



Reimagining Student Support in the Digital Era: Stakeholders' Perceptions of Determinants Influencing Virtual Student Service Delivery in Kenyan Universities

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Abstract: This study focused on “Reimagining Student Support in the Digital Era: Stakeholders’ Perceptions of Determinants Influencing Virtual Student Service Delivery in Kenyan Universities.” A descriptive survey research design was adopted. The target population comprised 459 respondents, including 52 lecturers and 407 students, while ICT staff and university administrators were engaged through interviews. Stratified, purposive, and simple random sampling techniques were used. Data were collected using questionnaires and interview schedules. Instruments were validated through expert review, and reliability was established using Cronbach’s alpha (≥ 0.70). Quantitative data were analyzed thematically. Findings revealed that lecturers perceived institutional policies ($M = 3.49$, $SD = 0.61$), technical infrastructure ($M = 3.36$, $SD = 0.68$), resource allocation ($M = 3.31$, $SD = 0.70$), and mental health counseling services ($M = 3.17$, $SD = 0.72$) as moderately supportive of virtual student service delivery. In contrast, students reported lower ratings for institutional policies ($M = 3.17$, $SD = 0.90$), technical infrastructure ($M = 3.02$, $SD = 0.98$), resource allocation ($M = 2.99$, $SD = 1.00$), and mental health counseling services ($M = 2.86$, $SD = 1.06$), with higher variability in responses. The study concludes that despite progress in virtual student service delivery in Kenyan universities, significant gaps remain in policy implementation, infrastructural reliability, resource adequacy, and mental health support. It recommends strengthening institutional policy, investing in ICT infrastructure, and resource allocation.

Keywords: Virtual student services, digital transformation, resource allocation, mental health counseling, Kenyan universities.

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1. Introduction

The rapid digital transformation in higher education has significantly reshaped the manner in which universities provide support services to students. The increasing

adoption of virtual learning environments has compelled universities to establish virtual student services such as online academic advising, counseling, registration support, financial aid assistance, library services, and career guidance. These services are intended to enhance accessibility, flexibility, and continuity of student support

beyond the traditional face-to-face environment. Globally, universities are increasingly recognizing that effective virtual student services are essential in promoting student satisfaction, engagement, retention, and academic success in digitally mediated learning environments (Allen & Seaman, 2017; Garrett et al., 2021).

In developed countries such as the United States and the United Kingdom, universities have made substantial investments in technological infrastructure, institutional policies, and digital support systems to strengthen virtual student service delivery. The integration of learning management systems, cloud-based platforms, artificial intelligence-driven support tools, and secure online portals has enhanced the efficiency and responsiveness of student support services (Carter et al., 2022). However, studies indicate that factors such as digital accessibility, data privacy concerns, institutional readiness, and student engagement continue to influence the effectiveness of these services (Jisc, 2021; Smith & Brown, 2023). Additionally, disparities in internet connectivity and access to digital devices among students have continued to create inequalities in the utilization of virtual support systems (Bowen, 2013).

In Asia and Africa, the implementation of virtual student services has equally accelerated, particularly following the COVID-19 pandemic which forced universities to adopt online modes of operation. Countries such as China have leveraged advanced digital ecosystems, including artificial intelligence and cloud computing, to improve virtual student support services (Zhang & Liu, 2022). Nevertheless, challenges related to digital literacy, infrastructural disparities, and cultural preferences for face-to-face interaction continue to affect the effectiveness of virtual services (Chen & Wu, 2021; Yang et al., 2023). Similarly, African countries such as South Africa, Nigeria, Rwanda, Tanzania, and Uganda have experienced growing adoption of virtual student services, although institutions continue to face constraints associated with inadequate ICT infrastructure, high internet costs, unreliable connectivity, and limited institutional capacity (Molefe & Dlamini, 2022; Mosha & Mbwapo, 2022).

In the African context, stakeholder perceptions regarding the effectiveness of virtual student services are largely shaped by institutional support, technological accessibility, staff preparedness, and policy implementation. Universities that invest in digital capacity-building programs, staff training, and robust technological systems tend to provide more responsive and reliable virtual student services (Khoza & Moyo, 2022; Adamu & Bello, 2022). Conversely, inadequate funding, limited digital skills among users, and weak institutional coordination negatively affect the quality and accessibility of online

support systems (Ogunode & Abubakar, 2021). Furthermore, socio-economic inequalities among students continue to influence participation and engagement with virtual student services, especially among learners from disadvantaged backgrounds (Nkosi & Phiri, 2021).

