactions the transactional distance will be great and consequently lead to loneliness, isolation and frustration for the students who ultimately decide to drop out, (Friðriksdóttir, 2018). As such, the literature gap that has not been fully addressed is whether support services of academic, administrative, counselling, technical and learner interactions influence student retention of learners in distance learning programmes in the context of Kenyan universities.

2.11 Knowledge Gaps

From the reviewed literature, knowledge gaps were identified and presented in Table 2.1.

Table 2.1: Knowledge Gaps Established in Literature

Study Variable	Author & Year	Title of Study	Methodology	Findings& Conclusion	Knowledge Gap	Focus of Study
Retention	Njihia, Mwaniki, Ireri and Chege, (2017)	Uptake of open distance learning programmes.	Mixed methods Questionnaire and Key Informant Interview	Distance education programmes have low enrolments. Learners face technical, instructional, institutional, and personal challenges.	The study focus was on challenges faced by students but did not study the influence of learner support services and interactions on the retention of learners	Influence of learner support services: academic, administrative, technical, counselling and interaction on retention of ODL learners.
Retention	(Katy, Barreda, & Hein, 2021)	A systematic literature review on online student retention	Mixed methods	Most online studies have retention challenges associated with students themselves, institutional, faculty, Course, environment and technological factors.	The study was situated in developed countries No reference to the Kenyan context.	Influence of learner support: academic, administrative, technical, counselling and interaction on retention of students in ODL programmes

Retention	Maritim and Makini, (2018)	Scalability of learners' success rates in the online distance at Egerton University	Used web-based survey	ICT Hardware and software were critical to retention and success. Learner support services were not satisfactory.	The study used an online survey with a low response rate of sixteen per cent (16%). Did not collect qualitative data to corroborate with the quantitative as well did not examine learner interactions.	Influence of learner support: academic, administrative, technical, counselling and interaction on retention of students in ODL programmes
Academic support	(Kisimbii, Gakuu, & Kidombo, 2020)	Learner support services at the University of Nairobi among distance learners	Mixed methods, cross-sectional survey design	Academic support services affect learner retention at the University of Nairobi.	Did not study student interactions and only focused on one public institution.	Influence of learner support: academic, administrative, technical, counselling and interaction on retention of learners in ODL programmes in public and private universities.

Academic Support	(Ayse & Sercin, 2022)	Drop-out analysis of distance education students.	Mixed methods	Academic support significantly affects the retention of learners in ODL programmes. Mainly emphasized the role of feedback and learner interaction.	The study was done outside Kenya. We need to determine the influence in the Kenyan context.	Influence of learner support: academic, administrative, technical, counselling and interaction on retention of learners in ODL programmes
Academic Support	(Dlamini, Rugube, Kunene, & Cosmas, 2021)	Framework development for distance learning	Systematic Literature Review	Self-referral does not work. Vulnerable Students who need service refer themselves the least.	Student self-referral has not been studied and its influence on retention in ODL programmes.	Influence of learner support: academic, administrative, technical, counselling and interaction on retention of learners in ODL programmes

Administrative support	(Dlamini, Rugube, Kunene, & Cosmas, 2021)	Framework development for distance learning	Systematic Literature Review.	Administrative support is a significant factor in ODL programmes	The study did not study the influence on retention and did not capture the Kenyan context.	Influence of learner support of academic, administrative, technical, counselling and interaction on retention of learners in ODL programmes.
Administrative support	(Kisimbii M. , 2019)	learner support services and retention in distance education programmes	Mixed methods Approach	Learner support services significantly influenced the retention of learners in distance education programmes	The study was conducted in one university. The current study will involve three universities. The study did not involve ODL staff.	Influence of learner support and interactions on the retention of learners in ODL programmes.
Administrative support	(Njihia,Mwaniki, Ireri and Chege, 2017)	Uptake of ODL programmes. A Case Study of Kenyatta University	Sequential mixed methods study.	Inadequate support services were poorly provided especially delays in fee payment and lack of financial services.	This was a case study involving one university.	Learner Support and interactions and their Influence on retention of Learners in ODL Programmes.

Counselling support	(Mwaniki, Ireri, chege, & &Njihia, 2022)	Uptake of ODL programmes. A Case Study of Kenyatta University	Sequential mixed methods study.	There are inadequate emotional support services as manifested by inadequate study time, the conflict between work and study.	The learners experienced inadequate counselling services but did not examine the influence on retention.	Influence of learner support and interactions on the retention of learners in ODL programmes.
Counselling Support	(Dlamini, Rugube, Kunene, & Cosmas, 2021)	Framework development for distance learning.	Systematic literature review	Counselling support is a significant factor in the retention of ODL.	The study did not focus on the Kenyan context and only collected information from various contexts.	Influence of learner support and interactions on the retention of learners in ODL programmes.
Counselling Support	Arhin &Wangari, (2018)	Impact of Orientation programme on retention of learners in ODL programmes.	Survey design	Orientation programmes impact learner retention and need to be incorporated at the pre-admission and recruitment stages.	The study did not determine the extent to which orientation service can account for retention in ODL programmes.	Influence of learner support services and interactions on the retention of learners in ODL programmes.

Technical Support	Gatotoh, Keiyoro, & Gakuu, (2017)	Characteristics of learners in Mobile Learning technology	Mixed methods design-Questionnaire and Interview	Overall, learner self-efficacy, attitude, behavioural intention, and technology use has a positive and significant influence on the adoption of mobile learning.	Although the study did not relate to retention it established learner self-efficacy is important in the adoption of technology in learning.	Influence of learner support and interactions on the retention of learners in ODL programmes.
Technical Support	Gatotoh, Keiyoro, & Gakuu, (2017)	Characteristics of learners in Mobile Learning technology	Mixed methods design questionnaire and Interview.	Education level, job experience and exposure period affect M-learning.	The study did not address the influence of technology support on retention in DE programmes but affirmed that demographic characteristics do not influence technology use.	Influence of learner support and interactions on the Retention of Learners in ODL Programmes.
Technical Support	(Mutegi, 2020)	E-Learning In Covid-19 Period In Kenya	Desktop review research design	There exists ICT inequalities amongst learners in the access of	Though the study did not address the influence of technical support	Influence of learner support and interactions on the retention of

				ICT facilities by poverty level and area of residence.	services and retention of learners in ODL.	learners in Education programmes.
Learner Interactions	(Azadeh, 2023)	Instructor immediacy and online course satisfaction in Malaysian Higher education	Survey Design	The instructor is a strong mediator of interactions. This interaction influences student success in ODL.	There is no study reported in Kenya that has empirically studied learner interactions on the retention of learners in ODL programmes.	Influence of learner support and interactions on the retention of learners in Education programmes.
Learner Interactions	(Mapheleba, 2021)	Perceptions of Postgraduate students on distance learning	Qualitative Design	Student-student interactions is important in addressing stress and pressure in ODLProgrammes.	Though the study did not address retention it confirmed that there is a gap in the Kenyan context on the preference of this type of interaction and its influence on retention.	Influence of learner support and interactions on the retention of learners in Education programmes.

Learner interactions	Xiao, (2017)	Influence of learner interactions on learning.	Survey Design. Questionnaire	Learner-to-learner interactions lead to surface learning, cognitive and information overload, or failure to sustain learners' interest and engagement.	The study examined the mastery of content and interaction preferences of students in e-learning. retention.	Determine the moderating influence of interactions on the relationship between learner support and retention in ODL programmes.
Learner interactions	(Ayse & Sercin, 2022)	Drop-out analysis of distance education students.	Qualitative methods	Learner-content interactions have received limited attention. It is not reciprocal interpersonal interaction.	Learner-content interaction has not been studied in the context of ODL in Kenya.	The study will study the influence of learner support and interactions on retention in ODL programmes.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

The chapter presents the research design, research paradigm, target population, sample size and sampling procedures, development of research instruments, data collection procedures, tests for validity and reliability of data collection instrument as well as data analysis plan. The chapter concludes by presenting the ethical considerations made by the study as well as the operational definition of variables.

3.2 Research Paradigm

The study was guided by the pragmatism paradigm. The pragmatists believe that in addressing human research activities the aim should be to find solutions to current practices. To pragmatists, education should be contextualized as a lifelong process of understanding and constructing experiences to achieve truth, (Capps & John,2019). The pragmatism paradigm is reductionist. The intention is to reduce the problem into a small, discrete set of ideas to test such as variables comprising hypotheses and research questions. This paradigm allows the collection of qualitative and quantitative forms of data. To them, knowledge is grounded on hands-on encounters and measurement of the objective reality that exists. It starts with a theory, a collection of information to support or refute the theory. Thus, in agreement with this paradigm, this study attempts to come up with solutions to low learner retention among students in distance education programmes by examining the extent to which learner support services and learner interactions influenced the retention of learners taking distance programmes at the University of Nairobi, Kenyatta University and Mount Kenya University.

3.2.1 Research Design

This study used a cross-sectional survey design. It employed the validating quantitative data model with the mixed methods approach, (Creswell, 2014). This entailed the collection of qualitative and quantitative sets of data from various respondents who included lecturers, students and ICT staff. The qualitative data provided insights, personal accounts, and experiences on the outcome variable (retention) and the predictor variables (learner support and learner interactions). The quantitative component gave statistical relationships between

the learner support, learner interactions and retention. It gave relationships and correlations between the variables addressed by the study. These two strands were integrated after analysis.

3.3 Target Population

The study targeted a population of 1990 students enrolled in the Bachelor of Education Programmes by distance education at the University of Nairobi, Kenyatta University and Mount Kenya University. The population distribution is as in Table 3.1.

Table 3.1: Target Population

University	Population
University of Nairobi (Public)	1206
Kenyatta University (Public)	500
Mount Kenya University (Private)	284
Total Target Population	**1990**

Source: Student information management systems of UoN, KU and MKU,2021

3.4. Sample Size and Sampling Procedure

To achieve the seven research study objectives, the study selected a representative sample of the study population. This enabled the generalizability of the research findings.

3.4.1 Sample Size

The study sample consisted of 322 ODL students taking Bachelor of Education-related degree courses at the three selected universities. For purposes of collecting qualitative data, the study purposively selected a total of 9 members of staff, of which two were lecturers and one technical staff from each university to provide answers to the structured key informant interviews. Further, the study randomly chose between six (6) to eight (8) students from among the student sample to participate in three focus group discussions (FGD) that is, one FGD from each institution. The student sample was determined using Krejcie and Morgan's (1970) formula as follows:

$$n = \frac{\chi^2 Np(1-p)}{\sigma^2(N-1) + \chi^2 p(1-p)}$$

Where:

n = required sample size

N = the given population size,1990

P = population proportion, assumed to be 0.50

$\square^2$ = the degree of accuracy whose value is 0.05

$\square^2$ = table value of chi-square for one degree of freedom, which is 3.841

On substitution,

$$n = \frac{3.841X\ 1990\ X0.5\ X0.5}{0.05X\ 0.05\ X(1990-1)+3.841X0.5X0.5} = 322$$

Therefore, the student sample size was 322. However, this was proportionately assigned amongst the three purposively selected universities based on their student population proportion Table 3.2

Table 3.2: Distribution of Student in the Survey

University	Population	Relative Frequency (rf)	Sample (size) rfxn (n=322)

University of Nairobi	1206	0.6060	195
Kenyatta university	500	0.2513	81
Mount Kenya University	284	0.1427	46
Total Target Population	**1990**		**322**

Source: MKU SMIS, 2021; KU SMIS, 2021 and UoN SMIS,2021

3.4.2 Sampling Procedure

The study selected 322 undergraduate students from the Universities' DE enrolment databases using stratified random sampling and proportionately allocated the sample size based on enrolment per each study institution.

3.5 Research Instruments

The study deployed Online Research Questionnaires, Key Informant Interviews and Focus Group Discussions.

3.5.1 Questionnaire for Distance Education Students

The study adopted a web-based survey instrument to collect data from 322 sampled students from the three selected universities. Arhin,Wangeri and Kigen, (2017), Saadatmand, (2017), Gary, Wendy, and David (2016) and Mwangi, (2017). Section A: Contains eleven (11) questions on learner demographic characteristics, their experiences, employment status, marital status and other details. Section B contained 12 items on learner retention from 12a-12l, and section C, comprised of 12 items from 13a-13l addressing academic support services. Section D: contained ran from 14a-14i consisting of 9 items on administrative support services. Section E comprised of 9 items starting from 15a-15i on counselling support services. Section F, had 11 items from 16a-16k mainly on technical support services and section G, had 11items covering 17a-17k, on learner interactions. The questionnaire contained both open and close-ended questions with a total of 64 items. The closed items were on a 5-point Likert scale from 5=Strongly Agree, 4=Agree,3=Neither Agree Nor Disagree,2=Disagree and 1=Strongly Disagree. This was selected because of its appropriateness to measure opinions and attitudes (Kothari & Garg, 2014).

3.5.2 Key informant Interview for Teaching Staff

The key informant interview schedule with predetermined standardized questions was used to collect data from lecturers and technical staff who were purposively sampled. The main objective of using a standardized schedule was to triangulate the information collected while maintaining focus on the variables of the study, (Kothari & Garg, 2014).

3.5.3 Key Informant Interview for ICT Staff

The study used KII for the ICT staff to help capture the technical support component and obtain information on the utilization of the learning management system. It further sought to collect information on the training aspects on online teaching and learning, literacy and computer proficiency, provision of support and aspects to do with interactions. This information was obtained from three ICT staff members, one from each study institution.

3.5.4 Focus Group Discussion for Students

FGDs collected data on opinions, feelings and attitudes concerning study aspects. These individuals usually have similar characteristics under a moderator (Savin-Baden & Major, 2013). The research used three student-focused group discussions comprising between six and eight students from each of the three institutions which participated in the group discussions. The purpose of this was to supplement and further clarify the survey information on the feelings, opinions, and attitudes of students regarding the learner support services, interactions and retention.

3.5.5 Piloting of Research Instruments

The instrument reliability was determined by piloting it among 20 participants taking a Bachelor of Education degree programmes by distance education. According to (Savin-Baden & Major, 2013), an appropriate sample of a study should constitute 5% of the entire study sample, which yielded 20 distance education students. This category of participants did not participate in the actual study. This is to avoid prior exposure of the research instrument to the participants. The purpose of the piloting was to help establish check readability, clarification of questions and confirm whether the gathered responses appropriately answer the study questions. Further, it could shed light on the level of

understanding of questions, question clarity and adequacy of instructions. This could guide on how the various items would measure the construct of interest, ODL students' retention.

3.5.6 The Validity of Research Instruments

The study took into consideration the internal and external validities (Bolarinwa, 2015). Internal validity is concerned with the accuracy of the scores realized from the research. It includes examination of study instruments for readability, clarity and scope of the items, (Creswell, 2014). For this study, the researcher relied on the study supervisors who are subject specialists to examine and establish both content and face validity.

The criteria for establishing qualitative study validity are slightly different from the quantitative one. In this component, the investigator seeks believability founded on coherence, insight, instrument utilization and trustworthiness, (Creswell, 2014). The study employed four approaches to ensure validity: Triangulation where a variety of sources were used; member checking where the researcher confirmed the accuracy of themes and categories through follow-ups and feedback from the participants; providing rich and thick descriptions and using personal comments and remarks about the interpretation of the findings and deployment of the services of an external auditor. Here the researcher engaged peer reviewers to examine and give an objective opinion on several study aspects like transcriptions, the link between data and questions, analysis level and interpretation which were geared towards assuring the validity of the qualitative data.

3.5.7 Reliability of Research Instruments

The inter-item reliability index of the study was determined by the internal consistency reliability test. The research Questionnaire was administered once to a group of twenty (20) students to estimate the reliability of the tool. Reliability was determined by estimating how accurate items reflecting the same construct would yield the same results. The Cronbach Alpha (α) was used to test internal consistency for the six sections of the Questionnaire. This coefficient is recommended for scale developments using Likert scales with choices of (5=strongly Agree to 1 = strongly disagree). It is recommended research should strive to attain a reliability value of 0.7> and they caution that it increases with test length (Ary, Jacobs, & Sorensen, 2010).

The coefficients varied from 0.853 to 0.915 and this implied that all the tools were reliable for use in the study. The Cronbach Alpha (α) coefficients for all the sections are shown on Table 3.3.

Table 3.3: Cronbach's Reliability Coefficients of Research Items in the Survey

Section	Variable	Number of Items	Cronbach's Coefficient
Section B	Learner retention	12	0.880
Section C	Academic support services	12	0.915
Section D	Administrative support services	9	0.853
Section E	Counselling Support services	9	0.913
Section F	Technical Support services	9	0.878
Section G	Learner interactions	11	0.878

3.6 Data Collection Procedures

The study employed mixed methods in the collection of study data, therefore using qualitative and numerical methods. After the development of research instruments, the researcher sought appropriate approvals from the graduate school and the National Council of Science Technology and Innovation (NACOSTI) to collect data. Relevant authorizations were sought from the individual institutions and students (the four Universities) who took part in the study. Before the recruitment of the research assistants, the researcher conducted training to enhance their efficiency and understanding of the thematic areas of the study. Then the online questionnaires were mailed electronically by the researcher to the respective participants of the three institutions following the sample size determined. The qualitative data was collected from multiple sources using structured online structured interviews via google meet platform from ICT staff and lecturers. Likewise, three focused group discussions were held on google meet, one per university to collect in-depth interviews (online conference meetings) of the ODL students. This was purposively selected from those

who did not take have taken part in the quantitative survey. At this stage, data was coded according to the study variables on learner support services, learner interactions and retention and analyzed.

3.7 Data Analysis Techniques

Data analysis is the systematic organization, synthesis of gathered data and testing of research hypotheses by utilizing the data (Creswell, 2014). For this purpose, the study collected both numerical and qualitative data. It deployed descriptive and inferential analysis strategies by the pragmatism world view. The data was cleaned through review, coding, and tabulating. This was essentially checking for errors to responses for further interrogation and analysis.

3.7.1 Descriptive Statistics

The study determined descriptive statistics like the mean, frequencies, percentages, and standard deviation for the study variables. Multiple regression analysis was used to measure the strength of relationships between the independent variables and dependent variables. In this case, the study desired to find the strength of relationships between learner support services, learner interactions and retention. This included the analysis of student questionnaire responses, key informant interviews and focused group discussions. The data was analyzed objectively in an interpretive approach (Savin-Baden & Major, 2013). This involved thematic analysis documented in narrative statements in conformity with the research hypotheses. Triangulation enabled strengthen the validity and trustworthiness of research data because of different sources of obtaining study information.

3.7.2 Inferential Statistics

Through inferential statistics, the study made predictions (inferences) about the relationships and associations between independent variables and the dependent variable by using data from the study sample and based on these, generalizations were made to the entire study population. Additionally, inferential statistics enabled hypothesis testing, where tests were used to assess whether there existed associations between two or more variables. The study used regression analysis to test the seven research hypotheses at a 95% confidence interval or 5% significance level**.**

Further, the generated F statistics were employed to test the significance of the regression equation concerning the dependent variable. The B value associated with the F statistic was used to determine the rejection or failure of rejection of the null hypothesis. The rule is that a B value of less than 0.05 leads to the rejection of the null hypothesis, whereas a B value greater than 0.05 leads to failure of rejection of the null hypothesis.

For purposes of hypothesis testing, the study adopted a multiple regression analysis equation model: $R=\beta_0 + \beta 1X1_{+}\beta_2X2+\beta_3X3 +\beta_4 X4+\beta_5X5 +\varepsilon$, where X = X1, X2, X3, X4 and X5 were main indicators of each variable, and the beta values were coefficients of correlation and R being the retention of the distance learners.

1. To establish the extent to which academic support services influenced the retention of students in ODL programmes at the selected Universities in Kenya.

   $R=\beta_0 + \beta 1X1_{+}\beta_2X2+\beta_3X3 +\beta_4 X4+\beta_5X5 +\varepsilon$

   Where R=Retention of learners in programmes by Distance Education

   X1=Course Materials

   X2= Tutorial Services

   X3= Mentorship Services

   X4=Feedback on Course Work

   X5=Supervisory Support

   ε=Random error

2. To determine the extent to which administrative support services influence the retention of students in ODL programmes at the selected Universities in Kenya.

   $R=\beta_0 + \beta 1X1_{+}\beta_2X2+\beta_3X3 +\beta_4 X4+\beta_5X5 +\varepsilon$

   Where R=Retention of learners in programmes by Distance Education

X1=Course Information

X2=Health Services

X3=Financial Support

X4=Support from Staff

X5=Student Records

ε=Random error

3. To examine the extent to which counselling support services influence retention of students in ODL programmes at the selected Universities in Kenya.

   $R=\beta 0 + \beta 1X1+\beta 2X2+\beta 3X3 +\beta 4\ X4+\beta 5X5 +\varepsilon$

   Where R=Retention of learners in programmes by Distance Education

   X1=Orientation Services

   X2= Career Guidance Services

   X3= Counselling

   X4= Time Management

   X5=External Support

   ε=Random error

4. To assess the extent to which technical support services influence retention of learners in ODL programmes at the selected Universities in Kenya.

   $R=\beta 0 + \beta 1X1+\beta 2X2+\beta 3X3 +\beta 4\ X4+\beta 5X5 +\varepsilon$

   Where R=Retention of learners in programmes by Distance Education

   X1= Computer Proficiency

X2=Online Learning Materials

X3=Digital Literacy

X4= Internet Connectivity

X5=Technical Assistance

ε=Random error

5. To determine the extent to which combined learner support services influence the retention of learners in ODL programmes at the selected Universities in Kenya.

   $R=\beta 0 + \beta 1X1+\beta 2X2+\beta 3X3 +\beta 4\ X4+\beta 5X5 +\varepsilon$

   Where:

   R=Retention of learners in programmes by Distance Education

   X1= Academic Support Services

   X2=Administrative Support Services

   X3=Counseling Support Services

   X4=Technical Support Services

   ε=Random error

6. To examine the extent to which learner interactions influence retention of learners in ODL programmes at the selected Universities in Kenya.