In Kenya, universities have increasingly embraced digital transformation through the adoption of online learning platforms and virtual student support systems. Many institutions now offer services such as online registration, virtual counseling, e-library access, academic advising, and digital communication platforms to enhance service delivery to students (Wambua & Githongo, 2022). Despite these advancements, the effectiveness of virtual student services remains uneven across institutions. Challenges including inadequate ICT infrastructure, high internet costs, inconsistent connectivity, limited technical support, and varying levels of digital literacy among students and staff continue to affect the delivery and utilization of virtual student services (Mutisya & Wanyama, 2021; Omwenga & Mugo, 2023). Additionally, institutional policies and organizational preparedness differ across universities, thereby influencing the quality and efficiency of service provision.

Although virtual student services are becoming increasingly important within Kenyan universities, limited empirical studies have comprehensively examined stakeholders' perceptions regarding the factors influencing their delivery. Existing studies have largely focused on online learning and e-learning adoption, with minimal attention given to virtual student support systems and the institutional factors shaping their effectiveness. Stakeholders such as students, lecturers, administrators, and ICT personnel possess diverse experiences and perceptions concerning technological infrastructure, institutional policies, resource allocation, organizational support, and digital readiness in the delivery of virtual student services (Kariuki & Ng'ang'a, 2021; Mwangi & Muriithi, 2022). Therefore, this study seeks to examine stakeholders' perceptions of the determinants influencing the delivery of virtual student services in selected universities in Kenya with a view to generating insights that may inform policy, institutional planning, and improvement of digital student support systems.

1.2 Research Question

1. What are the stakeholders' perception on the factors influencing the delivery of virtual student services in selected universities in Kenya in terms of:
 - a) Institutional policies
 - b) Technical infrastructure
 - c) Resource allocation

- d) Mental health counseling

2. Literature Review

2.1 Perceived Factors Influencing Virtual Student Service Delivery

2.1.1 Technological Infrastructure

Technical infrastructure forms the backbone of all virtual student services. It includes internet connectivity, learning management systems (LMS), digital libraries, communication platforms, and devices such as computers and tablets. Mtebe and Raphael (2022) argue that without reliable infrastructure, virtual learning and support systems cannot function effectively regardless of policy or staffing quality. Infrastructure determines the extent to which students can access, digital content, counselling, and administrative services.

The reliability of technical infrastructure greatly shapes user experience. Frequent system downtimes, slow connectivity, or platform incompatibility erode trust in virtual services and reduce student engagement. Stewart and Barbara (2013) found that students frequently attribute poor online-learning experiences to technical disruptions rather than pedagogical shortcomings. Reliable infrastructure therefore enhances perceptions of institutional competence and increases service uptake.

Infrastructure alone is insufficient without responsive technical support. Technical help desks, troubleshooting services, and ICT support teams help students navigate technological challenges. According to Nyandwaki and Karani (2021), students who receive timely support are more likely to persist in online programs and make meaningful use of virtual services. Institutions that invest in training support staff and providing multi-channel help (chat, phone, email) create more accessible virtual learning environments.

The effectiveness of infrastructure also depends on its alignment with user skills and needs often described as socio-technical fit. Mtebe and Raphael (2022) note that even well-designed systems fail when students or staff lack digital literacy. Platforms must therefore be intuitive and accompanied by training programs. Lack of capacity among users can hinder adoption, even in institutions that have invested heavily in technology.

In lower-income countries, infrastructure limitations are especially pronounced. Limited access to devices, high internet costs, and unstable electricity supply create barriers for students and staff. These conditions disproportionately affect rural and public universities,

widening digital divides. Ncube (2020) highlights that in such contexts, even basic virtual services such as uploading assignments or accessing counselling may become difficult. Strengthening infrastructure is therefore central to improving virtual student services.

2.1.2 Institutional Policy

Institutional policies form the framework that governs how virtual student services are conceived, implemented, and evaluated. These policies serve as the formal guidelines that outline expectations for digital learning, define responsibilities for staff and students, and establish minimum standards for quality and accessibility. According to Maphosa (2022), coherent ICT and online-learning policies contribute to structured service delivery and reduce ambiguity among staff responsible for student support. Institutions with strong policy frameworks tend to provide more predictable, reliable, and equitable virtual services.

Policies also shape the level of accountability and coordination across various departments that deliver virtual services. Stewart (2021) notes that when policies clearly articulate roles such as who manages online advising, who responds to technical concerns, and who monitors student progress institutions experience stronger coordination and fewer service delivery lapses. Without such clarity, departments often work in silos, resulting in duplicated tasks, conflicting procedures, and inconsistent student experiences.

Although policies may exist, research consistently shows that implementation gaps weaken their effectiveness. Akinyemi and Abiddin (2021) emphasize that many institutions lack mechanisms to enforce compliance or monitor how staff apply digital-learning policies. This leads to inconsistent application across faculties and campuses. The absence of monitoring frameworks, continuous professional development, and policy-review cycles compromises the alignment between institutional intentions and actual student experiences.

Policies also play a critical role in addressing—or failing to address—equity issues in virtual student support. William and Clement (2023) argue that policies often overlook students with disabilities, those from low-income households, or those with limited digital literacy. Without provisions for assistive technologies, subsidized data packages, and inclusive design standards, institutional policies may inadvertently reinforce inequalities. Equity-focused policies ensure that student services do not disproportionately benefit already privileged groups.

Effective policies must be integrated across institutional systems and continuously reviewed to remain relevant. The rapid evolution of technologies used in virtual learning requires policies that adapt to changing needs, emerging

risks, and new modes of support provision. Stewart (2021) recommends that institutions adopt iterative policy cycles involving stakeholder consultations, pilot testing, and continuous evaluation. Such policy maturity strengthens institutional resilience and ensures that student services remain functional and effective over time.

2.1.3 Resource Allocation

Resource allocation determines the extent to which institutions can support virtual student services through technology, staffing, and training. Maphosa (2022) notes that without sustained financial investment, virtual support initiatives often collapse after initial project funding ends. Budget allocations influence the quality of platforms, availability of support staff, and purchase of digital tools necessary for seamless service delivery.

Human resources are equally critical. Adequate staffing of advisors, ICT personnel, and counsellors ensures that students receive timely and personalized support. William and Clement (2023) argue that understaffing leads to long response times, overburdened personnel, and burnout—factors that diminish service quality. Institutions with dedicated virtual-service teams generally achieve higher student satisfaction.

Investment in training ensures that staff possess the skills needed to operate within digital environments. Ncube (2020) highlights that many institutions underfund professional development, leaving staff ill-prepared to navigate virtual platforms or support students online. Continuous training enhances staff confidence and improves the quality of education, technical, and psychosocial support provided to students.

Resource allocation also influences equity. Institutions that invest in data subsidies, loanable devices, and accessible digital tools reduce barriers for students from disadvantaged backgrounds. Conversely, inadequate resourcing widens inequalities in access to virtual services. Maphosa (2022) suggests that equitable resource distribution is essential to ensure that all students regardless of socioeconomic status benefit from virtual services.

Sustainability in resource allocation requires long-term planning rather than ad-hoc expenditure. Stewart (2021) notes that one-off grants or emergency funding, such as those provided during crises, create temporary improvements but lack sustainability. Long-term budgeting, institutional commitment, and integration of virtual services into core budgeting structures ensure continuity and improvement over time.

2.1.4 Mental Health Counselling

Mental-health counselling is an essential component of virtual student services, especially as online environments may heighten social isolation, anxiety, and stress. Alvarez, Taylor, and Brown (2017) note that online learners often face unique emotional challenges due to reduced physical interaction and limited peer networks. Integrating mental-health services into virtual platforms enhances student wellbeing and persistence.

Research shows that virtual counselling is comparably effective to in-person counselling for many mental-health concerns. According to Khan and Wasilu (2021), online counselling supports students dealing with anxiety, depression, stress, and pressures. It offers flexibility, accessibility, and anonymity—features that increase uptake among students who may avoid traditional counselling.

Despite its benefits, virtual counselling faces several barriers. Students may lack private spaces at home to engage in confidential sessions. Digital literacy challenges, device shortages, and fear of inadequate privacy often discourage students from seeking help. Alvarez et al. (2017) highlight that confidentiality is among the most significant concerns, especially in shared living environments.

The success of virtual counselling also depends on institutional readiness and staff capacity. Khan and Wasilu (2021) emphasize the need for trained counsellors skilled in digital communication, crisis management, and use of online tools. Institutions must also establish protocols for emergencies, referrals, and data protection to ensure student safety.