   $R=\beta 0 + \beta 1X1+\beta 2X2+\beta 3X3 +\beta 4\ X4+\beta 5X5 +\varepsilon$

   Where R=Retention of learners in Programmes by Distance Education

   X1= Feedback from Instructors

   X2= Interactions with Instructors

X3=Content Structure

X4= Use of information communication technology

X5= Assignment Difficulty

ε=Random error

7. To establish the extent to which learner interactions moderate the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya.

$$R=\beta 0 + \beta 1X1+\beta 2X2+\beta 3X3 +\beta 4\ X4+\beta 5X5 +\varepsilon$$

Where:

R= Retention of learners in Programmes by Distance Education

X1= Academic support

X2=Administrative support

X3=Counseling support

X4=Technical support

X5=Learner Interactions

ε=Random error

3.8. Ethical Considerations

The implementation of this study observed all and best practices of research to ensure the rights and safety of participants are guarded. The study informed the board of postgraduate about the research activity, that is, to ensure the dignity, anonymity, and informed consent of the participants. Further, the researcher sought for permission to collect data by obtaining a research permit from NACOSTI. Ethics in research practice aims at assuring the study participants anonymity, confidentiality authority to visit research sites and protection of participants from potential harm resulting from the study. The study participants were

informed and given due guidance about the aims, methods and expected gains out of research; the rights to withdraw or voluntarily participate in the study, and the custody of data to avoid access to information to unauthorized persons.

3.9 Operationalization of Variables

The study aimed to determine the influence of academic support, administrative support, counselling support services, technical support services and learner interactions on the retention of students in ODL programmes at three selected universities in Kenya. The study variables were defined and conceptualized as shown in table 3.4.

Table 3.4: Operationalization of Research Variables

Objective	Variables	Indicators	Measurement	Measuring Scale	Analysis Tools
To establish the extent to which academic support services influence the retention of learners in ODL programmes	Academic support services	Mentorship services	Availability of mentors	Ordinal	Frequencies, Mean, Standard Deviation, Simple linear regression analysis.
		Tutoring services	Number of hours of instruction	Interval	
		Study materials	Availability of study materials	Ordinal	
		Feedback on course work	Turn -around time to receive feedback.	Ratio	
		Supervisory support	Availability of supervisory support	Ordinal	
To determine the influence of administrative support services on the retention of learners in ODL program	Administrative Support Services	Program information	Availability of program information	Ordinal	Frequencies, Mean, Standard Deviation, Simple linear regression analysis.
		Health services	Provision of health services	Ordinal	
		Financial support services	Availability of financial services	Ordinal	

		Support from staff	Satisfaction with staff support	Ordinal	
		Student records	Satisfaction with records	Ordinal	
To assess the Counselling support Services, influence the retention of learners in ODL programmes	Counselling support services	Orientation services	Adequate orientation services	Ordinal	Frequencies, Mean, Standard Deviation, Simple linear regression analysis
		Career guidance	Availability of career advisors	Ordinal	
		Counselling	Availability of counselling services	Ordinal	
		Time management	Training in management skills	Ordinal	
		External support	Satisfaction with external support	Ordinal	
To assess the influence of technical support services on the retention of learners in ODL programmes	Technical support services	Computer proficiency	The level of satisfaction with computer use	Ordinal	Frequencies, Mean, Standard Deviation, Simple linear regression Analysis
		Online study materials	Access to online study materials	Ordinal	
		Digital literacy	Access to computers	Ordinal	

		Internet connectivity	Availability of internet	Ordinal	
		Technical assistance	Access to technical assistance	Ordinal	
To determine the influence of learner Interactions on retention of learners in ODL program	Learner interactions	Feedback from instructors	Timely responses	Ratio	Frequencies, Mean, Standard Deviation, Simple linear regression analysis
		Interaction with the instructor	Level of interaction	Interval	
		Structure of content	Satisfaction with content structure	Ordinal	
		Online study materials	Access to the internet	Ordinal	
		Use of ICT	Ability to use ICT	Interval	
To examine the influence of Combined learner support services on the retention of learners in ODL program	Academic support services	Mentorship services	Availability of mentors	Ratio	Frequencies, Mean, Standard Deviation, Simple linear regression. analysis
		Tutoring services	Number of hours of instruction	Interval	
		Study materials	Availability of study materials	Ordinal	

		Feedback on course work	Turn -around time to receive feedback.	Ratio	
		Supervisory support	Availability of supervisory support	Ordinal	
	Administrative Support Services	Program information	Availability of program information	Ordinal	
		Health services	Provision of health services	Ordinal	
		Financial support services	Availability of financial services	Ordinal	
		Support from staff	Satisfaction with staff support	Ordinal	
		Student records	Satisfaction with records	Ordinal	
	Counselling support services	Orientation services	Adequate orientation services	Ordinal	
		Career guidance	Availability of career advisors	Ordinal	

		Counselling	Availability of counselling services	Ordinal	
		Time management	Training in management skills	Ordinal	
		External support	Satisfaction with external support	Ordinal	
	Technical support services	Computer proficiency	The level of satisfaction with computer use	Ordinal	
		Online study materials	Access to online study materials	Ordinal	
		Digital literacy	Access to computers	Ordinal	
		Internet connectivity	Availability of internet	Ordinal	
		Technical assistance	Access to technical assistance	Ordinal	
To establish the moderating influence of Learner Interactions on the Relationship	Academic support services	Mentorship services	Availability of mentors	Ordinal	Frequencies, Mean, Standard Deviation, Simple
		Tutoring services	Number of hours of instruction	Interval	

between Learner Support and Retention in ODL program		Study materials	Availability of study materials	ratio	linear regression analysis.
		Feedback on course work	Turn -around time to receive feedback.	Ratio	
		Supervisory support	Availability of supervisory support	Ordinal	
	Administrative Support Services	Program information	Availability of program information	Ordinal	
		Health services	Provision of health services	Ordinal	
		Financial support services	Availability of financial services	Ordinal	
		Support from staff	Satisfaction with staff support	Ordinal	
		Student records	Satisfaction with records	Ordinal	
	Counselling support services	Orientation services	Adequate orientation services	Ordinal	

		Career guidance	Availability of career advisors	Interval	
		Counselling	Availability of counselling services	Interval	
		Time management	Training in management skills	Interval	
		External support	Satisfaction with external support	Interval	
	Technical support services	Computer proficiency	The level of satisfaction with computer use	Interval	
		Online study materials	Access to online study materials	Ordinal	
		Digital literacy	Access to computers	Ratio	
		Internet connectivity	Availability of internet	Ordinal	
		Technical assistance	Access to technical assistance	Ordinal	
	Learner interactions	Feedback from instructors	Timely responses	Ratio	

		Interaction with the instructor	Level of interaction	Interval	
		Structure of content	Satisfaction with content structure	Ordinal	
		Online study materials	Access to the internet	Ordinal	
		Use of ICT	Ability to use digital devices	Interval	
To measure Learner Retention in ODL program	Retention of learners in distance education program	Payment of fees	Ability to pay fee	Interval	Frequencies, mean, standard deviation, simple linear regression analysis.
		Satisfaction with the course	Satisfaction with the course	Interval	
		Goal Commitment	Determined to graduate	Interval	
		Participation of the learner	Engagement in learning	Interval	
		Use of ICT	Use of digital devices	Interval	
		Satisfaction with institution choice	Willingness to recommend the university to others	Ordinal	

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION, AND DISCUSSION

4.1 Introduction

The chapter presents the results from the data analysis as well as the discussion on interpretations and implications. Discussions have been done considering the reviewed literature for both congruence and concordance.

4.2 Research Return/Response Rate

The study sample comprised three hundred twenty-two (322) ODL students pursuing Bachelor of Education-related degree programmes at the University of Nairobi, Kenyatta University and Mount Kenya University. Therefore, a total of 322 questionnaires were issued to the students for quantitative data and a total of 288 questionnaires were filled and returned and this represented 89.4% return rate. In addition, to collect qualitative data, the study sought to interview nine key informants comprised of six lecturers and three ICT staff. Further, the study held three Focus Group Discussions (FGDs) from each of the universities, each comprising between six and eight students. Table 4.1 shows the response rate achieved.

Table 4.1: Research Response Rate

Respondents	Sample	Response	Response Rate
Students	322	288	89.4%
Key Informants	9	8	88.8%
Focus Group Discussions	3 Groups (24 students)	3 Groups (22 students)	91.6%
Overall	355	318	89.6%

From a sample size of 322 students for quantitative data, the study collected and validated data from 288 students. This implied a response rate of 89.4% on the questionnaires. From a sample of nine key informants, the study was able to conduct interviews with eight of them and thus presenting a response rate of 88.8%. The study was able to conduct all the Focus Group Discussions (FGDs) but with 91.6% of the intended members of the groups. The overall response rate of the study was 89.6%. According to Latunde (2017), a response rate of at least 80% is acceptable in social sciences for it implied that the findings are generalizable to the target population. The high response rate achieved in the current study implied that the results can be generalized to the three universities and other universities with caution.

4.3 Demographic Information and Respondents' Profiles

The study sought to establish the distribution of the participants by their demographics. Table 4.2 shows the distribution of participants by gender.

Table 4.2: Distribution of Participants (Students) by Gender

Gender	Frequency	Percentage
Male	139	48.26%
Female	149	51.74%
Total	288	100.00%

From Table 4.2, the study found that 48.26% of the students were male while 51.74% were female. The study observed that the number of male students did not differ so much from the number of females who participated in the study. This implies that the study involved as many males as the female participants. Therefore, the study can be generalizable to gender, since there was a good representative of both genders. Other studies have shown that most of the Universities in Kenya have both genders represented in almost the same proportion Makgopa(2022). In addition, the study also sought to find the year of study of the students whose results are shown in Table 4.3.

Table 4.3: Distribution Respondents by Year of Study

Year	Frequency	Percentage
First	46	15.97%
Second	66	22.92%
Third	120	41.67%
Fourth	56	19.44%
Total	288	100.00%

The results revealed that 15.97% of the participants were in their first year of study, 22.92% were in their second year of study, 41.67% were in their third year of study and 19.44% of the participants were in their fourth year of study. This implies that the majority of the participants were in their third year of study. This further implies that the students had a better understanding and experience in using ODL programs and thus were able to take part in this study from an informed point of view. However, some studies show that the level of education does not influence retention in ODL programmes, Simukanga (2020).
The marital Status of the students was also established, and the results are shown in Table 4.4.

Table 4.4: Distribution of Respondents by Marital Status

Marital Status	Frequency	Percentage
Married	168	58.33%
Single	114	39.58%
Separated	4	1.39%
Divorced	2	0.69%
Total	288	100.00%

The study also found that 39.58% of the students were single, 58.33% were married, while only 0.69% of the students were divorced and 1.39% separated. This implies that the majority of the students were married. The ODL program has been cited as the most suitable program for the married since it enables them to concentrate on family duties while furthering their studies and this finding is in agreement with a study by Imam,(2021).

Respondents were requested to indicate their age. The age of the students is as distributed in Table 4.5.

Table 4.5: Distribution of Respondents by Age

Age	Frequency	Percentage
Under 25 Years	54	18.75%
25-29 Years	80	27.78%
30-34 Years	109	37.85%
35-39 Years	14	4.86%
40-44 Years	22	7.64%
45-49 Years	8	2.78%
50 and above	1	0.35%
Total	288	100.00%

It was established that 18.75% of the students were under the age of 25 years, 27.78% were aged between 25 and 29 years while 37.85% of the students were aged between 30 and 34 years. The study further revealed that 4.86% of the students were aged between 35 and 39 years, 7.64% were aged between 40 and 44 years and those aged between 45 and 49 years were 2.76% while only 0.35% of the students were aged 50 years and above. The majority of the students were below 35 years. (Itasanmi & Oni, 2020) noted that elderly people are generally equally able to enroll to ODL programs like the younger students due to its flexibility. In addition, the study sought to establish the level of education of the students and whose results are as shown Table 4.6.

Table 4.6: Distribution of Respondents by Highest Level of Education

Education Level	Frequency	Percentage
Secondary Education	95	32.99%
Certificate	13	4.51%
Diploma	97	33.68%
Undergraduate Degree	76	26.39%
Post-Graduate Diploma	6	2.08%
Master's degree	1	0.35%
Total	288	100.00%

The study revealed that 32.99% of the students had secondary education as their highest education level, 4.51% held certificate as their highest education level whereas those who had attained diploma as their highest education level were 33.68%. Moreover, it was found that 26.39% and 2.08% of the students had attained Undergraduate degree and post-graduate diploma as their highest education level respectively, while only 0.35% of the students had already attained masters degree as their highest education level. This implies that most of the students held a diploma and secondary as their highest education level. This implies that most of the students were pursuing their first degree after finishing secondary level of education of diploma certificate. Since most of the participants had at least secondary level of education, it implies that they were able to comprehend the research questions in the questionnaire and thus yield valid data. Study by Mallon, Bataineh, & Al-bataineh, (2021) revealed that a bigger population in Kenya has acquired secondary education.

Employment status was central to this study. Respondents were requested to indicate their employment status and the results are shown in Table 4.7.

Table 4.7:Distribution of Respondents by Employment Status

Employment Status	Frequency	Percentage
Unemployed	115	39.93%
Part-time Employed	21	7.29%
Full-time Employed	129	44.79%
Self-employment part-time	3	1.04%
Self-employment full-time	20	6.94%
Total	288	100.00%

The study further indicated that 39.93% of the students were unemployed, 7.29% were part-time employees and 44.79% of the students were full-time employed. In addition, only 1.04% of the students were self-employed as part-time workers while 6.94% were self-employed as full-time workers. This implies that most of the students were full-time employed. The findings by Kirikiru & Kalui (2021), observed that the major reason for enrolling for ODL programmes is much commitment in employment.

The hours devoted to course material in a week for each student are shown in Table 4.8.

Table 4.8: Distribution of Respondents by Hours Devoted in Course Materials Per Week

Hours	Frequency	Percentage
5 Hours and Below	97	33.68%
6- 10 Hours	112	38.89%
11-15 Hours	34	11.81%
16-20 Hours	21	7.29%
More than 20 Hours	24	8.33%
Total	288	100.00%

The results from the study revealed that 33.68% of the participants devoted only 5 hours or less in a week for course material, 38.89% devoted 6-10 hours in a week for course materials while 11.81% devoted 11-15 hours in a week for course material. In addition,

only 7.29% of the participants devoted 16-20 hours in a week for course material and 8.33% devoted more than 20 hours in a week for course material. This implies that the majority of participants devoted 10 hours or less in a week to course materials. This could be because most of them were employed and used most of their time in employment duties rather than in course work. Study by Itasanmi and Oni (2020) indicated that most of the distance learners mostly utilize their evenings for studying while the rest of the daytime is spend in other commitments like employment.

The study sought to find out whether the students have mobile phones and whether they received short messages (SMS) from university. The results are shown in Table 4.9.

Table 4.9: Distribution of Respondents by Access to Communication

Question	**Yes**		**No**	
	Frequency	Percentage	Frequency	Percentage
Own or access to phone	287	99.65%	1	0.35%
Receive short messages (SMS) from university giving you important notifications	198	38.89%	88	30.77%

The study found that 99.65% of the respondents owned or had access to phones while only 0.35% of the students didn't own or had access to phones. This implies that the majority of the students owned or had access to a phone. This indicates that at least each respondent had been using a mobile phone and therefore could access ODL even through their phones and also receive important communication able to give feedback on the required information. This finding was in concurrence with the study by Samosir, Kiting, & Aninditya,(2020) who found out that mobile phones are mostly used by ODL students since they are easily affordable.

The study further found that 69.23% of the participants said that they received short messages (SMS) from university giving them important notifications while 30.77% said that they did not receive short messages (SMS) from university giving them important

notifications. This implies that most of the participants received short messages (SMS) from the university giving them important notifications. This further indicates the communication by the sampled universities was efficient in reaching every student even when offline. A study by Kondratenko, Simon, & Atamanyuk,(2017), indicated that most distance learners receive communications from their institutions through mail and short text messages.

Then lastly sought to establish the various communication devices the students use to access their ODL programmes, and the findings are shown in Table 4.10.

Table 4.10: Distribution of Respondents by Electronic Devices Owned

Device	Frequency	Percentage
None	4	1.41%
Smartphone/Tablet	142	50.18%
Computer/Laptop	98	34.63%
Both (Laptop and Smartphone)	39	13.78%
Total	283	100.00%

It was established that 50.18% of the students owned or had access to smartphone or tablets, 34.63% owned or had access to computer or laptop, 13.73% owned or had access to both laptop and smartphone while only 1.41% didn't own or have access to smartphone or laptop. This implies that the majority of the students owned or had access to smartphones because smartphones are more affordable. However, almost all students had access to one or two devices that could enable them to access ODL courses. This could be because This is also revealed in a study by Samosir *et al*. (2020) which indicated that gadgets and digitalized systems is mandatory in ODL programmes.

4.4 Inferential Analysis

This section presents inferential analysis to establish the extent to which the study variables influenced the retention of ODL students at the selected universities. The study sought to establish the extent to which learner support services of academic, administrative, counselling, technical and learner interactions influenced the retention of ODL at the three selected universities. Further, the study sought to establish the combined influence of learner support services on the retention of ODL learners. Finally, the study sought to determine the extent to which learner interactions moderated the relationship between learner support services and the retention of learners in ODL programmes at the selected universities.

4.4.1 Inferential Analysis of Academic Support Services and Retention of Learners

The first objective of the study sought determine to the extent to which academic support services influenced retention of learners in ODL programmes at the selected Universities in Kenya. The first hypothesis of th study was that academic support services did not have significant influence on the retention of ODL learners at the selected universities. With respect to this, multiple linear regression analyses were performed regressing advisory support, mentorship services, tutorial services, course materials support, and feedback against retention of learners in ODL programmes. Table 4.11 shows the model summary of the analysis of the influence of academic support services on retention of learners.

Table 4.11: Analysis of Influence of Academic Support Services on Retention of Learners

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	**0.775[a]**	**0.601**	**0.594**	**0.49176**

a. Predictors: (Constant), Advisory Support, Mentorship Services, Tutorial Services, Course Materials Support, Feedback

The R-Value indicated the correlation coefficient between the predicted and observed values of the dependent variable (Latunde, 2017). An R-value of 0.775 was achieved on the regression model regressing advisory support, mentorship services, tutorial services,

course materials support, and feedback against retention of learners in ODL programmes. This implies that there was a strong relationship between the observed and predicted values of retention of learners in ODL programmes. This therefore indicates that the model provided a good fit for the data and that it can be used to fit data for retention of learners in ODL programmes. The R-Square refers to the amount of variance in dependent variable explained by all the independent variables (predictors) (Latunde, 2017). The R-Square value of 0.601 was achieved in this model. This implied that advisory support, mentorship services, tutorial services, course materials support, and feedback cumulatively accounted for 60.1% of the variance in retention of learners in ODL programmes. This further implies that 39.9% of the variation in learner retention in ODL programmes is explained by other factors that were not under consideration in this model.

The Adjusted R-Square value on the other hand explains for variance accounted by only the significant predictor variables in the model. The achieved value of adjusted R-Square was 0.594. This therefore implies that the significant predictors in the model accounted for 59.4% of the variance in retention of learners in ODL programmes. Therefore, 40.6% of the variation in learner retention in ODL programmes is explained by other factors that were not considered in the model as well as non-significant predictors (among the academic support services) in the model. The standard error of the estimate gives the error term of the regression model as an indication of the prediction accuracy of the model as a whole (Latunde, 2016). A standard error of the estimate less than the standard unit of measurement (1 for a Likert scale) indicates high precision of the model while otherwise is an indication of low precision of the model. The standard error of the estimate achieved in this model was 0.49176 which indicated that the model predicting learner retention in ODL programmes using advisory support, mentorship services, tutorial services, course materials support, and feedback as predictors, was more accurate. Table 4.12 shows the significance of the model.

Table 4.12: Model Significance for Academic Support Services and Retention of Learners

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	101.413	5	20.283	83.873	0.000[b]
	Residual	67.228	278	0.242		
	Total	168.641	283			

a. Dependent Variable: Retention of Learners

b. Predictors: (Constant), Advisory Support, Mentorship Services, Tutorial Services, Course Materials Support, Feedback

The results indicate an F-statistic value of 83.873. The p-value was less than 0.05 thus implying that the regression model was statistically significant. This further indicates that at least one of the predictors in the multiple regression model is significant. The findings imply that the model provides a better fit for the data more than a model with zero predictors. The study further sought to establish the sensitivity of the regression model by evaluating the model coefficients as shown in Table 4.13.

Table 4.13: Model Coefficients for Academic Support Services and Retention of Learners

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	1.225	0.155		7.922	0.000
	Course Materials Support	0.170	0.050	0.237	3.403	0.001
	Tutorial Services	0.469	0.061	0.527	7.727	0.000
	Mentorship Services	0.123	0.029	0.171	4.295	0.000

Feedback	-0.056	0.042	-0.095	-1.327	0.186
Advisory Support	0.048	0.053	0.076	0.902	0.368

a. Dependent Variable: Retention of Learners

The study established that among the five predictor variables of learner retention, three were significant predictors and two were non-significant predictors. With respect to this, it was found that course materials support, tutorial services and mentorship services were the significant predictors of learner retention in ODL programmes while feedback and advisory support were not significant predictors. This implied that course materials support ($t=3.403$, $p<0.05$), tutorial Services ($t=7.727$, $p<0.05$), and Mentorship Services ($t=4.295$, $p<0.05$) significantly influence the level of learner retention in ODL programmes based on their t-statistic values and their associated p-values. On the other hand, it noted that feedback ($t=-1.327$, $p>0.05$) and advisory support ($t=0.902$, $p>0.05$) did not significantly influence the learner retention in ODL programmes based on the t-statistic and p-values.

Focusing on the unstandardized beta coefficients, it implies that one unit increase in course materials support leads to 0.170 units ($\beta=0.170$) increase in retention of learners in ODL programmes with other factors held constant. Similarly, the study revealed that one unit increase in tutorial services would result in 0.469 units ($\beta=0.469$) increase in learner retention in ODL programmes while other factors are held constant. One unit increase in mentorship services was found to result in 0.123 units ($\beta=0.123$) increase in the level of learner retention in ODL services. The feedback and advisory support given to students has very small but non-significant influence and thus would not constitute the regression model for the influence of academic support services on retention of learners in ODL programmes. Among the significant predictors of learner retention in ODL Programmes, support regarding tutorials had the highest influence on learner retention in ODL Programmes, followed by support on course materials and mentorship had the least influence on the retention of learners.

The first hypothesis of the study stating that; $H0_1$: Academic support services do not have a significant influence on retention of learners in ODL programmes at the selected

Universities in Kenya, was rejected at 5% significance level. This therefore implies that academic support services have a significant influence on retention of learners in ODL programmes at the selected Universities in Kenya in regard course materials support as well as tutorial and mentorship services. In line to this, Ojo (2021) found that academic support by the universities such provision of adequate learning materials and provision of results affected the rate in which learners were retained in open and distance learning in Nigeria. Based on these regression results, the following regression model was formulated.