Virtual counselling should be integrated non-academic, disability services, and technical support to create a holistic student-support ecosystem. William and Clement (2023) argue that fragmented support systems weaken student outcomes. Integrated support ensures that challenges, emotional wellbeing, and technical needs are addressed collectively, enhancing student retention and success.

3. Methodology

This study adopted a descriptive survey research design to examine stakeholders' perceptions of the determinants influencing the delivery of virtual student services in selected universities in Kenya. The design was considered appropriate because it enabled the researcher to systematically collect, describe, and analyze perceptions, experiences, and opinions of various stakeholders regarding virtual student service delivery without manipulating the study variables (Kothari, 2004). The study targeted university administrators, lecturers, students, and ICT staff from selected public and private universities in Kenya, as these stakeholders are directly involved in the implementation and utilization of virtual

student services. Stratified and purposive sampling techniques were used to select the universities and respondents, while simple random sampling was employed to obtain representative participants from each category.

Data were collected using self-constructed questionnaires and interview schedules developed based on the study objectives and relevant literature on virtual student services and digital support systems in higher education. The instruments were validated through expert review to ensure content and construct validity, while reliability was established through pilot testing using Cronbach's alpha coefficient, where a reliability coefficient of 0.70 and above was considered acceptable (Mugenda & Mugenda, 2003). Quantitative data were analyzed using descriptive statistics such as frequencies, percentages, means, and standard deviations, while qualitative data obtained from interviews were analyzed thematically to identify recurring patterns and themes related to stakeholders' perceptions of factors influencing virtual student service delivery. Ethical considerations such as informed consent, confidentiality, anonymity, and voluntary participation were strictly observed throughout the study.

4. Results and Discussion

4.1 Perceptions Factors Influencing Virtual Students Services Delivery

What are the stakeholders' perceptions of the factors influencing the delivery of virtual student services in selected universities in Kenya in terms of:

- a) Institutional policies
- b) Technical infrastructure
- c) Resource allocation
- d) Mental health counseling

Institutional Policy

Interpretation Scale

1.00-1.49= Strongly disagree

1.50-2.49= Disagree

2.50-3.49= Agree

3.50-4.00= Strongly agree

Table 1: Institutional Policy

Respondents	N	Mean	Std. Dev
Lecturers			
The university has clear policies that support the delivery of virtual student services.	52	3.58	0.57
Institutional policies are effectively communicated and easy for staff to understand.	52	3.46	0.63
Policies on online student services are consistently applied across departments.	52	3.32	0.71
Policies ensure that student data and privacy are protected in virtual services.	52	3.61	0.55
The university encourages staff compliance with policies related to virtual service delivery.	52	3.49	0.60
Average	52	3.49	0.61
Students			
My university has clear rules and guidelines that support online student services.	407	3.21	0.88
The policies guiding virtual services are easy for students to understand.	407	3.08	0.94
I feel that the university's policies protect my privacy when using online platforms.	407	3.26	0.86
The institution provides fair and inclusive policies that help all students access virtual services.	407	3.18	0.91
The policies in place make it easier for me to use online student services.	407	3.12	0.89
Average	407	3.17	0.90

The findings on institutional policy as a determinant of virtual student services delivery indicate generally strong support from lecturers, contrasted with more varied perceptions among students. Among lecturers, the overall mean score was high ($M = 3.49$, $SD = 0.61$), suggesting a strong consensus that institutional policies adequately support the delivery of virtual student services. Lecturers reported high agreement that universities have clear policies supporting virtual service delivery ($M = 3.58$, $SD = 0.57$) and that such policies ensure the protection of student data and privacy ($M = 3.61$, $SD = 0.55$). The relatively low standard deviations for these items indicate a high level of agreement, implying that lecturers share a common understanding of institutional policy frameworks.

This quantitative evidence is reinforced by interview findings from IT staff and university administrators, who emphasized that “most universities have formalized ICT and e-learning policies that guide service delivery” and that “data protection and cybersecurity protocols are prioritized to safeguard student information.” These insights suggest that, at the administrative and technical levels, policy structures are not only present but also actively enforced.