$R=1.225 + 0.170X_1 + 0.469X_2 + 0.123X_3 + 0.49176$

Where, R=Retention of learners in programmes by distance education

X_1= Course materials

X_2= Tutorial services

X_3= Mentorship services

4.4.2 Inferential Analysis of Administrative Support Services and Retention of Learners

The second objective of the study was to establish the extent to which administrative support services influence the retention of learners in ODL programmes at the selected Universities in Kenya. In this part, the study presents inferential and descriptive analysis to establish the extent to which administrative support services influence the retention of ODL learners at the selected universities. The second study hypothesis to be tested was that administrative support services do not have significant influence on the retention of learners at the selected universities. This hypothesis was tested by carrying out a multiple regression analysis of student records, health services, financial support, program information, and support from staff against the retention of learners in ODL programmes. Table 4.14 shows model summary.

Table 4.14: Analysis of Influence of Administrative Support Services on Retention of Learners

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.731[a]	0.534	0.526	0.52813

a. Predictors: (Constant), Student Records, Health Services, Financial Support, Program Information, Support from Staff

Table 4.20 indicates an R-value of 0.731 which implied that the model provides a good fit for the data. The R-Square value of 0.534 achieved in this model implied that student records, health services, financial support, program information, and support from staff cumulatively explained 53.4% of variance in learner retention in ODL programmes. This further implies that 46.6% of the variation in learner retention in ODL programmes is explained by other factors that were not under consideration in this model.

The adjusted R Square of 0.526 achieved in this study implied 52.6% of the variance in learner retention in ODL programme is explained by the significant predictors in the regression model. Therefore, 47.4% of the variation in learner retention in ODL programmes is explained by other factors that were not considered in the model as well as non-significant predictors (among the administrative support services) in the model. Focusing on the standard error of estimate of 0.52813 achieved in this model, it implies that the model was accurate in its prediction since the error was less than the unit of measurement (1 for the Linkert scale). Model significance is shown in Table 4.15.

Table 4.15: Model Significance for Administrative Support Services and Retention of Learners

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	88.356	5	17.671	63.354	0.000[b]
	Residual	76.983	276	0.279		
	Total	165.339	281			

a. Dependent Variable: Retention of Learners

b. Predictors: (Constant), Student Records, Health Services, Financial Support, Program Information, Support from Staff

The significance of the model was shown by F (5.276) =63.354 and p<0.05. This therefore implied that the regression model whose predictor variables are student records, health services, financial support, program information, and support from staff and predicted variable is the retention of learners in ODL programmes; was statistically significant at 5% significance level. This further implies that the regression model contains at least one predictor variable which is significant at 5% significance level. The study further sought to establish which among student records, health services, financial support, program information, and support from staff were significant predictors of the retention of learners in ODL programmes and to what extent. The model significance results are as shown in Table 4.16.

Table 4.16: Model Coefficients for Administrative Support Services and Retention of Learners

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	1.424	0.169		8.448	0.000
	Program Information	0.161	0.058	0.212	2.760	0.006
	Health Services	0.129	0.035	0.219	3.720	0.000
	Financial Support	0.130	0.055	0.162	2.381	0.018
	Support from Staff	0.019	0.062	0.025	0.314	0.754
	Student Records	0.229	0.057	0.242	3.996	0.000

a. Dependent Variable: Retention of Learners

The study revealed that program information (t=2.760, P<0.05), health services (t=3.720, p<0.05), financial support (t=2.381, p<0.05) and student records support services (t=3.996, p<0.05) were statistically significant predictors of retention of learners in ODL programmes based on their t-statistic and p-values. Support from staff did not test significant at 5% significance level and thus its influence was not assumed (t=0.314, p>0.05).

Based on the unstandardized beta coefficients, the study established that one unit increase in program information support by the administration, the learner retention in ODL Programmes would increase by 0.161 units (β=0.161) with other factors held constant.

One unit increase in support related to health services would lead to 0.129 units (β=0.129) increase in the learner retention in ODL Programmes while other factors are held constant. Similarly, learner retention in ODL Programmes would increase by 0.130 units (β=0.130) if administration offers support to learners regarding financial services, while holding other factors constant. While other factors are held constant, one unit increase in support regarding student records, the level of learner retention in ODL Programmes would increase by 0.229 units (β=0.229). Among the significant predictors of the learner retention in ODL Programmes, support in regard to student records had the highest influence on learner retention in ODL Programmes, followed by support on program information, then financial support services and finally support in regard to health issues.

The second hypothesis stating that; $H0_2$: Administrative support services have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya, was rejected at 5% significance level. Therefore, the study confirmed that administrative support services have significant influence on retention of learners in ODL programmes at the selected Universities in Kenya and especially in regard to administrative support on ucourse information, health services, financial support and support on student records. These findings concur with those by Mutambo *et al.* (2018)who noted that administrative support was very crucial and determined attrition rates of students in open and distance learning.

The author further noted that administration was keen to support their students in all means possible to reduce deferment cases and also student drop out before completion of their courses. Based on the regression results in this study, the following regression model was formulated.

$R=1.124 + 0.161X_1 + 0.129X_2 + 0.130X_3 + 0.229X_4 + 0.52813$

Where R=Retention of learners in programmes by Distance Education

X1=Course information

X2=Health services

X3=Financial support

X4=Student records

4.4.3 Inferential Analysis of Counselling Support Services and Retention of Learners

The third objective of the study sought to determine the extent to which counselling support services influence the retention of ODL learners at the selected universities. The third hypothesis of the study was that counselling support services do not have any significant influence on the retention of learners at the selected universities. In testing this hypothesis, the study carried out multiple linear regressions to predict retention of learners in ODL programmes using external support, career guidance services, orientation services, time management, and counsellors' characteristics as the predictor variables. The model summary is as shown in Table 4.17.

Table 4.17: Influence of Counselling Support Services on Retention of Learners

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	**0.693[a]**	**0.481**	**0.471**	**0.55135**

a. Predictors: (Constant), External Support, Career Guidance Services, Orientation Services, Time Management, Counsellors

The study established that there was a moderate correlation between the predicted and observed values of retention of learners in ODL programmes. This is evidenced by an R-Value of 0.693. The value further implies that the model provided a moderate fit for the data. The R-Square value of 0.481 implied that 48.1% of the variation in retention of learners in ODL programmes would sufficiently be explained by the changes in external support, career guidance services, orientation services, time management, and counsellors' characteristics. Therefore, 51.9% of the variance in retention of learners in ODL programmes would be explained by other factors that this model did not focus on.

In regard to the adjusted R-Square value, the study revealed that significant counselling support services explained for 47.1% (adjusted R-Square value of 0.471) of the variance in retention of learners in ODL programmes. This implied that 52.9% of the changes in retention of learners in ODL programmes would be explained by the non-significant counselling support services together with other factors that were not under consideration in this model. The standard error estimate of the study was 0.5513 which implies that the model precision is high and thus more accurate. The study further sought to establish the model significance and whose results are shown in Table 4.18.

Table 4.18: Model Significance for Counselling Support Services and Retention of Learners

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	77.158	5	15.432	50.765	0.000[b]
	Residual	83.291	274	0.304		
	Total	160.450	279			

a. Dependent Variable: Retention of Learners

b. Predictors: (Constant), External Support, Career Guidance Services, Orientation Services, Time Management, Counsellors

The study observed that the model as a whole was statistically significant at 5% significance level as evidenced by F (5,274) =50.765 and p<0.05. This implied that the model for the influence of counselling support services on retention of learners in ODL programmes had at least one of the predictor variables was statistically significant. Table 4.19 shows the model coefficients for counselling support services and retention of learners to establish the significance and extent of influence of the predictor variables.

Table 4.19: Model Coefficients for Counselling Support Services and Retention of Learners

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.226	0.133		16.770	0.000
	Orientation Services	0.208	0.046	0.306	4.467	0.000
	Career Guidance Services	-0.056	0.050	-0.074	-1.127	0.261
	Counsellors	0.096	0.059	0.143	1.634	0.104
	Time Management	0.128	0.050	0.201	2.537	0.012
	External Support	0.135	0.059	0.178	2.287	0.023

a. Dependent Variable: Retention of Learners

The study established that counselling support services in respect to orientation services, time management and external support were significant predictors of retention of learners in ODL programmes. This was evidenced by t=4.467 and p<0.05 for orientation services, t=2.537 and p<0.05 for time management, and t=2.287 and p<0.05 for external support services. On the other hand, the study established that career guidance services and counsellor's characteristics did not significantly influence the level of retention of learners in ODL programmes. This is due to non-significant t-statistics of -1.127 and p>0.05 for career guidance services and t-statistic of 1.637 and p>0.05 for counsellor characteristics.

Focusing on the unstandardized beta coefficient, the study established that a unit increase in the level of orientation for the students in ODL programmes, the retention of learners in ODL programmes would increase by 0.208 units (β=0.208) while holding other factors constant. Similarly, it was revealed that 0.128 units (β=0.128) would be the increase in retention of learners in ODL programmes when counselling on time management is increased by one unit while holding other factors constant. While other factors are held constant, the study established that one unit increase in counselling services in regard to external support for the students, retention of learners in ODL programmes would increase by 0.135 units (β=0.135). Among the significant predictors (counselling services) of retention of learners in ODL programmes, the study established that orientation services had the greatest influence on retention of learners (β=0.208) in ODL programmes, followed by external support (β=0.135) for the learners and lastly the counselling on time management (β=0.128).

The third hypothesis stated that counselling support services have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya. This hypothesis was rejected at 5% significance level. It was therefore confirmed that counselling support services have significant influence on retention of learners in ODL programmes at the selected Universities in Kenya and especially in regard to orientation services, time management and external support for the students. Other studies have established that when counselling is offered to students in open and distance learning, the students are able to understand various components of the course and student turnover is reduced (Itasanmi & Oni, 2020; Perera & Lekamge, 2021).On the other hand, Makgopa (2022) noted that rarely was counselling done to students in open and distance learning due to long distance and less contact hours. The author, however, revealed that orientation services were adequately offered. Based on these results, the following regression model $R = 2.226 + 0.208X_1 + 0.128X_2 + 0.135X_3 + 0.55135$ was developed,

Where R=Retention of learners in programmes by Distance Education

X_1=Orientation services

X_2= Time management

X_3=External support

4.4.4 Inferential Analysis of Technical Support Services and Retention of Learners

The fourth objective of the study sought to establish the extent to which technical support services influence the retention of ODL learners at the selected universities. Similarly, the fourth hypothesis of the study was that technical support services did not have any significant influence on the level of retention of learners in ODL programmes. In respect to this, the study run a multiple linear regression whereby metrics of technical support services, that is, technical assistance, internet connectivity, digital literacy, computer proficiency, online learning materials were regressed against retention of learners in ODL programmes. The results are shown in Table 4.20, Table 4.21, and Table 4.22.

Table 4.20: Analysis of Influence of Technical Support Services on Retention of Learners

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.708[a]	0.501	0.492	0.55004

a. Predictors: (Constant), Technical Assistance, Internet Connectivity, Digital Literacy, Computer Proficiency, Online Learning Materials

The study established that there was a strong correlation between the predicted and observed values of the retention of learners in ODL programmes. This was evidenced by the R-value of 0.708. It further indicates the regression model provided a good fit for the data. The R Square value of 0.501 indicates that 50.1% of the variance in retention of learners in ODL programmes is cumulatively accounted by technical assistance, internet connectivity, digital literacy, computer proficiency, online learning materials; whether significant or not.

On the other hand, adjusted R Square value of 0.492 implied that 49.2% of the variance in retention of learners in ODL programmes was accounted by the significant predictors in technical support services (assistance and online learning materials). This influence eliminates the non-significant predictors in the model. High precision in the model was observed since the standard error of estimate of the model was less than one (e=0.55004) and thus the model would predict values that are closer to the observed values for retention of learners in ODL programmes. Model significance is shown in Table 4.21.

Table 4.21: Model Significance for Technical Support Services and Retention of Learners

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	84.784	5	16.957	56.047	0.000[b]
	Residual	84.410	279	0.303		
	Total	169.195	284			

a. Dependent Variable: Retention of Learners

b. Predictors: (Constant), Technical Assistance, Internet Connectivity, Digital Literacy, Computer Proficiency, Online Learning Materials

The regression model predicting retention of learners in ODL programmes using technical assistance, internet connectivity, digital literacy, computer proficiency, and online learning materials as predictor variables; was found to be statistically significant. This was evidenced by an F-statistic of 56.047 with 5 degrees of freedom for the regression and 279 degrees for the residuals as well as p-value less than 0.05 (p<09.05). Therefore, the model provides a better fit for the data and that at least one of the technical support services significantly influence the retention of learners in ODL programmes. Table 4.22 focuses on the specific predictors to establish the extent and significance of the influence at 5% significance level.

Table 4.22: Model Coefficients for Technical Support Services on Retention of Learners

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.498	0.156		9.573	0.000
	Computer Proficiency	0.072	0.055	0.089	1.324	0.186
	Online Learning Materials	0.169	0.059	0.205	2.878	0.004
	Digital Literacy	0.017	0.048	0.023	0.347	0.729
	Internet Connectivity	0.030	0.047	0.039	0.632	0.528
	Technical Assistance	0.362	0.058	0.434	6.220	0.000

a. Dependent Variable: Retention of Learners

The study revealed that among the technical support services offered to students, only technical support regarding online learning materials and technical assistance significantly influenced the retention of learners in ODL programmes. This was evidenced by significant t-statistic values and associated p-values for both online learning materials ($t=2.878$, $p<0.05$) and technical assistance ($t=0.362$, $p<0.05$). It was therefore noted that computer proficiency ($t=1.324$, $p>0.05$), digital literacy ($t=0.347$, $P>0.05$) and internet connectivity ($t=6.220$, $p>0.05$) did not significantly determine the retention of learners in the programmes. (Chebii, Wachanga, & Anditi, 2018) asserts that learners who choose e-learning and distance learning programmes have competitive advantage in regard to their proficiency in computer and digital literacy and have stable internet as prerequisite for the choice of study mode. Again, digital literacy, computer proficiency and internet connectivity are not skills that the universities help students to acquire but to apply and thus cannot influence their retention in the ODL programmes (Khumalo, 2018).

Based on the unstandardized beta coefficient, the study revealed that one unit increase in the level of technical support in online materials, the level of retention of learners in ODL programmes increases by 0.169 units (β=0.169) while other factors are held constant. In addition, one unit increase in the level of technical support towards technically assisting the students, the level of retention of learners in ODL programmes increases by 0.362 units (β=0.362) with other factors held constant. This further implies that technical assistance is more important to the students and had a high influence on learner retention as compared to online materials support.

The fourth hypothesis stated that; $H0_4$: Technical support services have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya. The current study rejected this hypothesis at 5% significance level. It was therefore noted that technical support services have significant influence on retention of learners in ODL programmes at the selected Universities in Kenya, specifically with regard to technical support on online materials and technical assistance to students.

These findings align with those by Osman and Walt (2022) who found that students were given technical support in their open and distance learning which was mostly in for of registration and logging in to their classes. The author noted that students could raise issues and technical challenges they faced, and the challenges were promptly solved. The following regression model was developed for adoption in ODL programmes.

$R= 1.498 + 0.169X_1 + 0.362X_2 + 0.55004$

Where R=Retention of learners in programmes by Distance Education

X1=Online learning materials

X2=Technical assistance

4.4.5 Inferential Analysis of Combined Learner Support Services and Retention of Learners

The fourth objective of the study was to determine the influence of combined learner support services on the retention of ODL learners at the selected universities. The corresponding hypothesis to be tested was that combined learner support services did not have any significant influence on the retention of ODL learners at the selected universities. Therefore, the study sought to establish the influence of combined learner support services and its influence on learner retention as a whole. In respect to this, the study carried out a multiple linear regression involving technical support services, academic support services, counseling support services, and administrative support services as predictor variables and retention of learners in ODL programmes as the predicted variables. The results for the regression are as shown in Table 4.23, Table 4.24, and Table 4.25.

Table 4.23: Analysis of Influence of combined Learner Support Services on Retention of Learners

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.754[a]	0.569	0.563	0.52288

a. Predictors: (Constant), Technical Support Services, Academic Support Services, Counselling Support Services, Administrative Support Services

The study revealed a strong correlation between both the predicted and observed values of retention of learners in ODL programmes as evidenced by an R value of 0.754. This indicates the regression model predicting retention of learners in ODL programmes using technical support services, academic support services, counseling support services, and administrative support services as predictor variables, provided a good fit for the data. In respect to this, the study noted that 56.9% of total variance in retention of learners in ODL programmes could be explained by cumulative variance in technical support services, academic support services, counseling support services, and administrative support services. This implies that 43.1% of the variance in retention of learners in ODL programmes was accounted for by other factors not considered in the current study.

The study further revealed that 56.3% of the variance in learners in ODL programmes is accounted for by significant learner support services in the model. This therefore excludes counselling services, which is not a significant predictor of the learners in ODL programmes as shown in Table 4.31. The study obtained a standard error of estimate of 0.52288 which is below one and thus implying that the model had high precision in its prediction. Table 4.24 shows the model significance for learner support services and learner retention in order to determine the appropriateness of the model and its implication as well as application.

Table 4.24: Model Significance for Learner Support Services and Retention of Learners

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	101.382	4	25.345	92.705	0.000[b]
	Residual	76.825	281	0.273		
	Total	178.207	285			

a. Dependent Variable: Retention of Learners

b. Predictors: (Constant), Technical Support Services, Academic Support Services, Counselling Support Services, Administrative Support Services

The ANOVA values of F (4,281) =92.705 and $p<0.05$ implied that the regression model was statistically significant as a whole. This further indicates that the model contains at least one significant predictor variable. Therefore, the model provides a good fit for the data and can be used to predict learner retention in ODL programmes. Table 4.25 depicts the model coefficients to establish the extent and significance of the learner support services.

Table 4.25: Model Coefficients for Learner Support Services and Retention of Learners

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.330	0.152		8.735	0.000
	Academic Support Services	0.295	0.059	0.365	5.004	0.000
	Administrative Support Services	0.224	0.076	0.239	2.927	0.004
	Counselling Support Services	0.020	0.059	0.024	0.342	0.732
	Technical Support Services	0.178	0.071	0.187	2.506	0.013

a. Dependent Variable: Retention of Learners

The study found out that among the learner support services: academic support services, administrative support services and technical support services significantly influenced the level of learner retention in ODL programmes while counselling support services was not. This is based on the t-statistic value of 5.004 and $p<0.05$ for academic support services, t-statistic value of 2.927 and $p<0.05$ for administrative support services, and t-statistic of 2.506 for technical support services. Counselling support services as whole had a t-statistic value of 0.342 which was not statistically significant at 5% significance level ($p>0.05$).

The results imply that in order to improve the retention of learners in ODL programmes, universities have to increase their academic support services, administrative support services and technical support services. It further implies that counselling services are inconsequential in determining the level of learner retention. One unit increase in the level of academic support services would lead to 0.295 units increase in learner retention in ODL programmes with other factors held constant. Consequently, a unit increase in the level of administrative support services would result in a 0.224 unit increase in learner retention in

ODL programmes with other factors held constant. Learner retention in ODL programmes would increase by 0.178 units when technical support services are increased by one unit while holding other factors constant. The study further noted that academic support services had the highest influence on the level of retention of learners on ODL programmes, then followed by administrative services and lastly technical support services. This therefore reveals the order of influence and importance to students and their retention on ODL programmers.

The fifth hypothesis of the study, $H0_5$: The combined learner support services have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya was therefore rejected at 5% significance level ($p>0.05$). The study therefore confirmed that combined learner support services have significant influence on retention of learners in ODL programmes at the selected Universities in Kenya, with reference to technical support services, academic support services, and administrative support services. These findings concur with those by Santos *et al.* (2019) who found that learning adopting open and distance learning were able to receive various support services which included academic support in terms of tutorials and course materials and also technical support as well as administrative support. The current results differed with those by Kgobe and Sebola (2021) who found that students were fully supported on matters regarding their counselling needs, and which improved the preference of the students in their given university. The study established that academic support is the highest predictor of retention ($t=5.004, p<0.005$), followed by administrative support($t=2.927, p<0.005$), then technical support ($t=2.506$, $p<0.005$) and lastly, counselling support services were not significant ($t=0.342$, $p<0.005$).

This finding will require ODL institutions to re-examine the nature and effectiveness of counselling support services. The following regression model was developed for learner retention in ODL programmes: $R=1.330 + 0.295X_1 + 0.224X_2 + 0.178X_3 + 0.52288$

Where: R=Retention of learners in programmes by Distance Education

X1= Academic support services

X2= Administrative support services

X3= Technical support services

4.4.6 Inferential Analysis of Learner Interactions and Retention of Learners

The sixth objective of the study sought to examine the extent to which learner interactions influence the retention of learners taking ODL programmes at the selected universities in Kenya. Accordingly, the sixth hypothesis of the study sought to establish whether learner interactions influenced the retention of learners in ODL the selected universities. To achieve this, the study performed a multiple linear regression analysis to predict learner retention in ODL programmes using assignment difficulty, content structure, interactions from instructors, use of ICT, and feedback from instructors as predictor variables. Table 4.26 shows the summary of the model for the influence of learner interactions on retention of learners.

Table 4.26: Analysis of Influence of Learner Interactions on Retention of Learners

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.713[a]	0.509	0.500	0.54579

a. Predictors: (Constant), Assignment Difficulty, Content Structure, Interactions from Instructors, Use of ICT, Feedback from Instructors

The study revealed an R value of 0.713 which indicated that the model for predicting learner retention using learner interaction metrics was significant and provided a good fit for the data. In addition, the R Square value of 0.509 revealed that 50.9% of the variance in retention of learners in ODL programmes is accounted for by assignment difficulty, content structure, interactions from instructors, use of ICT, and feedback from instructors cumulatively. However, 50.0% of the variance is accounted for by only the significant predictors of the model as revealed by an adjusted R Square value of 0.500. The model has a standard error estimate of 0.54579 which implies that the regression model was accurate in its prediction. The results on model significance for learner interactions and retention of learners are shown in Table 4.27.

Table 4.27: Model Significance for Learner Interactions and Retention of Learners

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	86.085	5	17.217	57.797	0.000[b]
	Residual	83.110	279	0.298		
	Total	169.195	284			

a. Dependent Variable: Retention of Learners

b. Predictors: (Constant), Assignment Difficulty, Content Structure, Interactions from Instructors, Use of ICT, Feedback from Instructors

The results for model significance for learner interactions and retention of learners were $F(57.797)=57.797$ and $p<0.05$. This therefore implied that the regression model was significant and can be used to fit learner interactions and retention of learners. It further indicates that at least one of the predictor variables in the model is significant. Table 4.28 shows the model coefficients to establish the significance of the individual predictors and sensitivity of the model.

Table 4.28: Model Coefficients for Learner Interactions and Retention of Learners

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.582	0.162		9.784	0.000
	Feedback from Instructors	0.184	0.060	0.257	3.058	0.002
	Interactions from Instructors	0.167	0.064	0.197	2.607	0.009
	Content Structure	0.124	0.053	0.150	2.356	0.019
	Use of ICT	0.018	0.060	0.022	0.306	0.760
	Assignment Difficulty	0.243	0.067	0.286	3.632	0.000

a. Dependent Variable: Retention of Learners

Assignment difficulty ($t=3.632$, $p<0.05$), content structure ($t=2.356$, $p<0.05$), interactions from instructors ($t=2.607$, $p<0.095$), and feedback from instructors ($t=3.058$, $p<0.05$) were found to be significant predictors of retention of learners in ODL services. This is because their t-statistics and p-values were statistically significant. On the other hand, the study established that learner interactions in the use of ICT did not have a significant influence on retention of learners in ODL programmes. This is due to t-statistic value of 0.306 and p-value greater 0.05 ($p<0.05$). This finding suggested that the skills of the learner in the use of ICT devices were not of any consequence in determining student retention in ODL programmes. The unstandardized beta coefficient indicates that one unit increase in learner interaction about feedback from instructors would increase retention of learners in ODL programmes by 0.184 units while holding other factors constant. It was also found that a one unit increase in the level of interactions with instructors would lead to a 0.167 unit increase in retention in their ODL programmes when other factors are held constant.

Consequently, one unit increase in the level of learner interactions towards content structure would result in 0.124 units increase in the level of retention in their ODL programmes, holding other factors constant. One unit increase in interactions of learners in aspects of assignment results in 0.243 units increase in retention in their ODL programmes while holding other factors constant. Among the learner interactions metrics, the study revealed that learner interactions towards assignments had the greatest influence on retention in their ODL programmes. The second highest influence was related to feedback from instructors while third was influenced because of interacting with instructors. Interaction on matters concerning the content structure had the least influence on retention in their ODL programmes.

The sixth hypothesis stated that; $H0_6$: Learner interactions have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya. This hypothesis was rejected at 5% significance level. It therefore implied that learner interactions have significant influence on retention of learners in ODL programmes at the selected Universities in Kenya, and specifically interactions on assignments, content structure, feedback from instructors and interactions with instructors. In line to this, Reju and Jita (2018) observed that the interactions of learners in ODL programmes with fellow learners as well as with their instructors influenced the support the students received and also the level of students' retention and attrition rates. The following multiple linear regression was developed.

$R= 1.582 + 0.184X_1 + 0.169X_2 + 0.124X_3 + 0.243X_4 + 0.545790$

Where R=Retention of learners in Programmes by Distance Education

X1= Feedback from instructors

X2= Interactions with instructors

X3=Content Structure

X4= Assignment difficulty

4.4.7 Inferential Analysis of Moderating Influence of Learner Interactions

The seventh objective of the study sought to establish the extent to which learner interactions moderate the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya. The seventh hypothesis tested whether learner interactions had any moderating effect on the relationship between combined learner support services and the retention of learners in ODL programmes at the selected universities. The study adopted Baron and Kenny (1986) three-step procedure for testing the moderation effect (Baron & Kenny, 1986). The procedure involves running a hierarchical linear regression with independent variables and interaction between the moderator and independent variables to predict the dependent variable. The procedure uses three models where the first model is a prediction of the dependent variable using the independent variables(s). The second model involves predicting the dependent variables using both the independent variable(s) and the moderator variable.

The third model is a regression of the independent variable(s), moderator variable cross-product of the independent variable(s) and the moderator variable against the dependent variable. The first and the second model tests for main effects while the third model tests for moderating effect,(Baron & Kenny, 1986; Memon, Cheah, Ramayah, Chuah, & Huei, 2019; Gedfand, Mensinger, & Tenhave, 2009;Mumtaz, et al., 2019))

The first model predicted the retention of learners in ODL programmes using technical support services, academic support services, counselling support services and administrative support services. The second model predicted the retention of learners in ODL programmes using technical support services, academic support services, counselling support services, administrative support services, and learner interactions. The third model predicted retention of learners in ODL programmes using technical support services, academic support services, counselling support services, administrative support services, learner interactions, and combined support services*learner interactions. The study carried out the three hierarchical linear regression models and their findings are shown in Table 4.29.

Table 4.29: Moderation Effect of Learner Interactions

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.754[a]	0.569	0.563	0.52288	0.569	92.705	4	281	0.000
2	0.755[b]	0.569	0.562	0.52354	0.000	0.288	1	280	0.592
3	0.755[c]	0.570	0.561	0.52394	0.001	0.567	1	279	0.452

a. Predictors: (Constant), Technical Support Services, Academic Support Services, Counseling Support Services, Administrative Support Services

b. Predictors: (Constant), Technical Support Services, Academic Support Services, Counseling Support Services, Administrative Support Services, Learner Interactions

c. Predictors: (Constant), Technical Support Services, Academic Support Services, Counseling Support Services, Administrative Support Services, Learner Interactions, Combined Support Services*Learner Interactions

According to (Mumtaz, et al., 2019), the R Square Change for all the three models have to be statistically significant for moderating effect to hold. However, the R Square Change in Model 2 (R Square Change=0.000, $p>0.05$) and Model 3 (R Square Change=0.001, $p>0.05$) in this study were statistically non-significant at 5% significance level. This implies that learner interactions were not a significant moderator of the relationship combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya. The study further examined the significance of the three models in order to confirm absence of moderation effect. The results are shown in Table 4.30.

Table 4.30: Model Significance for Moderation Effect of Learner Interactions

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	101.382	4	25.345	92.705	0.000[b]
	Residual	76.825	281	0.273		
	Total	178.207	285			
2	Regression	101.461	5	20.292	74.034	0.000[c]
	Residual	76.746	280	0.274		
	Total	178.207	285			
3	Regression	101.616	6	16.936	61.694	0.000[d]
	Residual	76.590	279	0.275		
	Total	178.207	285			

a. Dependent Variable: Retention of Learners

b. Predictors: (Constant), Technical Support Services, Academic Support Services, Counseling Support Services, Administrative Support Services

c. Predictors: (Constant), Technical Support Services, Academic Support Services, Counseling Support Services, Administrative Support Services, Learner Interactions

d. Predictors: (Constant), Technical Support Services, Academic Support Services, Counseling Support Services, Administrative Support Services, Learner Interactions, Combined Support Services*Learner Interactions

For moderation effect to hold, all the three model have to be statistically significant (Memon *et al.*, 2019). In the current study, all three models tested statistically significant due to $F(4,281)=92.705$, $P<0.05$; $F(4,280)=74.034$, $P<0.05$; and $F(4,279)=61.694$, $P<0.05$.

Based on these results the absence of a moderation effect could not therefore be confirmed. The study therefore further examined the beta coefficients for both the learner interactions and its cross-product with the combined learner support services. The results are shown in Table 4.31.

Table 4.31: Model Coefficients for Moderation Effect of Learner Interactions

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.330	0.152		8.735	0.000
	Academic Support Services	0.295	0.059	0.365	5.004	0.000
	Administrative Support Services	0.224	.076	0.239	2.927	0.004
	Counseling Support Services	0.020	.059	0.024	0.342	0.732
	Technical Support Services	0.178	.071	0.187	2.506	0.013
2	(Constant)	1.314	0.155		8.462	0.000
	Academic Support Services	0.287	0.061	0.355	4.703	0.000
	Administrative Support Services	0.208	0.082	0.222	2.529	0.012

	Counseling Support Services	0.019	0.059	0.023	0.327	0.744
	Technical Support Services	0.166	0.075	0.175	2.223	0.027
	Learner Interactions	0.041	0.076	0.044	0.536	0.592
3	(Constant)	0.898	0.575		1.562	.120
	Academic Support Services	0.328	0.082	0.406	4.013	0.000
	Administrative Support Services	0.231	0.088	0.246	2.632	0.009
	Counseling Support Services	0.056	0.077	0.068	0.735	0.463
	Technical Support Services	0.201	0.088	0.211	2.287	0.023
	Learner Interactions	0.152	0.166	0.162	0.915	0.361
	Combined Support Services*Learner Interactions	-0.034	0.046	-0.253	-0.753	0.452

a. Dependent Variable: Retention of Learners

Full moderation is achieved when the beta coefficient for the cross-product of moderating variable and predictor variable is not significant while partial moderation is achieved when the beta coefficient for the cross-product of moderating variable and predictor variable is significant. However, moderation effect to hold, the beta coefficient moderating variable should be statistically significant in Model 2 and Model 3 (Memon, Cheah, Ramayah, Chuah, & Huei, 2019).

However, learner interactions was not statistically significant in both Model 2 (t-0.536, p>0.05) and in Model 3 (t=0.915, p>0.05). Therefore, the absence of both full and partial moderation effect of learner interactions in the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya; was confirmed.

The seventh hypothesis stating that learner interactions have no significant moderating influence on the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya was not rejected at 5% significance level. Therefore, learner interactions have no significant moderating influence on the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya was rejected at a 5% significance level. Contrary to these results, Musingafi *et al*. (2015) observed that learner interactions moderated the effect of support mechanisms of students on the attrition level of students in open and distance learning. Other studies have revealed that interactions of students have the potential of affecting both support mechanisms as well as the degree completion rates of students in open and distance learning programmes, (Azadeh, 2023).

4.5 Descriptive Analysis

This section presents the analysis of descriptive statistics. The study presents the frequencies, percentages, mean and standard deviations regarding retention of learners, learner support services and learner interactions.

4.5.1Analysis of Likert-like data

The various statements associated with the study variables were measured using a five-point Likert Scale of 5-1 where 5=Strongly Agree (SA), 4=Agree (A), 3= Neither agree, Nor disagree (N), 2=Disagree (D), and 1=Strongly Disagree (SD). In a five-point agreement Likert scale ranging from 1 to 5 as in this study, a mean score of above 3.00 would imply a tendency to agree with the corresponding statement while a mean score of less than 3.00 would imply tendency to disagree. On the same scale, a standard deviation of 1.500 and above would imply a lack of consensus among the students in rating the corresponding metric while a standard deviation less than 1.500 would imply consensus (Wanjohi,2014; Latunde,2017).

4.5.2 Retention of Distance Learners

The study sought to establish the opinions of students regarding their retention in relation to various support services provided by their learning institutions. Table 4.32 shows the frequencies, percentages, mean and standard deviation for the various statements rating the extent to which various learner support services were provided.

Table 4.32: Descriptive Analysis of Retention of Learners

Retention of Learners	**SD**	**D**	**N**	**A**	**SA**	**Total**	
	F %	F %	F %	F %	F %	Mean	Std. Dev.
My assessment of the course is that I am fully satisfied	5 1.8%	22 7.7%	53 18.6%	119 41.8%	86 30.2%	3.91	0.974
It is a priority for me to graduate	1 0.4%	8 2.8%	18 6.3%	76 26.8%	181 63.7%	4.51	0.768
I am proud of the choice of my university	6 2.1%	19 6.7%	41 14.4%	77 27.1%	141 49.6%	4.15	1.038
I am sure I will enroll in the coming semester	2 0.7%	13 4.6%	38 13.5%	98 34.8%	131 46.5%	4.22	0.896
I am satisfied with the academic support services	9 3.2%	32 11.2%	55 19.3%	104 36.5%	85 29.8%	3.79	1.088
I am adequately informed about which staff I need to consult when I have questions about the course	13 4.6%	27 9.5%	45 15.8%	112 39.4%	87 30.6%	3.82	1.109

I am eager to graduate within the shortest required duration	1 0.4%	11 3.9%	22 7.7%	73 25.7%	177 62.3%	4.46	0.825
I have great opportunities to engage with my classmates during lessons	12 4.2%	28 9.9%	34 12.0%	104 36.6%	106 37.3%	3.93	1.126
I have enough resources to cater for my academic needs during the face-to-face residential sessions	20 7.0%	34 11.9%	46 16.1%	110 38.6%	75 26.3%	3.65	1.191
I enjoy interacting with all the ODL team and I feel comfortable with the community	8 2.8%	30 10.6%	40 14.1%	111 39.2%	94 33.2%	3.89	1.070
I am enjoying the educational experience I am at this University	13 4.6%	26 9.2%	37 13.0%	104 36.6%	104 36.6%	3.92	1.128
If asked for a recommendation, I will highly recommend my university to my friends.	27 9.5%	27 9.5%	34 11.9%	73 25.6%	124 43.5%	3.84	1.329
Composite Scores						**4.08**	**1.0452**

The study revealed that most of the students agreed that they were fully satisfied with the course (41.8%=Agree; 30.2%=Strongly Agree). On average, the study noted that most of the students tended to agree that their own assessment of the course is that they were fully satisfied as evidenced by a mean of 3.91 which is greater than 3.00.

A standard deviation of 0.974 achieved from the study, which is less than 1.500 indicated that there was a consensus in the responses given by students in regard to whether they are fully satisfied with the course. In line with this, study by (Perera & Lekamege, 2021) noted that the students enjoyed the experience they obtained from their online and distance courses.

The study indicated that on average the majority of the participants tended to agree that it was a priority for them to graduate as revealed by a mean of 4.51 obtained from the study, which is greater than 3.00. Regarding this, the study noted that 26.8% of the students agreed that it was a priority for them to graduate while 63.7% strongly agreed that it was a priority for them to graduate. The study achieved a standard deviation of 0.768 which is less than 1.500 which implied a commonness in the responses given by the participants regarding the statement that it was a priority for them to graduate. The study findings agree with those of (Simukanga, 2020) who found that one of the reasons for distance learners to persist in their programmes of study was the desire to complete the programme.

It was further noted that the majority of the students agreed that they were proud of the choice of their university (27.1%=Agree; 49.6%=Strongly Agree) as evidenced by a mean of 4.15, which is greater than 3.00. A standard deviation of 1.038 achieved, which is less than 1.500 indicated that there was a consensus in the responses obtained from the students in regard to the statement that that they were proud of the choice of their university. This is consistent with other studies that noted that ODL students choose the university they are interested and are proud to be part of (Anaekwe & Nnaka, 2017; Perera & Lekamge, 2021)

The study established that 34.8% of the participants agreed that they were sure they would enroll in the coming semester while 46.5% strongly agreed with the same statement. It was noted that on average, the majority of the participants tended to affirm that they were sure they would enroll in the coming semester as evidenced by a mean of 4.22. The study noted

a consensus in the responses given by the participants in regard to the statement that they were sure they would enroll in the coming semester as revealed by a standard deviation of 0.896 achieved in the study which is less than 1.500. In line to these findings, (Fu, 2022) asserts that the ODL learners were optimistic of enrolling for the following semesters till the completion of their course of study. This finding agrees with the theories of Tinto which highlight integration both socially and academically as being critical in the decision of the learners to withdraw or persist in ODL programme.

The study observed a commonness in the responses obtained from the students in regard to whether they were satisfied with academic support services as evidenced by a standard deviation of 1.088 achieved which is less than 1.500. It was noted that the majority (39.5%=Agree; 29.8%=Strongly Agree) of the students agreed that they were satisfied with academic support services as revealed by a mean of 3.79 which is greater than 3.00. Study done by Imam (2021) indicated that the learners were satisfied with the academic support services offered in ODL programmes and thus congruence.

It was revealed that 39.4% of the students agreed while 30.6% strongly agreed that they were adequately informed about which staff they needed to consult when they had questions about the course. This implies that on average most of the students tended to agree that they were adequately informed about which staff they needed to consult when they had questions about the course as evidenced by a mean of 3.82, which is greater than 3.00. A standard deviation of 1.109 was achieved on this metric implying that there was a consensus in the responses obtained from the students regarding the statement that they were adequately informed about which staff they needed to consult when they had questions about the course. This study concurs with a study by (Santos, Junior, & De Larceda, 2019) that established that providing adequate information to the students could influence the retention of learners.

The study established that the majority of the students agreed that they were eager to graduate within the shortest required duration (25.7%=Agree; 62.3%=Strongly Agree) as revealed by a mean of 4.46 which is greater than 3.00. The study observed a commonness in the responses given by the students regarding the statement that they were eager to

graduate within the shortest required duration as evidenced by a standard deviation of 0.825 which is less than 1.500. In line to this, Helder, (2015) indicated that most of distance learners are motivated to pursue persistently their programme of study by the desire to earn a degree.It was found that on average the majority of the students affirmed that they had great opportunities to engage with their classmates during lessons (36.6%=Agree; 37.3%= Strongly Agree) as evidenced by a mean of 3.93. A standard deviation of 1.126 was achieved on this metric which is less than 1.500 implying that there was a consensus in the responses obtained from the students in regard to the statement that they had great opportunities to engage with their classmates during lessons. Study done by (Osman & Walt, 2022)revealed that there was provision of opportunity for more student-student interaction and thus congruence.

The study indicated majority of the students agreed that they had enough resources to cater for their academic needs during the face-to-face residential sessions (38.6%=Agree; 26.3%= Strongly Agree). This is further evidenced by a mean of 3.65 obtained (greater than 3.00). The study noted a commonness in the responses given by the students in regard to the statement that they had enough resources to cater for their academic needs during the face-to-face residential sessions as revealed by a standard deviation of 1.191 (which is less than 1.500). This finding was contrary to the study by Ojo, (2021) that indicated that there was not enough educational resources for ODL students during face-to-face residential sessions. The results from the study revealed that 39.2% of the students agreed that they enjoyed interacting with all the ODL team and they felt comfortable with the community. Similarly, 33.2% of the students strongly agreed that they enjoyed interacting with all the ODL team and they felt comfortable with the community. The study also noted that on average the majority of the students tended to agree that they enjoyed interacting with all the ODL team and they felt comfortable with the community as evidenced by a mean of 3.89.

A consensus was observed in the responses obtained from the students in regard to the statement that they enjoyed interacting with all the ODL team and they felt comfortable with the community as revealed by a standard deviation of 1.070 achieved which is less than 1.500. These findings agree with those of a study by Khumalo, (2018) which

established that a good interaction between the ODL students and lecturers influences retention.

The study noted that the majority (36.6%=Agree; 36.6%=Strongly Agree) of the students agreed that they were enjoying the educational experience they had at that University as revealed by a mean of 3.92 which is greater than 3.00. A standard deviation of 1.128 was achieved in the study which is less than 1.500 implying a consensus in the responses given by the students in regard to the statement that they were enjoying the educational experience they had at that University. This agreed with Itasanmi & Oni, (2020) who found that learning experiences from ODL programmes was enjoyable. This finding was also supported by the qualitative finding. One of the participants from an FGD said:

"*So, these Learner support services affect the learning retention of this program…Yes, very much. There is quite a number especially let me give an example where we had the movement from the face to face to an online platform, that kind of technical problem made others drop out and not graduate in time"* (UON_FGD).

Further, the results from the study revealed that 25.6% of the students agreed that if asked for a recommendation, they would highly recommend their university to their friends. Similarly. 43.5% strongly agreed that if asked for a recommendation, they would highly recommend their university to their friends. This implies that on average the majority of the students tended to agree that if asked for a recommendation, they would highly recommend their university to their friends as evidenced by a mean of 3.84 which is greater than 3.00. The study noted a commonness in the responses given by the students in regard to the statement that if asked for a recommendation, they would highly recommend their university to their friends as revealed by a standard deviation of 1.329 achieved (which is less than 1.500).

Study by Santos, Junior, & De Larceda, (2019) indicated that the students were comfortable with their universities and recommended their friends to join them and thus implying consistency with the current findings. However, these views were also buttressed by the qualitative data from FGDs and KIIs. The qualitative findings also affirmed that lack of

school fees is one of the major challenges besides the provision of support services. This excerpt came from one of the KIIs:

"The issue of retention is complex. What I've seen is that if you leave alone issues to do with learner support, academic support, counselling, administrative support and technical, there's also the other factor of the fee. So, people want to move to another university based on the fact that they're charging less fees. So, a university that is charging less fee, even if there is poor administrative support, retains more students compared to a university, which has good learner support, and good administrative support, but the fee is high. So, there is that dynamic, especially in terms of retention, based on learner support, and so on and so forth" (KII-KU-_02).

Another issue that came was the issue of learner participation which was affected by the non-availability of sufficient data. A participant said this:

> *"I think we provide students with sufficient bundles so that they can attend the meetings without missing. So, you realize even in our group for instance, some of us leave because we don't have - the minutes they have already finished, they have to buy another one so that they come back to the group. So, if they have sufficient bundles or internet, they can easily retain without leaving"* (FGD_KU_)

The participants raised a number of challenges associated with ODL: First, was academic loneliness. Distance education learners may feel isolated and disconnected from their peers and instructors. This can negatively affect their motivation and retention in the program. A KII said this:

"I would say it is the issue of - do I say the fact that they are working from very far away, and they are working alone? That loneliness, if I may put it in quotes, that academic loneliness probably makes them feel like they don't want to continue" (KII_MKU)

Secondly students have financial challenges associated with tuition fees, textbook costs, and other educational expenses, which can affect their ability to complete their studies. One FGD made this contribution:

"Students who are unable to pay their school fees may be forced to drop out of school, hence affecting their retention in the programme".

A respondent from one of the FGDs said:

"I think it has an effect for example, some learners depend on the money that is given to them to pay their fees and you can find out that when they cannot get that money to pay the school fees, they might drop out of school because they lack enough money to pay for their fees" (FGD_MKU)

The third challenge ODL face is, lack of adequate online learning materials. The study found out that some online students struggle with inadequate or poorly designed online learning materials. In support of this finding one of the participants from an FGD said this:

"Okay, in my opinion, support services play a very vital role in the retention of students in an institution. So, services like scholarships, and the issuance of online learning resources, lack of such services might lead one to maybe change the mode of study or even transfer to another campus due to the lack of such services. So, they really play a very vital role in the retention of students in an institution" (FGD_MKU)

Fourthly, external factors such as family responsibilities, work commitments, health issues, and other life events were noted as having an effect on the retention of learners. One of the KIIs said:

", learner support service does not even affect the issue of retention. The support service is there, I think it is the attitude of the students. Because for one, for a university to transit 50% and delay 50%, the delay is a tripartite issue. It is the teaching staff that is delaying the students. That all students themselves or there are some external factors which are not part of the university at all" (KII_KU -01)

4.5.3 Descriptive Analysis of Influence of Academic Support Services on retention of ODL learners

Table 4.33 shows the results of the study in regard to descriptive statistics for academic support services. The academic support services were measured in terms of course materials or modules support, tutorial services, mentorship services, feedback on course work and in regard to supervisory or advisory support.