Lecturers further agreed that institutional policies are effectively communicated and easy for staff to understand ($M = 3.46$, $SD = 0.63$), and that universities encourage compliance with these policies ($M = 3.49$, $SD = 0.60$). However, a comparatively lower mean was recorded

regarding the consistency of policy implementation across departments ($M = 3.32$, $SD = 0.71$). The relatively higher standard deviation for this item indicates variability in lecturers' experiences and perceptions, suggesting that while policies may be clearly defined at the institutional level, their application may differ across departments. This interpretation is supported by interview data from administrators, who noted that "implementation often depends on departmental capacity, leadership, and resource allocation," while IT staff highlighted that "some departments adopt digital systems faster than others." Such findings align with existing literature, which underscores that the success of institutional policies in digital environments depends not only on their formulation but also on consistent and coordinated implementation across institutional units (Selwyn, 2016; Kahu & Nelson, 2018).

The findings imply that the effectiveness of virtual student services in universities is not determined solely by the existence of institutional policies, but largely by how consistently and equitably these policies are implemented across departments. Variations in departmental capacity, leadership engagement, and resource allocation suggest the need for stronger coordination mechanisms, clearer accountability structures, and targeted capacity-building initiatives to ensure uniform adoption of digital systems. Additionally, the uneven implementation across departments may create disparities in students' access to virtual services, thereby raising concerns of equity within the institution.

In contrast, students' perceptions on institutional policies were moderately positive but characterized by considerable variability, as reflected in the overall mean ($M = 3.17$, $SD = 0.90$). Students agreed that their universities have clear rules and guidelines supporting online student services ($M = 3.21$, $SD = 0.88$) and that institutional policies protect their privacy ($M = 3.26$, $SD = 0.86$). However, the relatively big standard deviations across these items indicate substantial divergence in student perceptions. This suggests that while some students perceive institutional policies as clear and protective, others may encounter challenges in accessing or understanding them. Interview findings from IT staff and administrators help explain this disparity, as participants indicated that "policies are often documented in institutional portals or manuals, but not all students actively engage with them," and that "there is limited structured sensitization for students on policy frameworks beyond initial orientation sessions."

Further analysis reveals that students expressed lower agreement regarding the clarity and usability of policies. For instance, the item on whether policies guiding virtual services are easy to understand recorded a mean of ($M = 3.08$, $SD = 0.94$), while the perception that policies facilitate ease of use of online services had a mean of ($M =$

3.12 , $SD = 0.89$). The high standard deviations for these items are particularly significant, as they indicate there is diverse responses on perceptions. This variation may be attributed to differences in digital literacy, frequency of platform usage, and access to institutional support. Similarly, perceptions of fairness and inclusivity of policies ($M = 3.18$, $SD = 0.91$) also exhibited notable dispersion, suggesting that not all students perceive institutional policies as equally accessible or accommodating. These findings are consistent with prior studies which argue that the effectiveness of digital policies is often mediated by user competencies and the inclusiveness of implementation strategies (Hodges et al., 2020; Means et al., 2020).

Selwyn (2016) show that digital policies in higher education are often formulated at institutional or managerial levels with limited involvement of end users, particularly students, leading to a gap between policy intent and lived experience. Likewise, Kahu and Nelson (2018) found that while institutional systems may be well-structured and positively perceived by staff or administrators, student engagement and satisfaction tend to vary due to differences in communication, accessibility, and user preparedness. These studies collectively support the observation that lecturers and administrators often report higher levels of system effectiveness compared to students, largely because of differences in training, exposure, and involvement in system design and implementation.

The implications of these findings are that universities need to move beyond policy formulation and technical deployment toward more inclusive and user-centred implementation of virtual student services. The observed disconnect suggests the need for stronger student involvement in policy development, improved communication of institutional digital services, and continuous user training to enhance awareness and usability. It also indicates that unequal variability among students may reflect differences in digital literacy and access, which could lead to inequities in service delivery if not addressed. Therefore, institutions must adopt participatory approaches and feedback mechanisms to ensure that virtual student services are not only well-designed at the administrative level but also effective, accessible, and responsive to student needs in practice.

Overall, the findings suggest that although institutional policies provide a strong foundation for the delivery of virtual student services, their effectiveness is constrained by inconsistencies in implementation and gaps in communication, particularly from the student perspective. The large standard deviations observed in student responses are especially critical, as they highlight inequalities in awareness, understanding, and experience of

institutional policies. To enhance the effectiveness of virtual service delivery, universities need to adopt more student-centered approaches to policy dissemination, including continuous sensitization, simplified policy frameworks, and improved user support systems. Strengthening these areas would help bridge the gap

between institutional intent and actual user experience, thereby improving the overall functionality and inclusiveness of virtual student services.