Table 4.33: Descriptive Findings on Academic Support Services

Academic Support Services	SD	D	N	A	SA	Total	
	F	F	F	F	F	Mean	Std.
	%	%	%	%	%		Dev
My course instructor **gives** subject assignments promptly	8	15	34	126	102	4.05	0.970
	2.8%	5.3%	11.9%	44.2%	35.8%		
My instructor gives immediate feedback on my assignments	36	53	51	99	47	3.24	1.281
	12.6%	18.5%	17.8%	34.6%	16.4%		
The instructor gives positive and encouraging remarks on my academic work	14	32	68	100	69	3.63	1.117
	4.9%	11.3%	24.0%	35.3%	24.4%		
The feedback from my instructor mirrors a one-on-one conversation interaction as opposed to mere instructions and guides as in traditional face-to-face learning	22	36	51	113	64	3.56	1.188
	7.7%	12.6%	17.8%	39.5%	22.4%		

I often access learning resources**,** and this enables me to quickly finish my tasks	11 3.9%	39 13.7%	46 16.1%	104 36.5%	85 29.8%	3.75	1.138
The course is integrated with assessment and evaluation at the end of the course	4 1.4%	17 6.0%	28 9.9%	122 43.1%	112 39.6%	4.13	0.920
My every end of year result i**s** availed on time	73 25.6%	38 13.3%	42 14.7%	74 26.0%	58 20.4%	3.02	1.496
Tutorial services are adequate	26 9.1%	52 18.2%	39 13.7%	103 36.1%	65 22.8%	3.45	1.274
Instructors mark assignments promptly and give constructive feedback	46 16.2%	53 18.7%	45 15.8%	71 25.0%	69 24.3%	3.23	1.419
Instructors help students to choose and implement learning strategies	20 7.0 %	45 15.8 %	50 17.5%	100 35.1%	70 24.6%	3.54	1.217
Instructional content and modules are updated and relevant	14 4.9 %	46 16.3 %	50 17.7%	90 31.8%	83 29.3%	3.64	1.201
All the course content/modules are readily available	24 8.4%	46 16.1%	46 16.1%	89 31.2%	80 28.1%	3.54	1.282
Composite Scores						**3.54**	**1.28**

In regard to academic support services, the study found that majority of the students agreed that their course instructors gave subject assignments promptly (44.2%=Agree; 35.8%=Strongly Agree). This is further evidenced by a mean of 4.05 achieved from the statement (which is greater than 3.00). The study established consensus in the responses given by students in regard to whether their course instructors gave subject assignments promptly as revealed by a standard deviation of 0.970 (which is less than 1.500). Study by (Itasanmi & Oni, 2020) ?indicated that the major assessment mechanisms in ODL are assignments and tests which were promptly given.

The study further observed that on average, the majority (34.6%=Agree; 16.4%=Strongly Agree) of the students tended to agree that their instructors gave immediate feedback on their assignments as evidenced by a mean of 3.24 which is greater than 3.00. A standard deviation of 1.281 was achieved implied that there was a consensus in the responses given by the students about the statement that their instructors gave immediate feedback on their assignments. In line to this, Khumalo (2018) asserts that instructors gave regular feedback on the assignments given to students.

It was revealed that most of the students agreed that the instructors give positive and encouraging remarks on their academic work (35.3%=Agree; 24.4%=Strongly Agree) as evidenced by a mean of 3.63 achieved. In addition, a standard deviation of 1.117 achieved in the study indicated a consensus in the responses given by the students regarding the statement that the instructors gave positive and encouraging remarks on their academic work. Study by (Itasanmi & Oni, 2020) ?indicated that the student instructors gave amazing reports and positive comments on their performance in their academic work and thus congruence.

The study established that 39.5% of the students agreed that the feedback from their instructors mirrored a one-on-one conversation interaction as opposed to mere instructions and guides as in traditional face-to-face learning. Similarly, 22.4% strongly agreed that the feedback from their instructors was similar to a one-on-one conversation interaction as opposed to mere instructions and guides as in traditional face-to-face learning.

This implies that on average the majority of the students tended to agree that the feedback from their instructors mirrors a one-on-one conversation interaction as opposed to mere instructions and guides as in traditional face-to-face learning. The study observed a commonness in the responses obtained from the students regarding the statement that the feedback from their instructors mirror a one-on-one conversation interaction as opposed to mere instructions and guides as in traditional face-to-face learning. This was revealed by a standard deviation of 1.188 achieved on the statement. In line to this, Itasanmi and Oni (2020) asserts that ODL learners received useful advice, and the feedback from their supervisors was timely.

The study further indicated that most of the students agreed that they often access learning resources, and this enables them to quickly finish their tasks (36.5%=Agree; 29.8%=Strongly Agree). This is further evidenced by a mean of 3.75 obtained from the study which is greater than 3.00. A standard deviation of 1.138 achieved from the study which is less than 1.500 implies that there was consensus in the responses given by the students regarding the statement that they often access learning resources, and this enable them to quickly finish their tasks.

It was observed that on average the majority of the students tended to agree that the course is integrated with assessment and evaluation at the end of the course (43.1%=Agree; 39.6%=Strongly Agree) as revealed by a mean of 4.13. The study noted that there was a commonness in the responses given by the students in regard to the statement that the course is integrated with assessment and evaluation at the end of the course. This is evidenced by a standard deviation of 0.920 which is less than 1.500. Other studies revealed that integrating course with assessment and evaluation ensures intended developmental goals are achieved and protects the quality of education delivered to learners from deteriorating (Osman & Walt, 2022).The study found that 26.0% of the students agreed that their every end of year exam results was availed on time while 20.4% strongly agreed that their every end of year exam results is availed on time. However, 25.6% strongly disagreed and 13.3% disagreed that their every end of year results is availed on time.

This implies that on average the majority of the students were indifferent on whether their every end of year exam results were availed on time as evidenced by a mean of 3.02.
A standard deviation of 1.496 was achieved in the study implying that there was a low consensus in the responses given by the students in regard to the statement that their every end of year results is availed on time. A study by Musingafi *et al.* (2015) revealed that student instructors delayed end of course examination results.Results from the study indicated that 25.0% of the students agreed that instructors mark assignments promptly and give constructive feedback while 24.3% strongly agreed with the same. This implies that on average the majority of the students tended to agree that instructors mark assignments promptly and give constructive feedback as evidenced by a mean of 3.23 which is greater than 3.00. The study noted a commonness in the responses obtained from the study in regard to the statement that instructors mark assignments promptly and give constructive feedback. This was revealed by a standard deviation of 1.419 which is less than 1.500.

The study established that most of the students agreed that instructors help students to choose and implement learning strategies (35.1%=Agree; 24.6%=Strongly Agree) as evidenced by a mean of 3.54 which is greater than 3.00. A standard deviation of 1.217 was achieved in the study which is less than 1.500 indicating that there was a consensus in the responses given by the students in regard to the statement that instructors help students to choose and implement learning strategies. The findings were contrary to those by Ojo (2021) who found out that ODL students were faced with the challenge of academic support and lack of communication from the instructors.

The study further found that on average the majority (31.8%=Agree; 29.3%=Strongly Agree) of the students affirmed that instructional content and modules are updated and relevant as revealed by a mean of 3.64. The study noted a consensus in the responses obtained from the study in regard to the statement that instructional content and modules are updated and relevant as evidenced by a standard deviation of 1.201 which is less than 1.500. This is contrary to the study done by Reju and Jita (2018) which indicated that some students were not satisfied with the instructional curriculum and modules alignment.

The result from the study revealed that 31.2% of the students agreed that all the course content/modules are readily available. Similarly, 28.1% strongly agreed that all the course content/modules are readily available. This implies that on average most of the students tended to agree that all the course content and modules are readily available as evidenced by a mean of 3.54 which is greater than 3.00. The study achieved a standard deviation of 1.282 which is less than 1.500 implying that there was a consensus in the responses given by the students regarding the statement that all the course content and modules are readily available. Study by Perera and Lekamge (2021) noted asserts that the study materials were available and the students could access them easily.

The findings from FGDs and KIIs agreed with the quantitative findings on course material, tutorial services, mentorship services and supervisory support. In terms of course materials, they have a significant impact on the effectiveness of any academic program. The study found out that the materials are available and updated. However, some participants said that the materials are not updated or reviewed at their university. A lecturer from one of the universities, (KII-KU) said:

"These course materials are not updated but the lecturer updates reverberate as they interact. Because these materials were synced in the platform long ago. They were paid off, and nobody is ready to pay for revision" (KII-KU).

However, another KII from another university (MKU) differed with the other and noted the following about course materials.

"They are easily accessible, and I can also say at the same time, they are regularly updated" (KII_MKU_02).

The above opinion was also agreed by the KII from UoN who said:

"Yes, I can say that the materials posted on the E-class system are very current because each semester the lecturer is allocated the course on the system, and they must upload the materials that they are teaching on that semester in the platform so that the students who have registered for that course can access them. And with this, we also offer training each semester, just to remind the lecturers on how to upload the materials. So, I can actually say the materials are very current" (KII_UON_01)

Similarly, it was also attested that learners received academic support when joining and continuing with ODL programme (FGD from University 2)

"There's been support from the university, mostly when you're joining, they have numerous support they give. Such as when you link with them online, they tend to send you the materials which you will use to get the information before they examine you. So, in our emails, it is always constant that whenever you ask for any material that you may want to use, whenever you're away from school, that is, if you're doing long-distance studies, they are always available. The lecturer will always support you. They always send them in our email so that we get that information" (FGD_KU_01)

Another aspect that the study investigated on academic support services was on tutorial services.: Focused group discussions from university two (FGD-KU) and two KIIS from university three (3) made the following remarks:

"Okay, concerning the utilization of tutorial services, we can say that at the university where I learn, we have tutorial classes online, and the lecturer attends and teaches the course throughout…about the tutorial services in the institution where I am. It's perfect. Because you find that we have got lecture times and lecture groups where we go there, the large group we are taught, then after that, we are divided into small groups and assigned different lectures for the tutorials whereby you're free now and being that smaller group, you can now easily interact with the lecturer and ask on the points that at least you need clarification. So, it's best. Yeah, actually, it's best" (FGD_KU_01)

Besides the provision of tutorial support, the study found out that some universities make use of the WhatsApp platform to reach out to students, share information and mobilize them.

"Most of the time you find students - who know how to mobilize themselves and once they've been able to know the lecturer who is teaching that unit, they always have representatives. So that representative will form a WhatsApp group and then include the name of the lecturer within that WhatsApp group. So, if they have challenges with the portal, or with the platform, they will always engage you through WhatsApp telling you Mwalimu, we can't get notes, can you send them here? Or Mwalimu can you give us maybe an assignment through WhatsApp and such kind of stuff? So as a lecturer, you are also privy to the fact that there are people in very remote areas who are not able to access these portals genuinely (KII_MKU_02).

Another measure that universities are putting in place to promote access to course materials is recording the live proceedings for those students who might have missed to attend due to various reasons: One of the KIIs had this to say:

"Now, to supplement those who may have issues with the internet connectivity, we record the proceedings or the lessons like we are recording this particular interview, and then all the recorded lessons are now uploaded into the e-learning platform and those students probably for one reason or another, who may have had issues to do with internet connectivity are now supported in terms of being able to go through the lesson from wherever they are at a time of their convenience" (KII_MKU_01)

The study established that mentorship services were available. The following are the contributions from FGDs and KIIs in support of mentorship services.

"On mentorship, in the university I am at, we are being assigned academic advisors. Like, I have a good academic advisor who keeps on calling me, checking on me, whatever I'm doing where I am, and whether I do my assignment. So, in our university, I think when we have academic advisors, they will always be with us to check on whatever we're doing" (FGD_KU_01)

The study found out that Participants receive prompt and timely feedback from their teaching staff. The following is the contribution made from the KIIs:

"I would say the feedback is as per what the lecturer has given to the students. Because of course, when you give an assignment, for example, you state when you require the assignment to be handed in. After the assignment has been handed in then there is that time that you give yourself to mark. So, Mark, grade and then submit back the feedback to the students" (KII_MKU_01)

"I would rate it at five because from what I've seen of all the issues that have been raised by the students, the lecturers are always very prompt in responding to all.

However, the delay was caused by the high number of students as per this contribution by one of the KIIs.

> *"Because of the volume, involved in social science in the area, it's tricky to make visualized comments on students' scripts unless the student has scored poorly, or extremely poorly. Now you need a reason to justify. You can say that the answers you gave were all irrelevant and the answers you give seem to be not coherent or you are too brief. So, if a student has failed, in your paper, you must give a justification, and you must write there so that the student understands why he has failed. But above average students on my side, I don't give any comments"* (KII_UON_02).

The study established that participants received advisory support in their ODL programmes. However, they noted that the services are not adequate and untimely. One of the FGDs said:

> *"The department allocates us students for supervision purposes, and we do it effectively…because of the big number of students, sometimes it's hard for a tutor to follow individual cases or individual students to find out why they've not turned up and so we leave that squarely the responsibility of students to make an appointment with the lecturer in charge"* KII_UON_02

However, the main challenge that is associated with this support is that some lecturers assigned as supervisors are not necessarily allocated in their areas of specialty. The following caption came from one of the KIIs.

> *'The reasoning behind that is that the lecturer given to one group of students may not be well-versed with everything about all the other units. And you know there are many. So, the best way to do it according to us is that if you are teaching education technology, answer questions on Education Technology because that's where you are an expert"*(KII_MKU_01).

4.5.4 Descriptive Analysis of Influence of Administrative Support Services on Retention of ODL Learners

The level of administrative support was measured in terms of the level of support in course information, health services, financial support, support from staff and support on student records. The descriptive results for the study regarding administrative support are shown in Table 4.34.

Table 4.34: Descriptive Findings on the Level of Administrative Support Services

Administrative Support Services	**SD**	**D**	**N**	**A**	**SA**	**Total**	
	F	F	F	F	F	Mean	Std.
	%	%	%	%	%		Dev
Admin staff help with admission and registration and give very easy-to-follow instructions	5	9	39	117	117	4.16	0.897
	1.7%	3.1%	13.6%	40.8%	40.8%		
The university offers the flexibility of students to register and enroll using online platforms	5	13	21	129	119	4.20	0.888
	1.7%	4.5%	7.3%	44.9%	41.5%		

The institution provides adequate information on schedules and curriculum details on the website	8 2.8%	16 5.6%	50 17.6%	108 38.0%	102 35.9%	3.99	1.009
Learners have access to university health services	35 12.3%	31 10.9%	51 17.9%	101 35.4%	67 23.5%	3.47	1.296
The university provides payment procedures, financial statements, fees balance on online platforms	3 1.1%	14 4.9%	27 9.5%	89 31.4%	150 53.0%	4.30	.911
University uses ODL centres to reach off-campus students	12 4.2%	19 6.7%	43 15.1%	113 39.6%	98 34.4%	3.93	1.068
The fees payment plans are tailored according to individual student needs	35 12.3%	32 11.2%	41 14.4%	91 31.9%	86 30.2%	3.56	1.348
University has programmes for field visits to offer face-to-face contact with learners.	39 13.8%	31 11.0%	56 19.9%	89 31.6%	67 23.8%	3.40	1.331
The admin staff are very helpful and approachable	18 6.3%	29 10.1%	46 16.1%	103 36.0%	90 31.5%	3.76	1.181
Composite Scores						**3.863**	**1.1032**

Regarding administrative support services, the study found that the majority of students agreed that admin staff help with admission and registration and give very easy-to-follow instructions (40.8%=Agree; 40.8%=Strongly Agree). This is further evidenced by a mean of 4.16 which is greater than 3.00. The study achieved a standard deviation of 0.897 which is less than 1.500 implying that there was a consensus in the responses given by the students in regard to whether the admin staff help with admission and registration and give very easy to follow instructions. In line to this, Imam (2021) asserts that ODL students are given simple guidelines to follow when registering for their courses.

The study further noted that on average the majority of the students tended to agree that the university offers the flexibility for students to register and enrol using online platforms (44.9%=Agree; 41.5%=Strongly Agree). This was evidenced by a mean of 4.20 which is greater than 3.00. A standard deviation of 0.888 was achieved indicating that there was a consensus in the responses given by the respondents regarding the statement that the university offers the flexibility of students to register and enrol using online platforms. Study done by (Sifuna & Obonyo, 2019)noted that students enrol in open and distance learning programs majorly as a result of the flexibility in learning the ODL programs through online platforms, and thus consistent with the current findings.

It was established that 38.0% of the students agreed that the institution provides adequate information on schedules and curriculum details on the website. Similarly, 35.9% strongly agreed that the institution provides adequate information on schedules and curriculum details on the website. This implies that on average most of the students affirmed that the institution provides adequate information on schedules and curriculum details on the website as revealed by a mean of 3.99. The study observed a commonness in the responses obtained from the study in regard to the statement that the institution provides adequate information on schedules and curriculum details on the website as evidenced by a standard deviation of 1.009 which is less than 1.500. Study by Ojo (2021) indicated that the institution ensured that the curriculum content and instructional approaches in the university websites are appropriate for each learner.

The study indicated that the majority of the students agreed that learners have access to university health services (35.4%=Agree; 23.5%=Strongly Agree) as evidenced by a mean of 3.47 which is greater than 3.00. A consensus in the responses from the students was noted regarding the statement that learners have access to university health service as revealed by a standard deviation of 1.296 achieved in the study which is less than 1.500. This is contrary to the study done by (Santos, Junior, & De Larceda, 2019) which noted that ODL students had limited access to the university healthcare services.

The study also observed that 31.4% of the students agreed that University provides payment procedures, financial statements, and fees balances on online platforms. Similarly, 53.0% strongly agreed that University provides payment procedures, financial statements and fees balance on online platforms. This implies that on average most of the students tended to agree that University provides payment procedures, financial statements, and fees balances on online platforms as revealed by a mean of 4.30 which is greater than 3.00. The study achieved a standard deviation of 0.911 which is less than 1.500 implying that there was a consensus in the responses given by the students in regard to the statement that University provides payment procedures, financial statements, and fees balances on online platforms. These findings were in agreement with a study by Mutambo and Winterbottom (2018), which indicated that accessing financial reports and payment procedures in the student online portal influenced the satisfaction of students with the learner support services and decision to continue being retained.

It was established that on average, the majority of the students affirmed that University uses ODL centres to reach off-campus students (39.6%=Agree; 34.4%=Strongly Agree) as evidenced by a mean of 3.93. A standard deviation of 1.068 was achieved in the study implying that there was a consensus in the responses obtained from the students in regard to the statement that University uses ODL centres to reach off-campus students. Khumalo (2018) noted that the dean of students established the Off-Campus Student Life Office.in an effort to give off-campus students a central venue to access advice, support, and resources for their off-campus experience.

The results from the study revealed that the majority (31.9%=Agree; 30.2%=Strongly Agree) of the students agreed that the fees payment plans are tailored according to individual student needs. This is further evidenced by a mean of 3.56 obtained from the study which is greater than 3.00. The study noted a commonness in the responses given by the students regarding the statement that the fees payment plans are tailored according to individual student needs as revealed by a standard deviation of 1.348 which is less than 1.500. Study by Fu (2022) assert that payment options are available for the students who are not able to pay the whole amount of their fees balance.It was noted that on average the majority of the students tended to affirm that University has programmes for field visits to offer face-to-face contact with learners (31.6%=Agree; 23.8%=Strongly Agree) as indicated by a mean of 3.40. There was consensus observed from the study in the responses given by the students in regard to the statement that University has programmes for field visits to offer face to face contact with learners as revealed by a standard deviation of 1.331 which is less than 1.500. Osman and Walt (2022) noted that filed trips were used as educational tool to connect the ODL students with the classroom concepts.

The study revealed that 36.0% of the students agreed that the admin staff are very helpful and approachable. Similarly, 31.5% strongly agreed that the admin staff are very helpful and approachable. This implies that on average the majority of the students tended to agree that the admin staff are very helpful and approachable as evidenced by a mean of 3.76 which is greater than 3.00. In addition, the study observed a consensus in the responses given by the students in regard to the statement that the admin staff are very helpful and approachable as revealed by a standard deviation of 1.181 which is less than 1.500. Other studies indicated that the administration staff and course instructors were approachable and positive on helping the students when in need (Junior et al., 2016; Santos et al., 2019).
These findings were also in agreement with the qualitative findings from FGDs and KIIS. On administrative support the respondents were to share their experiences on the following indicators: Student records, health services, support from admin staff, financial services, program information.

On student records, the study established that universities have made significant strides in ensuring that students are able to access their academic records efficiently through the online portal. The digital records system has enabled students to get their academic records on time, and the Moodle learning management system has made it possible for lecturers to provide course materials and interact with their students online. Additionally, the ICT department is available to offer support to any system challenges that may arise. Exams issues are also addressed at the departmental level by the exam's coordinator. The qualitative data findings also agreed with the quantitative findings. The study found that student records are easily accessible seamlessly.one of the KIIs made the following remark:

> *"Because whenever I need to have some lists or some records that I'm not able to access, I simply ask the director of ICT and I get them immediately. I'm saying that when I'm not able to access some of the lists online, for certain intakes, I will always do an email to the director of ICT, and they will get the records immediately in soft copy"* (KII_MKU_02)

The following is a contribution from one of the FGDs.

> *"In my institution, I can say that we normally have a good support service from the administration. When we talk about the student records, will normally have our results on time in the portal. So, like, if we do the exam, at the end of the semester, early next semester we normally receive our results. So, we don't have any issue concerning that"* (FGD_MKU_01).

However, the study also found out that the major challenges associated with this kind of support are misplaced CAT papers and missing marks. A participant from one of the institutions contributed and student records and singled out on the examination records:

> *"The other challenge is on the basis of - like in my case, sometimes whenever they do exams or CATs, they come from different - some of these CATs are done in different in centers. So, when these CATs are brought or exams are brought, there are also chances of Misplacing some of these CATs or exam scripts and it has also created a problem of missing marks and so on and so forth. So, these are the major*

The study found that ODL students did not access health services. One of the KIIs said that.