4.2 Technical Infrastructure

Table 2: Technical Infrastructure

Respondents	N	Mean	Std. Dev
Lecturers			
The university provides reliable internet connectivity necessary for virtual student services.	52	3.42	0.66
Online platforms (e.g., LMS, student portals) are functional and accessible for teaching and support purposes.	52	3.55	0.58
Adequate technical support is available to assist staff when problems arise.	52	3.28	0.72
The university provides necessary hardware and software for staff to deliver virtual services.	52	3.34	0.69
Frequent system downtimes or technical failures rarely disrupt my online teaching or service delivery.	52	3.19	0.74
Average	52	3.36	0.68
Students			
The university's online platforms (e.g., student portal, LMS) are easy for me to access.	407	3.14	0.92
The systems used for virtual services work well without frequent interruptions.	407	2.97	1.01
I can get technical help easily when I have problems using online platforms.	407	2.88	1.05
The university provides strong internet access that supports online services.	407	3.02	0.98
The digital tools provided by the university make it easy for me to use virtual student services.	407	3.09	0.95
Average	407	3.02	0.98

The findings on technical infrastructure as a determinant of virtual student services delivery reveal moderately positive perceptions among lecturers, contrasted with more varied and less favourable experiences among students. Among

lecturers, the overall mean score ($M = 3.36$, $SD = 0.68$) indicates general agreement that universities have put in place adequate technical infrastructure to support virtual service delivery. Lecturers reported relatively strong

agreement that online platforms such as Learning Management Systems (LMS) and student portals are functional and accessible ($M = 3.55$, $SD = 0.58$), with the low standard deviation suggesting a high level of consensus. This finding is reinforced by interview data from IT staff and university administrators, who noted that “most institutions have invested significantly in LMS platforms and integrated student information systems,” and that “system functionality has improved due to continuous upgrades and maintenance.” Such findings align with literature emphasizing that robust and functional digital platforms are foundational to effective virtual service delivery (Selwyn, 2016; Means et al., 2020).

Lecturers also agreed that the university provides reliable internet connectivity ($M = 3.42$, $SD = 0.66$) and necessary hardware and software to support service delivery ($M = 3.34$, $SD = 0.69$). However, the slightly higher standard deviations for these items indicate some variability in experiences, suggesting that not all lecturers benefit equally from these provisions. Interview insights from IT personnel support this interpretation, as they highlighted that “internet reliability can vary depending on campus location and bandwidth allocation,” and that “resource distribution is sometimes uneven across departments.” Furthermore, lecturers expressed comparatively lower agreement regarding the availability of adequate technical support ($M = 3.28$, $SD = 0.72$) and the extent to which system downtimes rarely disrupt service delivery ($M = 3.19$, $SD = 0.74$). The relatively higher standard deviations for these items are significant, as they indicate inconsistencies in technical support responsiveness and system reliability. Administrators acknowledged in interviews that “technical teams are sometimes overstretched,” and that “system downtimes, although reduced, still occur during peak usage periods,” highlighting persistent infrastructural and operational challenges.

In contrast, students’ perceptions of technical infrastructure were more moderate and characterized by substantial variability, as reflected in the overall mean ($M = 3.02$, $SD = 0.98$). Students agreed that online platforms are accessible ($M = 3.14$, $SD = 0.92$) and that digital tools facilitate the use of virtual services ($M = 3.09$, $SD = 0.95$). However, the relatively high standard deviations indicate considerable divergence in student experiences, suggesting that while some students find the systems accessible and user-friendly, others encounter significant barriers. This variability is further evident in perceptions of internet access ($M = 3.02$, $SD = 0.98$), where the high standard deviation reflects disparities in connectivity, possibly

influenced by students’ geographical location and access to personal internet resources. Interview findings from IT staff corroborate this, as participants noted that “off-campus students often rely on personal or mobile internet, which can be unstable,” and that “institutional infrastructure does not fully extend to remote users.”

More critically, students reported lower levels of agreement regarding system reliability and technical support. The item on whether systems work without frequent interruptions recorded a mean of $M = 2.97$ ($SD = 1.01$), while access to technical help had the lowest mean ($M = 2.88$, $SD = 1.05$). The standard deviations exceeding 1.00 for these items are particularly noteworthy, as they indicate a very wide spread of responses and significant inconsistencies in user experience. This suggests that while some students may experience smooth and uninterrupted access, others face frequent disruptions and difficulties in obtaining timely technical assistance. Interview data from administrators and IT personnel provide further context, with respondents acknowledging that “helpdesk systems are in place but response times can vary,” and that “student support services are sometimes overwhelmed, especially during peak academic periods.” These findings are consistent with existing literature, which highlights that inadequate technical support and system instability are major barriers to effective digital learning and service delivery (Kahu & Nelson, 2018; Hodges et al., 2020).

A comparative analysis of lecturers’ and students’ responses reveals a clear disparity. Lecturers demonstrated relatively higher agreement with moderate variability, while students exhibited lower agreement with significantly higher variability. This suggests that technical infrastructure, while generally adequate from the institutional and staff perspective, does not consistently translate into a seamless user experience for students. The large standard deviations observed among student responses are particularly critical, as they point to inequalities in access, reliability, and support, which may undermine the effectiveness of virtual student services.

The findings indicate that technical infrastructure plays a crucial role in shaping the delivery of virtual student services; however, its effectiveness is constrained by inconsistencies in access, system reliability, and technical support, particularly from the student perspective. Addressing these challenges would enhance the overall efficiency, accessibility, and user satisfaction associated with virtual student services.

4.3 Resource Allocation

Table 3: Resource Allocation

Respondents	N	Mean	Std. Dev
Lecturers			
The university allocates sufficient financial resources to support virtual student services.	52	3.31	0.70
Adequate staff are assigned to manage and deliver online student services.	52	3.27	0.73
The university invests in upgrading and maintaining virtual service platforms.	52	3.38	0.65
Training and capacity-building resources are available for staff to manage online services effectively.	52	3.22	0.76
Resource allocation supports the long-term sustainability of virtual student services.	52	3.35	0.68
Average	52	3.31	0.70
Students			
The university provides enough staff to assist students through virtual services.	407	2.94	1.02
I feel the university invests in improving the online platforms we use.	407	3.06	0.96
The university offers training or guidance to help students use virtual services effectively.	407	2.89	1.08
Online student services are well-supported with the necessary resources.	407	2.97	1.01
I believe the university spends enough resources to ensure virtual services work smoothly.	407	3.11	0.93
Average	407	2.99	1.00

The findings on resource allocation as a factor influencing the delivery of virtual student services indicate moderate levels of agreement among lecturers, contrasted with comparatively lower and more variable perceptions among students. Among lecturers, the overall mean score ($M = 3.31$, $SD = 0.70$) suggests general agreement that universities allocate adequate resources to support virtual student services. Lecturers reported that universities invest in upgrading and maintaining virtual service platforms ($M = 3.38$, $SD = 0.65$) and that resource allocation supports the long-term sustainability of these services ($M = 3.35$, $SD = 0.68$). The relatively moderate standard deviations for these items indicate a fair degree of homogeneity in

responses, implying that lecturers generally perceive institutional commitment toward sustaining digital infrastructure. These findings are reinforced by interview data from IT staff and university administrators, who emphasized that “institutions have increasingly prioritized budgetary allocations for ICT infrastructure and system maintenance,” and that “long-term digital transformation strategies are being integrated into institutional planning.” Such findings are consistent with literature which underscores that sustained investment is critical for the effectiveness and scalability of virtual service delivery (Means et al., 2020; Selwyn, 2016).

Lecturers further agreed that sufficient financial resources are allocated to support virtual student services ($M = 3.31$, $SD = 0.70$) and that adequate staff are assigned to manage and deliver online services ($M = 3.27$, $SD = 0.73$). However, the relatively higher standard deviations for these items suggest some variability in perceptions, indicating that resource allocation may not be uniformly experienced across departments. Interview findings support this interpretation, as administrators noted that “budget allocations are often centralized, but distribution across faculties may vary depending on priorities and student numbers,” while IT personnel highlighted that “staffing levels are sometimes stretched, especially during peak service demand periods.”

Notably, lecturers reported comparatively lower agreement regarding the availability of training and capacity-building resources ($M = 3.22$, $SD = 0.76$). The higher standard deviation for this item is particularly significant, as it reflects inconsistencies in access to professional development opportunities. This suggests that while some lecturers benefit from adequate training, others may lack sufficient support to effectively manage virtual platforms. Interview data corroborate this, with administrators acknowledging that “training programs are available but not always continuous or mandatory,” and that “some staff rely on self-learning or peer support.” This finding aligns with existing literature, which emphasizes that continuous capacity building is essential for effective integration of digital technologies in higher education (Hodges et al., 2020; Kahu & Nelson, 2018).