"We'll students who are on distance learning only enjoy health services from the university facilities when they are on campus for tutorials and during the examinations" (KII_KU_01). Another KII also from another institution had this to say:

"When they're off campus, usually we don't offer that kind of service for health service when they're off campus. But when they are on campus, then we have our university clinic and they're able to get those kinds of health services from there" (KII_MKU_02)

The study found out that some institutions provided financial support to the ODL students. They agreed that students are provided with information on the available financial support to help them make informed decisions. The following is a contribution from two FGDs:

> *"To me, yes. I can remember there is a colleague of mine, who could get bursaries and ended up getting HELB, which helped him throughout the course, and even graduated. So, it is good that we got information concerning financial support, like bursaries and HELB"* (UON_FGD_01)

> *"Again, on the financial support, in our institution, we receive financial support, especially for those who have problems with fee payment. We always get sponsorship from the counsellor or from the school to help boost our fee payment. So, most of the students who cannot manage to get support from other means will always benefit from the school"* (FGD_MKU_01)

The participants agreed that they received adequate programme information on day-to-day happenings at their respective universities via various platforms. They observed that the departmental website is the primary source of information and circulars are often posted on notice boards around the campus.

A customer care service is available for inquiry services and students are free to contact the office for any clarifications they may need and finally the universities use WhatsApp platforms to share any program information to the students. The following is what came out of one of the FGDs:

> *"Again, when we have issues, sometimes you might try to do some of this application then in the process you get stuck, we have sort of they call it customer care or there is a number that you can always call to reach out or to make more inquiries on how to go about that particular application that you are making"* (FGD_KU_01).

The study cited non-availability and non-cooperative members of admin staff as one of the challenges they experienced. One of the FGDs said this:

> *"I would say I would give this 50/50. Like a normal human being, you'd find human beings that you get on their better days. So, we have the kind of support staff that are very fair and willing to give information as required. But then you also meet some others within the system, which is very normal, you don't expect everybody to give you whatever you always want. So, I would give this 50/50. On some basis you would find good people giving whatever is required and then on the other side, you will also find people who would not be willing to help students and in so many cases would even give insults"* (UON_FGD_01)

However, in another university it was affirmed that administrative staff are very helpful.

> *"From where I am, I think they are extremely, extremely helpful. Let me use that one because when these learners come over, most of us focus on that direction now. So that we make them as comfortable as possible because they are here for a short duration, and they want to get as much as possible"* (KII_MKU_02)

4.5.5 Descriptive Analysis of Influence of Counseling Support Services on retention of ODL learners

The respondents were asked to share their experiences on orientation services, career guidance services, counselling, time management and external support which were indicators of counselling support services that the current study evaluated. Table 4.14 shows the descriptive statistics of the level of counselling support services.

Table 4.35: Descriptive Findings on Counselling Support Services

Counselling Support Services	SD F %	D F %	N F %	A F %	SA F %	Total Mean	Std. Dev
The counsellors offer counselling services concerning personal and academic challenges	26 9.1%	27 9.4%	73 25.5%	98 34.3%	62 21.7%	3.50	1.193
The course is stressful and pressuring	22 7.7%	47 16.4%	68 23.8%	89 31.1%	60 21.0%	3.41	1.207
The staff are committed to solving problems with the institution	16 5.7%	30 10.6%	69 24.4%	104 36.7%	64 22.6%	3.60	1.117
University provides financial aid to needy students	26 9.1%	44 15.3%	89 31.0%	88 30.7%	40 13.9%	3.25	1.150
Staff plan activities to promote social interactions among students	24 8.5%	30 10.6%	76 26.9%	88 31.1%	65 23.0%	3.49	1.198
They give tips to overcome stress and adjustment to school programmes	28 9.9%	38 13.4%	71 25.1%	85 30.0%	61 21.6%	3.40	1.240
They help students to deal with personal problems affecting studies	35 12.3%	33 11.6%	75 26.3%	83 29.1%	59 20.7%	3.34	1.270
Introduction to communication tools and skills to enable them to navigate in DE	18 6.4%	22 7.8%	57 20.1%	102 36.0%	84 29.7%	3.75	1.150
Pre-admission counselling with the selection of course	25 8.9%	32 11.3%	65 23.0%	84 29.8%	76 27.0%	3.55	1.245
Composite Scores						**3.477**	**1.1967**

In regard to counselling support services, the study found that the majority of the students agreed that the counsellors offered counselling services concerning personal and academic challenges (34.3%=Agree; 21.7%=Strongly Agree). This is further evidenced by a mean of 3.50 achieved in the study which is greater than 3.00. A standard deviation of 1.193 was achieved in the study which is less than 1.500 implying that there was a consensus in the responses given by the students in regard to the statement that the counsellors offer counselling services concerning personal and academic challenges. Study done by (Kgobe & Sebola, 2021) indicated that student counsellors encourage and assist distant learners in forming the attitudes and values necessary to persevere in their studies and attain a high level of academic performance.

The study further found that 31.1% of the students agreed that the courses are stressful and pressuring. Similarly, 21.0% strongly agreed that the courses are stressful and pressuring. This implies that on average the majority of the students tended to agree that the courses are stressful and pressuring as evidenced by a mean of 3.41. The study noted that there was a commonness in the responses obtained from the students regarding the statement that the courses are stressful and pressuring as revealed by a standard deviation of 1.207 which is less than 1.500. In line to this, Itasanmi and Oni (2020) asserts that student counsellors keep open relationship with distance learners in order to help them reduce on stressful moments during their course of study.

It was established that on average the majority of the students tended to affirm that the staff are committed to solving problems with the institution (36.7%=Agree; 22.6%=Strongly Agreed) as evidenced by a mean of 3.60 which is greater than 3.00. A standard deviation of 1.117 was achieved in the study implying that there was a consensus in the responses obtained from the students in regard to the statement that the staff are committed to solving problems with the institution. Study by Imam (2021) revealed that instructors paid attention to problem solving with the students and thus consistent with the current findings.

The study indicated that 31.0% of the students neither disagreed nor agreed that University provides financial aid to needy students, 30.7% agreed that University provides financial aid to needy students. Similarly, 13.9% of the students strongly agreed that University provides financial aid to needy students. This implies that on average majority of the students tended to agree that University provides financial aid to needy students as evidenced by a mean of 3.25. In addition, the study noted a consensus in the responses given by the students regarding the statement that University provides financial aid to needy students. This was revealed by a standard deviation of 1.150 which is less than 1.500. This is contrary to study done by (Musingafu, Mapurunga, Chiwanza, & Shupikai, 2015)which noted that the students were faced by financial challenges.

The study further noted that majority of the students agreed that staff plan activities to promote social interactions among students (31.1%=Agree; 23.0%=Strongly Agree). This is further evidenced by a mean of 3.49 which is greater than 3.00. A standard deviation of 1.198 was achieved in the study which is less than 1.500 indicating that there was a commonness in the responses obtained from the study regarding the statement that staff plan activities to promote social interactions among students. Muljana & Luo, (2019) assert that student counselors promoted peer support by creating study groups or learning circles where distance learners can share knowledge and offer one another peer support.

It was indicated that on average the majority of students tended to agree that counselors give tips to overcome stress and adjustment to school programmes (30.0%=Agree; 21.6%=Strongly Agree) as evidenced by a mean of 3.40. The study also noted that there was a consensus in the responses given by the students about the statement that counselors give tips to overcome stress and adjustment to school programmes as revealed by a standard deviation of 1.240 which is less than 1.500. Student counsellors offer support to distance learners by giving them guidance and counselling to overcome stress and remain focused to the school programme during their course of study (Itasanmi & Oni, 2020)

The study established that 29.1% of the students agreed that counselors help students to deal with personal problems affecting studies. Similarly, 20.7% strongly agreed that counselors help students to deal with personal problems affecting studies. This implies that on average the majority of the students affirmed that counselors help students to deal with personal problems affecting studies as evidenced by a mean of 3.34 which is greater than 3.00. The study achieved a standard deviation of 1.270 which is less than 1.500 implying that there was a consensus in the responses obtained in the study regarding the statement that counselors help students to deal with personal problems affecting studies.

It was depicted that on average majority (36.0%=Agree; 29.7%=Strongly Agree) of the students tended to agree that introduction to communication tools and skills to enable them to navigate in ODL as indicated by a mean of 3.75 which is greater than 3.00. A standard deviation of 1.150 was achieved in the study which is less than 1.500 indicating that there was a commonness in the responses obtained from the study regarding to the statement that introduction to communication tools and skills to enable them to navigate in DE. This contradicts the study by Kgobe and Sebola (2021) which observed that there was inadequate experience and training with instructional technologies.

The study revealed that 29.8% of the students agreed that there was pre-admission counselling with the selection of course. Similarly, 27.0% strongly agreed that there was pre-admission counselling with the selection of course. This implies that on average the majority of the students tended to affirm that there was pre-admission counselling with the selection of course as evidenced by a mean of 3.55 which is greater than 3.00. The study observed a consensus in the responses given by the students in regard to the statement that that there was pre-admission counselling with the selection of course as revealed by a standard deviation of 1.245 which is less than 1.500. Study by Simukanga (2020) noted that students were offered support by administration when enrolling to distance learning programmes.

The findings from the FGDs and KIIs agreed with the quantitative findings. The study found out that ODL learners have access to guidance and counselling support services. Sometimes, counselling services are offered online and recorded for future reference. External speakers are also invited to speak to the students on various topics. This finding was expressed by one of the KIIs and said the following:

> *"And if it is a question that I'm probably not able to handle, because of the complexity, I forward that student to the guidance and counselling department. We have a whole guidance and counselling department under the Dean of Students Office that does counselling. And because of their training, they're able to go down to the level of the learner and advise them accordingly"* (KII_MKU_01)

The study found out that career guidance services are rare. They further noted that the frequency of provision of the service is scheduled. This finding was supported by one of the FGDs.

> *"In our university, you realize something rare. We normally don't receive career counselling. It only happens during class where lecturers teach a certain course, and they tell you with this course you can do this, you can use - but when it comes now on guidance in a career it's normally rare. It's rare in our institution"* (FGD_KU_01)

> *"Career guidance and orientation are given to learners in sessions, which we call residential sessions. We have three sessions in a year and those three sessions are an opportunity for the chair of the department the tutors of the department, and the administrative staff, to thoroughly engage with the learner, to thoroughly engage with the students so that any advice or any support can be provided at that particular stage"* (KII_UON_02)

The study found that orientation programmes are available to ODL students. A KII said the following:

> *"Yeah, the orientation is there, and it is during this orientation that they used to be given iPads to use as distance learners. So, orientation has been there for them. I can say that is something that has been there. And then during the orientation, I think they were also taken through how they can be able to access that platform. Because you cannot just be given a tablet or an iPad and then you're not told how to use it"* (KII_Unknown_02)

However, the study established that the time allocated for orientation is not enough and this is evidenced by one of the participants who said that:

> *"I would say it is not adequate. It is there but, in my view, it is not adequate. One, the time allocated for that orientation program is not enough. Two, the personnel that is set aside to be able to offer the orientation program for distance education is limited."* (KII_Unknown_01)

The study found out that ODL students receive advice on time management. However, the study found out that some students may not be aware of whether the service is offered or not. This what was raised in one of the FGDs:

> *"Now, I wanted to say something about time management. We are usually provided with a timetable. And this timetable is supposed to guide us. Now if a lecturer maybe thinks he or she may not be available at the time that is allocated in the timetable, she or he communicates prior so that, that class maybe gets allocated another time, or what we call makeup. We look for another time that everyone is available so that we sit for that makeup class. So, it's all about the timetable which is usually circulated a week before our official opening for the classes. So, they will try as much as possible to stick to it"* (FGD_KU_01)

The study found out ODL learners have challenges with counselling services and even if they needed it required external sourcing. And when this service is external the students are required to pay for the services. A participant said this:

"I would want to be very fair and say no. Universities have had a problem in terms of capitation. And therefore, we have guidance and counselling services available and more particularly benefit students who are on campus. We do not have very clear policy guidance and arrangements even in our satellite campuses to ensure that we have an Office specifically dealing with the counselling services for our distance education students, (KII-KU)

4.5.6 Descriptive Analysis of Influence of Technical Support Services on retention of ODL learners

Technical support services are important services in online and distance learning. The current study sought to evaluate the extent to which the ODL students were technically supported and whose descriptive results are shown in Table 4.36.

Table 4.36: Descriptive Findings of Technical Support Services

Technical Support Services	SD F %	D F %	N F %	A F %	SA F %	Total Mean	Std. Dev
I have access to online content and course materials	9 3.1%	10 3.5%	26 9.1%	132 46.2%	109 38.1%	4.13	0.939
My ODL centre is well equipped with computers and internet	21 7.3%	26 9.1%	56 19.6%	96 33.6%	87 30.4%	3.71	1.201
I enjoy using computers in my course	19 6.7%	22 7.7%	57 20.0%	108 37.9%	79 27.7%	3.72	1.146
At my place of residence, I have reliable electricity	17 6.0%	30 10.6%	43 15.1%	101 35.6%	93 32.7%	3.79	1.183

Technical Support Services	SD F %	D F %	N F %	A F %	SA F %	Total Mean	Std. Dev
I always get SMS notification on important university events	19 6.7%	31 10.9%	35 12.3%	91 32.0%	108 38.0%	3.84	1.233
The university uses social platforms to deliver crucial information	4 1.4%	15 5.2%	30 10.5%	114 39.9%	123 43.0%	4.18	0.917
My ODL centre is well stocked with relevant books and references	18 6.3%	26 9.1%	67 23.4%	89 31.1%	86 30.1%	3.70	1.174
Access to digital library is well facilitated and I often access e-books and journals	23 8.0%	32 11.2%	54 18.9%	98 34.3%	79 27.6%	3.62	1.224
The university has a call centre working on a 24/7 basis dealing with student concerns	17 6.0%	42 14.7%	56 19.6%	96 33.7%	74 26.0%	3.59	1.191
I use social media most of the time in my communications and interactions with colleagues and ODL staff	10 3.5%	17 6.0%	33 11.6%	113 39.6%	112 39.3%	4.05	1.032
I can comfortably access my exam results from my phone	29 10.2%	18 6.3%	31 10.9%	97 34.0%	110 38.6%	3.85	1.283
Composite Scores						**3.835**	**1.1385**

Regarding the technical support services, the study found that majority of the students agreed that they have access to online content and course materials (46.2%=Agree; 38.1%=Strongly Agree) as evidence further by a mean of 4.13 which is greater than 3.00. The study achieved a standard deviation of 0.939 which is less than 1.500 implying that there was a consensus in the responses given by the students in regard to the statement that they have access to online content and course materials. These findings concur with those by Khumalo (2018) who found that the students easily accessed the course materials online in their e-learning programs.

The study further found that on average majority of the students tended to agree that their ODL Centre is well equipped with computers and internet (33.6%=Agree; 30.4%=Strongly Agree). This was revealed by a mean of 3.71 which is greater than 3.00. The study observed a commonness in the responses obtained from the students in regard to the statement that their ODL Centre is well equipped with computers and internet as indicated by a standard deviation of 1.201 which is less than 1.500. On contrary, Mutambo *et al*. (2018) noted that there was inadequate provision of computer and acquisition of associated facilities in most ODL centers for e-learning students.

It was shown that 37.9% of the students agreed that they enjoy using computers in their courses. Similarly, 27.7% strongly agreed that they enjoy using computers in their courses. This implies that on average the majority of the students tended to affirm that they enjoy using computers in their courses as revealed by a mean of 3.72. A standard deviation of 1.146 was achieved in the study which is less than 1.500 implying that there was a consensus in the responses obtained from the study regarding the statement that they enjoy using computers in their courses. Study by Ojo (2021) asserts that students enjoy using computers in their courses since it give them easy access to other study resources from the internet.

The study established that the majority of the students agreed that at their place of residence, they have reliable electricity (35.6%=Agree; 32.7%=Strongly Agree). This is further evidenced by a mean of 3.79 achieved in the study which is greater than 3.00. In addition, the study achieved a standard deviation of 1.183 indicating that there was a consensus in the responses given by the students in regard to the statement that at their place of residence, they have reliable electricity. Anaekwe and Nnaka (2017) asserts that electricity access plays an important role in improving educational attainment.

The study also observed a commonness in the responses obtained from the students in regard to the statement that they always get SMS notification on important university events as revealed by a standard deviation of 1.233. In addition, the study noted that majority of the students agreed that they always get SMS notification on important university events (32.0%=Agree; 38.0%=Strongly Agree) as evidenced by a mean of 3.84. This is similar to study done by Fu (2022) which indicated that students were informed of important university dates and events through SMS notification.

The study indicated that 39.9% of the students agreed that the university uses social platforms to deliver crucial information. Similarly, 43.0% strongly agreed that the university uses social platforms to deliver crucial information. This implies that on average the majority of the students tended to agree that the university uses social platforms to deliver crucial information as revealed by a mean of 4.18. A standard deviation of 0.917 was achieved in the study implying that there was a consensus in the responses obtained from the study in regard to the statement that the university uses social platforms to deliver crucial information. Study done by (Reju & Jita, 2018)?indicated that universities use social media platforms and outlets to reach students and deliver crucial information concerning the institution and thus congruence with the current study.

It was established that on average the majority of the students affirmed that their ODL Centre is well stocked with relevant books and references (31.1%=Agree; 30.1%=Strongly Agree) as indicated by a mean of 3.70 which is greater than 3.00. The study noted a consensus in the responses given by the students regarding the statement that their ODL centre is well stocked with relevant books and references as revealed by a standard deviation of 1.174 which is less than 1.500. Study by Anaekwe and Nnaka (2017) noted that there was insufficient provision of relevant learning materials for students and lecturers.

The study also achieved a standard deviation of 1.224 which is less than 1.500 indicating that there was a commonness in the responses obtained from the students in regard to the statement that access to digital library is well facilitated and they often access e-books and journals. In addition, the study noted that majority of the students agreed that access to digital library is well facilitated and they often access e-books and journals (34.3%=Agree; 27.6%=Strongly Agree) as evidenced by a mean of 3.62 which is greater than 3.00. Khumalo (2018) revealed that online learning environment offers a unique platform for distributing and accessing academic content.

The study found that 33.7% of the students agreed that the university has a call centre working on a 24/7 basis dealing with student concerns. Similarly, 26.0% strongly agreed that the university has a call centre working on a 24/7 basis dealing with student concerns. This implies that on average the majority of the students tended to affirm that the university has a call centre working on a 24/7 basis dealing with student concerns as evidenced by a mean of 3.59. A standard deviation of 1.191 achieved in the study which is less than 1.500 indicates that there was a consensus in the responses obtained from the study regarding the statement that the university has a call centre working on a 24/7 basis dealing with student concerns. This is contrary to study by Perera and Lekamge (2021) which noted that there was no effective communication from the university to the ODL students and the contact center was not regularly available.

It was depicted from the study that majority of the participant agreed that they use social media most of the time in their communications and interactions with colleagues and ODL staff (39.6%=Agree; 39.3%=Strongly Agree). This is further evidenced by a mean of 4.05 obtained from the study which is greater than 3.00. The study observed a commonness in the responses from the students regarding the statement that they use social media most of the time in their communications and interactions with colleagues and ODL staff as revealed by a standard deviation of 1.032. Kgobe and Sebola (2021) asserts that there was increasing communication and interactivity among learners, the facilitators and learning sources. The study found that 34.0% of the students agreed that they can comfortably access their exam results from their phones. Similarly, 38.6% strongly agreed that they can comfortably access their exam results from their phones. This implies that on average the majority of the students tended to agree that they can comfortably access their exam results from their phones (mean of 3.85). In addition, the study achieved a standard deviation of 1.283 implying that there was a consensus in the responses given by the students in regard to the statement that they can comfortably access their exam results from their phones. Other studies revealed that ODL could access their exam results from the internet through their devices (Itasanmi et al., 2020).

The participants agreed that they received technical support services. The KIIs and FGDs agreed gave opinions on internet connectivity, digital literacy, computer proficiency, technical and access to online learning materials. On online materials, one of the KIIs said that:

> *"The university has done very well. We have a residential, and this time we have a class there is an administrator who is attached to me to create a link, to invite the students, to alert the students, to alert the tutor that the class is starting at such and such a time and therefore it makes class attendance to be very good, very high. So, I can say there is enough support from the support services"* (KII_UON_02)

The participants further noted that the online learning platform is user-friendly, and students are taken through the system navigation during their orientation. This is what one of the KIIs said:

> *"And then the system that we use, the Sakai system and I invite you to have a look at the Sakai platform to see how simple and straightforward it is. Once a student logs in, then it is as simple as going to where the resources are. And they are told at these resources, this is where you will find the notes, this is where you find the video links, this is where you find the videos, this is where you find the books if they are books to be posted and all that. So, I would say the system navigation is as simple as ABC because the system is simple. It's just a click of a button and then you are good to go. The Sakai system that we use is very simple, very simple"* (KII_MKU_01)

On internet connectivity, the study found that most of the universities have stable and adequate internet connectivity for distance learning. Additionally, there are available internet services for browsing, and internet connectivity has generally improved across the country. They pointed out that lecturers have internet access, and the internet connectivity is reliable. Students received internet bundles to attend online classes. One of the FGDs said that:

> *"Concerning technical support, I can give my university nine out of 10. One they really offered technical support"* (UON_FGD_01)

On digital literacy and computer proficiency, the study established that both lecturers and students digitally literate. The level of digital literacy varies among the lecturers and students, and the university has taken measures to address this issue. Lecturers are taken through new updates on the online learning system, and the ICT department trains them on how to give feedback to students.

Students are also empowered with digital skills, and both lecturers and learners are trained on how to navigate the online platform.

> *"On digital literacy, I think various schools and teachers are nowadays embracing this system. It strokes some of the courses with digital based courses like I would say a Bachelor of Education with ICT, which is aimed towards empowering the students with some digital literacy. Yeah. So, it is something that is ongoing"* (FGD_KU_01)

The research found out that online learning materials are available for students, and the online resources are up to date. Students also have access to the digital library.

> *"You see on our system; we upload content that we are given from departments. So, the chair of the department is the one who authorizes the type of content that should be put online. Before that content is put online, we have what we call subject experts who work on their content and make sure that that is the content that is required to be uploaded online. So, we upload that content online and for our case, they have given it a duration of five years to update the content* (KII_KU_02)

On technical assistance, the participants agreed that there are so many channels of getting assistance while on the online platforms. The major one was the use of WhatsApp, chatroom and calling the online call centre for direct assistance.

4.5.7Descriptive analysis of Influence of Learner Interactions on retention of ODL learners

The current study sought to establish the level of learner interactions as measured in the lenses of feedback from instructors, interactions with instructors, content structure, use of ICT, and assignment difficulty. The descriptive findings of learner interactions are as shown in Table 4.37.

Table 4.37 Descriptive Findings on Learner Interactions

Learner Interactions	**SD**	**D**	**N**	**A**	**SA**	**Total**	
	F	F	F	F	F	Mean	Std.
	%	%	%	%	%		Dev
Students exchange information with classmates on course-related matters more than once a week	8	11	31	124	111	4.12	0.946
	2.8%	3.9%	10.9%	43.5%	38.9%		
Students use multiple channels including the internet, phones and chatting online	17	27	29	107	104	3.89	1.175
	6.0%	9.5%	10.2%	37.7%	36.6%		
Students believe, trust and value contributions from other students	19	23	35	119	89	3.83	1.155
	6.7%	8.1%	12.3%	41.8%	31.2%		
There is a greater sense of belonging and community	21	22	37	107	99	3.84	1.193
	7.3%	7.7%	12.9%	37.4%	34.6%		
Greater interactions through email exchanges, discussion	14	27	43	110	88	3.82	1.125
	5.0%	9.6%	15.2%	39.0%	31.2%		

board postings, line chats and feedback							
Students interact with the instructor via multiple media	13 4.6%	24 8.5%	46 16.2%	113 39.8%	88 31.0%	3.84	1.096
Feedback from the instructors is regular, prompt, and consistent through a variety of media	28 9.9%	32 11.3%	54 19.1%	97 34.3%	72 25.4%	3.54	1.258
Instructors write out and post clear instructions on schedules and due dates	8 2.8%	27 9.4%	44 15.3%	110 38.3%	98 34.1%	3.92	1.058
The educators employ various instructional strategies in the course to address student needs	10 3.5%	20 7.0%	52 18.2%	123 43.0%	81 28.3%	3.86	1.021
I am comfortable with the course technologies used to deliver the content	11 3.9%	21 7.4%	58 20.4%	116 40.8%	78 27.5%	3.81	1.044
I do not experience any challenges navigating the LMS to access content	22 7.7%	29 10.2%	53 18.6%	109 38.2%	72 25.3%	3.63	1.187
Composite Scores						**3.827**	**1.1143**

Regarding learner interactions, the study found that the majority of the students agreed that students exchange information with classmates on course-related matters more than once a week (43.5%=Agreed; 38.9%=Strongly Agree). This was further evidenced by a mean of 4.12 which is greater than 3.00. A standard deviation of 0.946 achieved from the study which is less than 1.500 implies that there was a consensus in the responses obtained from the students regarding the statement that students exchange information with classmates on course-related matters more than once a week. This is in line with a study done by Mutambo *et al*. (2018) indicated that students were given the chance to learn collaboratively through group projects and homework.

It was found that 37.7% of the students agreed that students use multiple channels to interact including the internet, phones and chatting online. Similarly, 36.6% of the students strongly agreed that students use multiple channels to interact including the internet, phones and chatting online. This implies that on average, the majority of the students tended to agree that students use multiple channels to interact including the internet, phones and chatting online as evidenced by a mean on 3.89. The study further observed a commonness in the responses given by the students as revealed by a standard deviation of 1.175 (which is less than 1.500). Misaghi *et al*. (2021) asserts that distance learners interact with the other students through social media platforms.

It was depicted that on average the majority of the students tended to affirm that students believe, trust and value contributions from other students (41.8%=Agree; 31.2%=Strongly Agree) as evidenced by a mean of 3.83. The study achieved a standard deviation of 1.155 which is less than 1.500 implying consensus of the responses obtained from the study regarding to the statement that students believe, trust and value contributions from other students. Similarly, a study by Khumalo (2018) indicated that ODL students were confident with the information and contribution of the other students.

The study found that 37.4% of the students agreed that there was a greater sense of belonging and community whereas 34.6% of the students strongly agreed that there was a greater sense of belonging and community. This implied that majority of the students agreed that there was a greater sense of belonging and community as revealed by a mean of 3.84. There was a consensus in the responses given by the students in regard to the statement that there was a greater sense of belonging and community as evidenced by a standard deviation of 1.193. Similarly, a study done by Itasanmi *et al*. (2020) revealed that there was support from the community to the distance learners which helped them to have a greater sense of belonging.

It was established that on average majority of the students affirmed that greater interactions happened through email exchanges, discussion, board postings, line chats and feedback (39.0%=Agree; 31.2%=Strongly Agree) as indicated by a mean of 3.82 which is greater than 3.00. A standard deviation of 1.125 obtained from the study which is less than 1.500 implies consensus in the responses given by the students regarding the statement that interactions happened through email exchanges, discussion, board postings, line chats and feedback. Others studies asserts that there was student-student interaction and also student-facilitator interactions under ODL programmes mainly take place through social medial platforms such as WhatsApp, email exchange among, (Santos, Junior, & De Larceda, 2019;Uzoma, 2018).

The study observed a consensus in the responses obtained from the students regarding the statement that students interact with the instructor via multiple media, as revealed by a standard deviation of 1.096 which is less than 1.500. It was further established that 39.8% of the students agreed that students interact with the instructor via multiple media. Similarly, 31.0% strongly agreed. The majority of the students agreed that students interact with the instructor via multiple media, as revealed by a mean of 3.84 which is greater than 3.00. Study done by Itasanmi and Oni (2020) indicated that open-distance learners frequently struggle because of insufficient interaction with facilitators.

The study further found that the majority of the students agreed that feedback from the instructors is regular, prompt, and consistent through a variety of media (34.3%=Agree; 25.4%=Strongly Agree) as evidenced by a mean of 3.54 which is greater than 3.00. A standard deviation of 1.258 was achieved in the study implying that there was a consensus in the responses given by the students in regard to the statement that feedback from the instructors is regular, prompt and consistent through a variety of media. This is affirmed by study done by Sifuna and Obonyo (2019) which indicated that instructors gave timely and regular feedback to the students.

It was depicted from the study that 38.3% of the students agreed that instructors write out and post clear instructions on schedules and due dates. Similarly, 34.1% strongly agreed that instructors write out and post clear instructions on schedules and due dates. This implies that on average the majority of the students tended to agree that instructors write out and post clear instructions on schedules and due dates as evidenced by a mean of 3.92. The study achieved a standard deviation of 1.058 which is less than 1.500 indicating that there was a consensus in the responses obtained from the students regarding the statement that instructor write out and post clear instructions on schedules and due dates. Study by Kgobe and Sebola (2021) indicated that students were dissatisfied with the delayed or unclear instructions posted by the instructors .

The study found that on average the majority (43.0%=Agree; 28.3%=Strongly Agree) of the students tended to affirm that the educators employ various instructional strategies in the course to address student needs as indicated by a mean of 3.86. A standard deviation of 1.021 was achieved in the study implying that there was a consensus in the responses obtained from the students in regard to the statement that the educators employ various instructional strategies in the course to address student needs. (Hesrcu-Kluska, 2019) asserts that the education system applied to ODL students utilizes strategies**,** guidelines, and techniques to improve lesson and study design and respond to students' questions and concerns.

The study further observed that many students agreed that they were comfortable with the course technologies used to deliver the content (40.8%=Agree; 27.5%=Strongly Agree). This is further evidenced by a mean of 3.81 achieved in the study (which is greater than 3.00). The study noted a consensus in the responses obtained from the students regarding the statement that they were comfortable with the course technologies used to deliver the content as indicated by a standard deviation of 1.044. This is contrary to study by Santos *et al*. (2019) which noted that the ODL students had a negative attitude towards the technology used in delivering the course materials since the content delivered was not appropriate.

Results from the study revealed that 38.2% of the students agreed that they do not experience any challenges navigating the LMS to access content. Similarly, 25.3% strongly agreed that they do not experience any challenges navigating the LMS to access content. This implies that on average the majority of the responses tended to agree that they do not experience any challenges navigating the LMS to access content as indicated by a mean of 3.68. The study achieved a standard deviation of 1.187 implying that there was a consensus in the responses given by the students in regard to the statement that they do not experience any challenges navigating the LMS to access content. Study done by Osman and Walt (2022) revealed that most of the students found it easy to navigate and use the LMS system to access course content.

The qualitative findings agreed with the qualitative findings. The participants were invited to share their experiences on learner to lecturer interactions, leaner to content interactions and learner to technology interactions, technical assistance and feedback on technical support services.

On learner to lecturer interactions, the study found that there is adequate learner to lecturer interactions in the online learning environment. One of the KIIs said:

> *"The lecturers create activities. First of all, the lecturers create content. The moment they create content, they create content that is interactive. Content that is interactive involves activities that are interactive in a way that when a student clicks on an activity, the content will instruct the student to do this in order to move to the next stage so the student will be interacting with that particular kind of content. So first, as you sit down to create online content for online users, it must be interactive content. So, you must include features that can make a student feel that is interacting with the content. That includes videos, simulations, animations, and all that. In addition to that as a lecturer, you also create activities. That is the process of the students doing activities, they are interacting with the system. As they respond, they are interacting with the system"* (KII_KU_02)

On learner to technology interactions, the respondents affirmed that online students have adequate interactions and experience with technology. The availability of WIFI in the institution has made the online learning process more flexible and reliable. It is possible for learners to interact with the lecturers and other learners through various online platforms, including discussion forums, chat rooms, and video conferencing applications. The online system is user-friendly, one of the KII said that:

> *"Yes, there is an interaction between the learner and available technology because that's the only platform we have for our interaction. Without technology, there is no way I can reach out to the students, there is no way the student will reach out to me for anything. So, they interact with technology for the purpose of learning. That's the only thing available for us"* (KII_MKU_01)

> *"Okay, distant learning students usually interact with other students and lecturers in chat rooms and other instant messaging services. So, this one makes it possible to ask questions and share comments. Also, students interact with lectures using video conferencing which is flexible"* (FGD_KU

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the major findings of the study as well as the conclusions reached by the study. The chapter further gives recommendations for policy, practice and further research. This chapter also gives some suggestions for further studies related to learner support services, learner interactions and retention of students in ODL programmes. This chapter is guided by the objectives of this study.

5.2 Summary of the Findings

The study observed that the number of male students did not significantly differ from the number of females who participated in the study. The study further found out the majority of the learners were in their third year of study and most of them were married. Though the majority of the students were below 35 years, the study revealed that students sampled belonged to different age groups and thus the study obtained feedback from different ages. Most of the students held diploma and secondary as their highest education level and were in full-time employment. In terms of hours devoted to studies, the study revealed that the majority of the students devoted 10 hours or less house in a week for course materials. The majority of the students owned or had access to phones and majority of them received short messages (SMS) from university giving them important notifications.

5.2.1 Academic Support Services and Retention of Learners

The first objective of the study sought to investigate the extent to which academic support services influenced retention of learners in ODL programmes at the selected Universities in Kenya. The study found that advisory support, mentorship services, tutorial services, course materials support, and feedback cumulatively accounted for 60.1% of the variance in retention of learners in ODL programmes. The study established that course materials support, tutorial services and mentorship services were the significant predictors of learner retention on ODL programmes while feedback and advisory support were not significant predictors.

This implied that course materials support ($t=3.403$, $p<0.05$), tutorial Services ($t=7.727$, $p<0.05$), and Mentorship Services ($t=4.295$, $p<0.05$) significantly influence the level of learner retention in ODL programmes based on their t-statistic values and their associated p-values. On the other hand, it noted that feedback ($t=-1.327$, $p>0.05$) and advisory support ($t=0.902$, $p>0.05$) did not significantly influence the learner retention in ODL programmes based on the t-statistic and p-values.

It was further revealed that one unit increase in course materials support leads to 0.170 units ($\beta=0.170$) increase in retention of learners in ODL programmes with other factors held constant. Similarly, the study revealed that a unit increase in tutorial services would result in 0.469 unit ($\beta=0.469$) increase in learner retention while other factors were held constant. One unit increase in mentorship services was found to result in 0.123 units ($\beta=0.123$) increase in the level of learner retention in ODL services. The first hypothesis of the study stating that academic support services do not have a significant influence on retention of learners in ODL programmes at the selected Universities in Kenya, was therefore rejected at 5% significance level.

5.2.2 Administrative Support Services and Retention of Learners

The second objective of the study was to determine the extent to which administrative support services influenced the retention of learners in ODL programmes at the selected Universities in Kenya. Accordingly, the second hypothesis stated that learner administrative support services did not have a significant effect on the retention of ODL learners. The hypothesis was tested by carrying out a multiple regression analysis of student records, health services, financial support, program information, and support from staff against the retention of learners in ODL programmes. The study found that student records, health services, financial support, program information, and support from staff cumulatively explained 53.4% of the variance in learner retention in ODL programmes.

The study revealed that program information ($t=2.760$, $P<0.05$), health services ($t=3.720$, $p<0.05$), financial support ($t=2.381$, $p<0.05$) and student records support services ($t=3.996$, $p<0.05$) were statistically significant predictors of retention of learners in ODL programmes based on their t-statistic and p-values.

The Support from staff did not test significant at 5% significance level and thus its influence was not assumed ($t=0.314$, $p>0.05$). The study established that one unit increase in program information supported by the administration, the learner retention in ODL Programmes would increase by 0.161 units ($\beta=0.161$) with other factors held constant.
One unit increase in support related to health services would lead to 0.129 units ($\beta=0.129$) increase in the learner retention in ODL Programmes while other factors are held constant. Similarly, learner retention in ODL Programmes would increase by 0.130 units ($\beta=0.130$) if administration offers support to learners in regard to financial services, while holding other factors constant. While other factors are held constant, one unit increase in support in regard to student records, the level of learner retention in ODL Programmes would increase by 0.229 units ($\beta=0.229$).

Among the significant predictors of learner retention in ODL Programmes, student records had the highest influence on learner retention in ODL Programmes, followed by support on program information, then financial support services and finally support regarding health issues. The second hypothesis stating that administrative support services have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya, was rejected at 5% significance level. Therefore, the study confirmed that administrative support services have significant influence on retention of learners in ODL programmes at the selected Universities in Kenya and especially in regard to administrative support on course information, health services, financial support and support on student records.

5.2.3 Counselling Support Services and Retention of Learners

The third objective of the study sought to test whether counselling support services have significant influence on retention of learners in ODL programmes at the selected Universities in Kenya. In testing this hypothesis, the study carried out a multiple linear regression to predict retention of learners in ODL programmes using external support, career guidance services, orientation services, time management, and counsellors' characteristics as the predictor variables. The study established that 48.1% of the variation in retention of learners in ODL programmes would sufficiently be explained by the changes in external support, career guidance services, orientation services, time management, and counsellors' characteristics. The study observed that the model was statistically significant at 5% significance level.

The study established that counselling support services in respect to orientation services, time management and external support were significant predictors of retention of learners in ODL programmes. This was evidenced by $t=4.467$ and $p<0.05$ for orientation services, $t=2.537$ and $p<0.05$ for time management, and $t=2.287$ and $p<0.05$ for external support services. On the other hand, the study established that career guidance services and counselling did not significantly influence the level of retention of learners in ODL programmes. This is due to non-significant t-statistics of -1.127 and $p>0.05$ for career guidance services and t-statistic of 1.637 and $p>0.05$ for counselling.

The study established that one unit increase in the level of orientation for the students in ODL programmes, the retention of learners in ODL programmes would increase by 0.208 units ($\beta=0.208$) while holding other factors constant. Similarly, it was revealed that 0.128 units ($\beta=0.128$) would be the increase in retention of learners in ODL programmes when counselling on time management is increased by one unit while holding other factors constant. While other factors are held constant, the study established that one unit increase in counselling services in regard to external support for the students, retention of learners in ODL programmes would increase by 0.135 units ($\beta=0.135$).

Among the significant predictors in counselling support services of retention of learners in ODL programmes were orientation services with the greatest influence on retention of learners (β=0.208), followed by external support (β=0.135) for the learners and lastly the counselling on time management (β=0.128). The third hypothesis stating that counselling support services have no significant influence on the retention of learners in ODL programmes at the selected Universities in Kenya was rejected at a 5% significance level. It was therefore confirmed that counselling support services have significant influence on retention of learners in ODL programmes at the selected Universities in Kenya and especially regarding orientation services, time management and external support for the students.

5.2.4 Technical Support Services and Retention of Learners

The fourth objective of the study was to determine the extent to which technical support services influenced the retention of learners in ODL programmes at the selected universities in Kenya. Accordingly, the hypothesis of the study sought to test was whether technical support services significantly influenced the level of retention of learners in ODL programmes. In respect to this, the study ran a multiple linear regression whereby metrics of technical support services, that is, technical assistance, internet connectivity, digital literacy, computer proficiency, online learning materials were regressed against retention of learners in ODL programmes. The study established that 50.1% of the variance in retention of learners in ODL programmes is cumulatively accounted by technical assistance, internet connectivity, digital literacy, computer proficiency, online learning materials; whether significant or not. The regression model was found to be statistically significant.

The study revealed that among the technical support services offered to students, only technical support in regard to online learning materials and technical assistance significantly influence retention of learners in ODL programmes. This is evidenced by significant t-statistic values and associated p-values for both online learning materials ($t=2.878$, $p<0.05$) and technical assistance ($t=0.362$, $p<0.05$). It was therefore noted that computer proficiency ($t=1.324$, $p>0.05$), digital literacy ($t=0.347$, $P>0.05$) and internet connectivity ($t=6.220$, $p>0.05$) did not significantly determine the retention of learners in the programmes. The study revealed that one unit increase in the level of technical support in online materials, the level of retention of learners in ODL programmes increases by 0.169 units ($\beta=0.169$) while other factors are held constant. In addition, one unit increase in the level of technical support towards technically assisting the students, the level of retention of learners in ODL programmes increases by 0.362 units ($\beta=0.362$) with other factors held constant. The fourth hypothesis stating that technical support services have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya was rejected at 5% significance level.

5.2.5 Combined Influence of Learner Support Services and Retention of Learners

The fifth objective of the study was to determine the extent to which combined learner support services influenced the retention of learners in ODL programmes at the selected universities in Kenya. Accordingly, the study hypothesis sought to establish whether combined learner support services had any significant effect on the retention of ODL learners at the selected universities in Kenya. The study carried out multiple linear regression involving technical support services, academic support services, counselling support services, and administrative support services as predictor variables against retention of learners in ODL programmes. The study revealed that 56.9% of total variance in retention of learners in ODL programmes could be explained by cumulative variance in technical support services, academic support services, counseling support services, and administrative support services.

The study found that learner support services; academic support services, administrative support services and technical support services significantly influenced the level of learner retention in ODL programmes while counselling support services did not. This is based on the t-statistic value of 5.004 and $p<0.05$ for academic support services, the t-statistic value of 2.927 and $p<0.05$ for administrative support services, and the t-statistic of 2.506 for technical support services. Counselling support services as whole had a t-statistic value of 0.342 which was not statistically significant at 5% significance level ($p>0.05$).

One unit increase in the level of academic support services would lead to 0.295 units increase in learner retention in ODL programmes with other factors held constant. Consequently, one unit increase in the level of administrative support services would result into 0.224 units increase in learner retention in ODL programmes with other factors held constant. Learner retention in ODL programmes would increase in 0.178 units when technical support services are increased by one unit while holding other factors constant.

The study further noted that academic support services had the highest influence on the level of retention of learners on ODL programmes, then followed by administrative services and lastly technical support services. The fifth hypothesis of the study stating that the combined learner support services have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya was therefore rejected at 5% significance level.

5.2.6 Learner Interactions and Retention of Learners

The sixth objective of the study sought to establish the extent to which learner interactions influenced the retention of learners in ODL programmes at the selected universities in Kenya. The corresponding hypothesis sought to establish whether learner interactions significantly influenced the retention of ODL students at the selected universities. To achieve this, the study performed a multiple linear regression on the metrics of learner interactions of assignment difficulty, content structure, interactions from instructors, use of ICT, and feedback from instructors against those of learner retention.

The study revealed that 50.9% of the variance in retention of learners in ODL programmes is accounted by assignment difficulty, content structure, interactions from instructors, use of ICT, and feedback from instructors cumulatively. Assignment difficulty ($t=3.632$, $p<0.05$), content structure ($t=2.356$, $p<0.05$), interactions from instructors ($t=2.607$, $p<0.095$), and feedback from instructors ($t=3.058$, $p<0.05$) were found to be significant predictors of retention of learners in ODL services. This is because their t-statistics and p-values were statistically significant. On the other hand, the study established that learner interactions in the use of ICT did not have a significant influence on retention of learners in ODL programmes. This is due to t-statistic value of 0.306 and p-value greater 0.05 ($p<0.05$). The use of ICT would be inconsequential in determining student retention on ODL programmes. The study revealed that one unit increase in learner interaction in regard to feedback from instructors would increase retention of learners in ODL programmes by 0.184 units while holding other factors constant. It was also found that a one unit increase in the level of interactions with instructors would lead to a 0.167 unit increase in retention in their ODL programmes when other factors are held constant. Consequently, one unit increase in the level of learner interactions towards content structure would result in 0.124 units increase in the level of retention in their ODL programmes, holding other factors constant. One unit increase in interactions of learners in aspects of assignment results in 0.243 units increase in retention in their ODL programmes while holding other factors constant.

Among the learner interactions metrics, the study revealed that learner interactions towards assignments had the greatest influence on retention in their ODL programmes, followed by feedback from instructors, then interacting with instructors and interaction on matters concerning the content structure had the least influence. The sixth hypothesis stating that learner interactions have no significant influence on retention of learners in ODL programmes at the selected Universities in Kenya was rejected at 5% significance level.

5.2.7 Moderating Influence of Learner Interactions

The seventh objective of the study sought to establish the extent to which learner interactions moderate the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya. The study carried out hierarchical linear regression with independent variables and interaction between the moderator and independent variables to predict the dependent variable. In the current study, hierarchical linear regression tested statistically significant. However, the R Square Change in the model was statistically non-significant at 5% significance level. Implying that learner interactions was not a significant moderator of the relationship combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya. Additionally, focusing on the beta coefficients, absence of both full and partial moderation effect of learner interactions in the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya was confirmed.

The seventh hypothesis stating that learner interactions have no significant moderating influence on the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya was not rejected at 5% significance level. Therefore, learner interactions have no significant moderating influence on the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya was rejected at 5% significance level.

5.3 Conclusions

Based on the summary of findings, the following conclusions were made:

i. Academic support services on course materials, tutorial services and mentorship services have a significant influence on retention of learners in open and distance learning (ODL) programmes.
ii. Administrative support services on course information, health services, financial support and support on student records have significant influence on retention of learners in open and distance learning (ODL) programmes.
iii. Counselling support services on orientation services, time management and external support have significant influence on retention of learners in open and distance learning (ODL) programmes.
iv. Technical support services on online materials and technical assistance to students have significant influence on retention of learners in open and distance learning (ODL) programmes.
v. Combined Learner support services with reference to technical support services, academic support services, and administrative support services have significant influence on retention of learners in open and distance learning (ODL) programmes.
vi. Learner interactions on assignments, content structure, feedback from instructors and interactions with instructors have significant influence on retention of learners in open and distance learning (ODL) programmes.
vii. Learner interactions have no significant moderating influence on the relationship between combined learner support services and retention of learners in pen and distance learning (ODL) programmes.

5.4 Contribution to Knowledge

Table 5.1: Contribution to Knowledge

Objectives	**Findings**	**Conclusions**	**Contribution to knowledge**
To establish the extent to which academic support services influence retention of learners in ODL programmes at the selected Universities in Kenya.	Academic support services have a statistically significant influence on retention of the learner in distance programmes at the selected Universities in Kenya. Therefore, the null hypothesis was rejected	Academic support services in terms of advisory support, mentorship services, tutorial services, course materials support, and feedback cumulatively accounted for 60.1% of the variance in retention of learners in ODL programmes.	The study has empirically established that course materials support, tutorial services and mentorship services were statistically significant predictors of learner retention in ODL programmes while feedback and advisory support were not statistically significant predictors of learner retention.

To determine the extent to which administrative support services influence the retention of learners in ODL programmes at the selected Universities in Kenya.	Study confirmed that administrative support services have significant influence on retention of learners in ODL programmes at the selected Universities in Kenya. The null hypothesis was rejected.	Student records, health services, financial support, program information, and support from staff cumulatively explained 53.4% of variance in learner retention in ODL programmes.	The study empirically confirmed that administrative support services of student records, health services, financial support, programme information were statistically significant predictors of retention in ODL programmes. However, the study did not find support from staff statistically significant.
To examine the extent to which counselling support services influence retention of students in ODL programmes at the selected Universities in Kenya.	The study confirmed that counselling support services influenced retention of distance education learners. The null hypothesis was rejected.	The study established that 48.1% of the variation in retention of learners in ODL programmes would sufficiently be explained by the changes in external support, career	The study established that counselling support services in respect to orientation services, time management and external support were significant predictors of retention of learners in ODL programmes. On the other hand, the study established that career guidance

		guidance services, orientation services, time management, and counsellors' characteristics.	services and counsellors' characteristics did not significantly influence the level of retention of learners in ODL programmes.
To assess the extent to which technical support services influence retention of learners in ODL programmes at the selected Universities in Kenya.	The study established that technical support services influence retention of learners in ODL programmes. The null hypothesis was rejected.	The study established that 50.1% of the variance in retention of learners in ODL programmes is cumulatively accounted by technical assistance, internet connectivity, digital literacy, computer proficiency, online learning materials.	The study empirically established that only technical support regarding online learning materials and technical assistance significantly influence retention of learners in ODL programmes. However, computer proficiency, digital literacy and internet connectivity did not significantly influence the retention of learners in the programmes.

To determine the extent to which combined learner support services influence retention of learners in ODL programmes at the selected Universities in Kenya.	The study established that combined learner support services influenced the retention of learners in ODL programmes. The null hypothesis was rejected.	The study revealed that 56.9% of total variance in retention of learners in ODL programmes could be explained by cumulative variance in technical support services, academic support services, counseling support services, and administrative support services.	The study empirically established that among the learner support services; academic support services, administrative support services and technical support services significantly influenced the level of learner retention in ODL programmes while counselling support services was not.

To examine the extent to which learner interactions influence the retention of learners in ODL programmes at the selected Universities in Kenya.	The study confirmed that learner interactions have significant influence on retention of learners in ODL programmes at the selected Universities in Kenya. The null hypothesis was rejected. and specifically, interactions on assignments, content structure, feedback from instructors and interactions with instructors	The study revealed that 50.9% of the variance in retention of learners in ODL programmes is accounted for by assignment difficulty, content structure, interactions from instructors, use of ICT, and feedback from instructors cumulatively.	The study empirically established that learner interactions have significant influence specifically on assignments, content structure, feedback from instructors and interactions with instructors. However, On the other hand, the study established that learner interactions in the use of ICT did not have a significant influence on retention of learners in ODL programmes.

To establish the extent to which learner interactions moderate the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya.	Learner interactions was not a significant moderator of the relationship between combined learner support services and retention of learners in ODL programmes at the selected Universities in Kenya. The null hypothesis could not be rejected.	Learner interactions have no significant moderating influence on the relationship between combined learner support services and retention of learners in pen and distance learning (ODL) programmes	The study empirically determined the absence of both full and partial moderation effect of learner interactions in the relationship between combined learner support services and retention of learners in ODL programmes.

5.5 Recommendations of the Study

Based on the findings and conclusions the study makes the following recommendations.

5.5.1 Recommendations for Practice

The first objective was to determine the extent to which academic support services influenced the retention of students in ODL programmes. The study established that academic support services have a significant effect on the retention of students. The study established that advisory support, mentorship services, tutorial services, course materials support, and feedback cumulatively accounted for 60.1% of the variance in retention of learners in ODL programmes. However, the findings revealed that advisory support had no significant influence on retention. The managers and key stakeholders need to have a look at this aspect, especially addressing its availability and accessibility to ODL students in the light of these findings. Facilitate reviewing and updating course materials, especially establishing clear financial patterns for developing course materials. There should be a policy framework to guide on the regular training and refresher courses for the academic staff to enable them to be digitally literate. The mentorship program should be designed to provide academic, personal, and career guidance to students. Finally, there is need to improve feedback, lecturers could provide feedback promptly to students to avoid delays or missing marks.

The second objective was to determine the extent to which administrative support services influenced the retention of learners in programmes. The study found that in some universities the administrative staff were very helpful. However, in some instances they were very uncooperative, and this delayed support sought for by the ODL learners. The universities need to intensify training and monitoring the service delivery of their staff in ODL programmes. This aspect could influence the public image and reputation of an institution. Institutions should make efforts to ensure professionalism on how tiny handle communication matters with the open distance learners. Also, the study revealed that health services, student records and financial support are critical factors that are administrative that can influence the retention of ODL programmers. Universities should make efforts and improve on any shortfalls.

The third issue is regarding counselling support which emanated from the third objective which sought to establish the extent to which counselling support services influenced retention of ODL learners at the selected universities. The study recommends that orientation programmes, lessons on time management and seeking external resource persons to share on life issues have significant influence on retention. Based on this the universities should invest in the significant factors and then make efforts to examine the career guidance and availability of counsellors which were not found significant in the study. These two aspects were found unavailable due to inadequate staffing at the universities. The study recommends hiring more counsellors.

The fourth issue was regarding the technical support, here the study established that among the five indicators of computer proficiency, online materials, digital literacy, internet connectivity and technical assistance only two factors were significant, which were technical assistance and online materials. This means that universities should invest more on materials and technical support, especially on review and updating course materials and ensuring that technical assistance being sought is accessible and feedback is timely.

The fifth issue emanates from the fifth objective which sought to determine the extent to which combined learner support services inferenced retention of learners in ODL programmes. The study established that counselling support services have no significant influence on retention whereas it affirmed that the other support services of academic support, administrative support, and technical support were significant. Based on this finding, the universities need to reevaluate the kind of counselling support services offered. This can be in terms of reviewing them and aligning them to the needs of the ODL learners.

The sixth issue is on learner interactions which is a finding from the sixth objective which sought to determine the extent to which learner interactions influenced retention of the ODL learners. All the examined indicators were significant. However, the use of ICT or technology was not significant. The universities therefore should rethink the common course of computer classes because they don't appear to have a bearing on the retention of learners in ODL.

However, universities should strive to improve learner interactions based on assignments, content structure and instructors. This can be achieved by making use of social media platforms like WhatsApp and use of learner analytics to evaluate student activities.

The issue the study delved into in objective seven was to establish whether learner interactions moderated the relationship between learner support services and retention of learners in ODL programmes. The failure to reject the null hypothesis pointed to the existence of other factors that could be moderating the relationship between learner support services and retention of learners. In particular, the universities should re-examine other factors relating to students, teaching staff, administration and the technology systems used in the ODL programmes to determine their moderating effects.

5.5.2 Recommendation for Research Methodology

This study deployed the cross-sectional survey design with a mixed method approach where the researcher collected both quantitative and qualitative data. The research used an online student questionnaire to focus group discussions to gather data from students, and key informant interviews to collect data from the teaching and ICT staff. The findings of this study therefore were rich due to the variety of the methods used to collect and analyze the data. Therefore, this study recommends the deployment of similar designs and methods in future studies because they could yield reliable results.

5.5.3 Recommendations for Policy

The study makes the following recommendations for the government, regulatory bodies, and policymakers: There should be a policy framework in place to ensure that the ODL regulatory body under NACOSTI ensures that all universities have similar LMS to avoid glaring disparities in terms of implementation. Further to this, there should be intensification of quality assurance activities basically to address the learning management platforms to ease navigation and access to materials. Secondly, action needs to be taken on how to increase access to materials and at the same time striking a balance on making sure that students pay their fees. The study recommends the enactment of a policy framework touching on review of open distance programmes, training, certification, learner support, reporting of success in ODL and regulation of institutions offering distance learning programmes in Kenya.

5.6 Suggestions for Further Studies

Having adequately met the objectives of the study, the study makes the following suggestions for further studies.

i. A study to examine the mediation effect of university leadership on the relationship between learner support services and retention of learners in e-learning programmes at selected Universities in Kenya.
ii. A comparative study on learner support services in e-learning programmes between selected public and private universities in Kenya moderated by gender.
iii. A study to examine the use of learning analytics to identify early signs of potential student dropouts and interventions.
iv. A replication of a similar study on factors influencing retention of learners in Open distance learning programmes targeting only students who dropped out of various ODL programmes in Kenya.

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APPENDICES

APPENDIX 1: PARTICIPANT CONSENT FORM

Dear Participant,

Thank you for agreeing to participate in this study. My name is Wycliffe Magati Ndege. I am a doctoral candidate at the University of Nairobi. My research study is entitled: *Learner Support Services, Learner Interactions and Retention of students in ODL Programmes: The case of Selected Universities in Kenya.* The questionnaire has questions formulated on the "Agree - Disagree" scales. It will take about 30 minutes to complete this questionnaire. I kindly request you to access the questionnaire using the shared link your emails. Kindly press the 'submit button when you complete.

The findings of this study may help your university to better address the students' needs in terms of support and interactions to ensure success in ODLprogrammes. As of now, there are not any known risks that may occur because of your engagement in the study. You and the researchers will have the opportunity to access the data. The highest level of confidentiality will be observed in handling the raw data and ensuring that your identity is not disclosed for any other purpose.

By participating, you agree that you have been guided accordingly on what is required of you in participating in this study and voluntarily consent to be a participant. I am available presently and in future to respond to any questions regarding this study ndegewycliffe@gmail.com/ +254 710646302/ +254732345172.

Sincerely,

Signature: Date:

Respondent

APPENDIX 2: STUDENT RESPONSE QUESTIONNAIRE (SRQ)

This questionnaire has seven sections each addressing a specific thematic area. Please respond to all the items in the sections.

Section A: Learner Demographic Characteristics

I kindly request you to respond to the questions truthfully and honestly.

1. Indicate your gender:

☐ Male

☐ Female

2. Indicate your year of Study _____

3. Marital status

☐ Single

☐ Divorced

☐ Married

☐ Separated

4. Indicate your age in years.

☐ Under 25

☐ 25-29

☐ 30-34

☐ 35-39

☐ 40-44

☐ 45-49

☐ 50 and over

5. Highest level of Academic Achievement

☐ O level

☐ A level

☐ Diploma

- Degree Older
- Others specify……

6. Employment Status

- Unemployed
- Full-time employed.
- Self-employment full time
- Self-employment part-time

7. How many hours on average do you devote to course materials in a week?

- Less than 5
- 6-10 hours
- 11-15 hours
- 16-20 hours
- Above 20

8. Do you own a smartphone?

- Yes
- No

If yes answer question (9)

9. Do you receive short messages (SMS) from university giving you important notifications?

- Yes
- No

10. Do you own any of the following devices?

- Computer,
- Tablet,
- Smartphone,
- any other specify……..

11. How many courses have you so far taken on distance learning mode? _____

Section B: Retention in ODL Programmes

12. Indicate the degree to which you agree or disagree with these statements regarding academic support services offered at your university on a scale of 5-1. 5=Strongly Agree (SA), 4=Agree (A), 3= Neither agree nor disagree (N), 2=Disagree (D), 1=Strongly Disagree (SD).

	Statements	SA 5	A 4	N 3	D 2	SD 1
a.	My assessment of the course is that I am fully satisfied					
b.	It is a priority for me to graduate					
c.	I am proud of the choice of my university					
d.	I am sure I will enroll in the coming semester					
e.	I am satisfied with academic support services					
f.	I am adequately informed about which staff I need to consult when I have questions about the course					
g.	I am eager to graduate within the shortest required duration					
h.	I have great opportunities to engage with my classmates during lessons					
i.	I have enough resources to cater for my academic needs during the face-to-face residential sessions					
j.	I enjoy interacting with all the ODL team and I feel comfortable with the community					
k.	I am enjoying the educational experience I am at this University					

l.	If asked for a recommendation, I will highly recommend my university to my friends.					

SECTION C: ACADEMIC SUPPORT SERVICES

13. Indicate your level of agreement or disagreement with these statements on the academic support services offered at your university on a scale of 5-1. 5=Strongly Agree (SA), 4=Agree (A), 3= Neither agree nor disagree (N), 2=Disagree (D), 1=Strongly Disagree (SD).

	Statements	SA -5	A-4	N-3	D-2	SD-1
a.	My course instructor gives subject assignments promptly.					
b.	My instructor gives immediate feedback on my assignments.					
c.	The instructor gives positive and encouraging remarks on my academic work.					
d.	The feedback from my instructor mirrors a one-on-one conversation interaction as opposed to mere instructions and guides as in traditional face-to-face learning.					
e.	I often access learning resources, and this enables me to quickly finish my tasks.					
f.	The course is integrated with assessment and evaluation at the end of the course.					

g.	My every end of year results are availed on time.					
h.	Tutorial services are adequate					
i.	Instructors mark assignments promptly and give constructive feedback					
j.	Instructors help students to choose and implement learning strategies					
k.	Instructional content and modules are updated and relevant					
l.	All the course content/modules are readily available					

SECTION D: ADMINISTRATIVE SUPPORT SERVICES

14. Indicate your level of agreement or disagreement with these statements on the administrative support services offered at your university? On a scale of 5-1 to what extent do you agree or disagree with the following statements 5=Strongly Agree (SA), 4= Agree (A), 3=Neither agree nor disagree (N), 2=Disagree (D), 1=Strongly Disagree (SD)

	Statements	SA - 5	A- 4	N- 3	D- 2	SD- 1
a.	Admin staff help with admission and registration and give very easy to follow instructions					
b.	The university offers the flexibility of students to register and enrol using online platforms					
c.	The institution provides adequate information on schedules and curriculum details on the website					

d.	Learners have access to university health services					
e.	University provides payment procedures, financial statements, fees balance on online platforms					
f.	University uses ODL centres to reach off-campus students					
g.	The fees payment plans are tailored according to individual student needs					
h.	University has programmes for field visits to offer face-to-face contact with learners.					
i.	The admin staff are very helpful and approachable					

SECTION E: COUNSELING SUPPORT SERVICES

15. Indicate your level agreement or disagreement with these statements on the counselling support services offered at your university? on a scale of 5-1 5=Strongly Agree,(SA), 4=Agree(A),3=Neither agree nor disagree(N), 2=Disagree(D),1=Strongly Disagree (SD)

	Statements	SA-5	A-4	N-3	D-2	SD-1
a)	The counsellors offer counselling services concerning personal and academic challenges					
b)	The course is stressful and pressuring					
c)	The staff are committed to solving problems with the institution					
d)	University provides financial aid to needy students					

e)	Staff plan activities to promote social interactions among students					
f)	They give tips to overcome stress and adjustment to school programmes					
g)	They help students to deal with personal problems affecting studies					
h)	Introduction to communication tools and skills to enable them to navigate in DE					
i)	Pre-admission counselling with the selection of course					

SECTION F: TECHNICAL SUPPORT SERVICES

16. Indicate your level of agreement or disagreement with these statements on the technical support services on a scale of 5=Strongly Agree(SA),4=Agree (A),3=Neither agree nor disagree(N),2=Disagree(D),1=Strongly Disagree (SD).

	Statements	SA-5	A-4	N-3	D-2	SD-1
a)	I have access to online content and course materials					
b)	My ODL Centre is well equipped with computers and internet.					
c)	I enjoy using computers in my course.					
d)	At my place of residence, I have reliable electricity.					
e)	I always get SMS notification on important university events.					

f)	The university uses social platforms to deliver crucial information.					
g)	My ODL centre is well stocked with relevant books and references.					
h)	Access to digital library is well facilitated and I often access e-books and journals.					
i)	The university has a call centre working on a 24/7 basis dealing with student concerns.					
j)	I use social media most of the time in my communications and interactions with colleagues and ODL staff					
k)	I can comfortably access my exam results from my phone.					

SECTION G: LEARNER INTERACTIONS IN ODL PROGRAMMES

17. What is your perception of learner interactions in ODL programmes on a scale of 5-1 on a scale of 5=Strongly Agree, (SA),4=Agree (A),3=Neither agree nor disagree(N),2=Disagree(D),1=Strongly Disagree (SD).

	Statements	SA	A	N	D	SD
a	Students exchange information with classmates on course-related matters more than once a week.					
b	Students use multiple channels including the internet, phones and chatting online.					

c	Students believe trust and value contributions from other students					
d	There is a greater sense of belonging and community.					
e	Greater interactions through email exchanges, discussion board postings, line chats and feedback.					
f	Students interact with the instructor via multiple media.					
g	Feedback from the instructors is regular, prompt and consistent through a variety of media.					
h	Instructor writes out and posts clear instructions on schedules and due dates.					
i	The educators employ various instructional strategies in the course to address student needs.					
j	I am comfortable with the course technologies used to deliver the content.					
k	I do not experience any challenges navigating the LMS to access content.					

APPENDIX 3: STUDENT FOCUS GROUP DISCUSSION GUIDE

Please provide answers to the following questions on learner support services, learner interactions and retention in ODL Programmes.

1. Academic Support Services

a) Name the academic support services available at your university.

b) Explain the frequency of utilization of these services by the students in a semester.

c) What challenges do learners face concerning learner support services?

d) What suggestions do you offer to improve the delivery of the services?

2. Name the Administrative support services available at your university.

a) Explain the frequency of utilization of these services by the students in a semester.

b) What are the challenges experienced by students as far as the service is concerned?

c) What suggestions do you offer to improve the delivery of the services?

d) To what extent do these services affect the retention of ODL learners?

3. Technical Support Services

e) Name the academic support services available at your university.

f) Explain the frequency of utilization of these services by the students in a semester.

g) What are the challenges experienced by students as far as the service is concerned?

h) What suggestions do you offer to improve the delivery of the services?

i) To what extent do these services affect the retention of ODL learners?

4. Counselling Support Services

a) Name the academic support services available at your university.

b) Explain the frequency of utilization of these services by the students in a semester.

c) What are the challenges experienced by students as far as the service is concerned?

d) What suggestions do you offer to improve the delivery of the services?

e) To what extent do these services affect the retention of ODL learners?

5. Learner Interactions

a) Explain the utilization of learner-Instructor, Learner-Content, Learner-Learner, and Learner-Technology interactions in DE programmes.

b) What are the challenges experienced in Learner –Instructor interactions by both the learner and the teacher?
c) What are suggestions to improve the interactions?
d) To what extent do you think L-I affect retention?

APPENDIX 4: TEACHING STAFF KEY INFORMANT INTERVIEW

Section A: Staff Demographic Characteristics

I kindly request you to respond to the questions truthfully and honestly.

1) Gender:

☐ Male

☐ Female

2) My marital status

☐ Single

☐ Divorced

☐ Married

☐ Separated

3) Choose your age group from the following:

☐ Under 25

☐ 25-29

☐ 30-34

☐ 35-39

☐ 40-44

☐ 45-49

☐ 50 and over

4) Highest level of Academic Achievement

☐ O level

☐ A level

- Diploma
- Degree Older
- Others specify……

5) Employment Status

- Unemployed
- Full-time employed.
- Self-employment full time
- Self-employment part-time

6) How many hours on average do you devote to preparing course materials in a week?

- Less than 5
- 6-10 hours
- 11-15 hours
- 16-20 hours
- Above 20

7) Do you own a smartphone?

- Yes
- No

If yes answer question (9)

8) Do you own any of the following devices?

- Computer,
- Tablet,
- Smartphone,
- any other specify……..

9) How many courses have you so far taught in distance learning mode? _____

SECTION B: LEARNER SUPPORT SERVICES AND LEARNER INTERACTIONS

10) **Academic Support Services**

a) Name the academic support services available at your university.

b) Estimate the frequency of utilization of these services by the students in a week.

c) What suggestions do you offer to improve the delivery of the services?

d) To what extent do these services affect the retention of DE learners?

11) Administrative support services

a) List admin support services available at your university.

b) Explain the level of utilization of these services by the students in a week.

c) What suggestions do you offer to improve the delivery of the services?

d) To what extent do these services affect the retention of DE learners?

12) **Technical Support Services**

a) Name the academic support services available at your university.

b) Explain the frequency of utilization of these services by the students in a semester.

c) What suggestions do you offer to improve the delivery of the services?

d) To what extent do these services affect the retention of learners?

13) Counselling Support Services

a) Name the counselling support services available at your university.

b) Explain the frequency of utilization of these services by the students in a semester.

c) What suggestions do you offer to improve the delivery of the services?

d) To what extent do these services affect the retention of DE learners?

14) Learner Interactions

a) What are the challenges experienced by DE learners?

b) To what extent do you think learner characteristics affect retention?

c) What are the challenges experienced in Learner –Instructor, Learner-Learner, Learner-Content, and learner-technology interactions?

d) What are suggestions to improve the interaction?

e) To what extent do you think learner interactions affect retention?

APPENDIX 5: ICT STAFF KEY INFORMANT INTERVIEW SCHEDULE

Share you experience on how ICT offers technical support to distance learning programmes 0n the following aspects:

1. What is the type of learning management system used for distance learning at your university?
2. Computer proficiency and digital literacy -how do ICT undertake training to address competencies of learners and lecturers.
3. Development of content that is interactive and balanced to the needs of the ODL learners.
4. Instructional delivery strategies and provision of technical support to both staff and students.
5. Access to technical support by learners and educators through internet-based communication tools.
6. Challenges experienced in offering technical support to distance learning students and how to overcome them.
7. Suggestions to improve provision of technical support to online learning programmes.
8. In your opinion do you think learner support services influence retention of distance learning students.

END

APPENDIX 6: NACOSTI LICENSE TO COLLECT DATA

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