In contrast, students’ perceptions on resource allocation were lower and characterized by substantial variability, as reflected in the overall mean ($M = 2.99$, $SD = 1.00$). Students reported moderate agreement that universities invest in improving online platforms ($M = 3.06$, $SD = 0.96$) and that sufficient resources are allocated to ensure smooth functioning of virtual services ($M = 3.11$, $SD = 0.93$). However, the relatively large standard deviations indicate considerable divergence in student experiences, suggesting that resource adequacy is not uniformly perceived across the student population. Interview insights from IT staff and administrators provide further context, indicating that “resource allocation is often prioritized at the system level, but direct student-facing support may not always be sufficient,” and that “rapid increases in student numbers sometimes outpace available resources.”

More critically, students expressed lower levels of agreement regarding staffing and support structures. The item on whether the university provides enough staff to assist students recorded a mean of ($M = 2.94$, $SD = 1.02$), while the availability of training or guidance for using virtual services had a mean of ($M = 2.89$, $SD = 1.08$). The

standard deviations exceeding 1.00 for these items are particularly noteworthy, as they indicate a very wide spread of responses and substantial inconsistencies in student experiences. This suggests that while some students receive adequate support and guidance, others face significant challenges in accessing assistance or developing the necessary skills to effectively use virtual platforms. Interview findings support this interpretation, with IT personnel noting that “student support services, including helpdesks and training sessions, are often limited in capacity,” and administrators acknowledging that “orientation programs may not fully equip students with the skills needed to navigate all virtual systems.”

Similarly, students reported moderate perceptions regarding whether online student services are well-supported with necessary resources ($M = 2.97$, $SD = 1.01$). The high standard deviation for this item further underscores disparities in access and support, pointing to uneven distribution of resources and varying levels of institutional effectiveness. These findings are consistent with prior research, which highlights that inequitable resource allocation and insufficient user support can significantly hinder the effectiveness of digital service delivery (Means et al., 2020; Hodges et al., 2020).

A comparative analysis of lecturers’ and students’ responses reveals a notable gap. While lecturers generally perceive resource allocation as adequate and moderately consistent, students report lower levels of satisfaction coupled with significantly higher variability. This disparity suggests that institutional investments, although present, may not fully translate into equitable and effective support at the user level. The large standard deviations observed among student responses are particularly critical, as they indicate inequalities in access to staffing, training, and overall resource support.

Overall, the findings suggest that resource allocation is a key determinant of virtual student service delivery; however, its effectiveness is limited by inconsistencies in distribution, capacity constraints, and gaps in user support—particularly from the student perspective. The high variability in student responses highlights the need for institutions to adopt more inclusive and demand-responsive resource allocation strategies, including expanding support staff, enhancing student training programs, and ensuring equitable access to resources across all user groups. Addressing these challenges would strengthen the sustainability, accessibility, and overall effectiveness of virtual student services in higher education institutions.

4.4 Mental Health

Table 4: Mental Health

Respondents	N	Mean	Std. Dev
Lecturers			
The university provides accessible online mental health counseling services for students.	52	3.18	0.71
Staff are aware of how students can access virtual counseling services.	52	3.25	0.68
Virtual counseling services maintain confidentiality and protect student privacy.	52	3.12	0.74
Counselors are available through multiple virtual platforms to support students.	52	3.09	0.77
Online mental health services adequately meet the emotional and psychological needs of students.	52	3.21	0.70
Average	52	3.17	0.72
Students			
I can easily access mental health counseling services online when I need them.	407	2.84	1.05
I know where to find information about the university's online counseling services.	407	2.79	1.09
I feel safe and private when using virtual counseling platforms.	407	2.91	1.03
Counselors are available to help students through online sessions or chats.	407	2.86	1.07
The virtual counseling services offered meet my emotional and psychological needs.	407	2.88	1.04
Average	407	2.86	1.06

The findings on mental health as a factor influencing the delivery of virtual student services reveal moderate levels of agreement among lecturers, contrasted with lower and highly variable perceptions among students. Among lecturers, the overall mean score ($M = 3.17$, $SD = 0.72$) indicates general agreement that universities have made efforts to integrate mental health support within virtual service frameworks. Lecturers reported that staff are aware of how students can access virtual counselling services ($M = 3.25$, $SD = 0.68$) and that online mental health services adequately meet students' emotional and psychological needs ($M = 3.21$, $SD = 0.70$). The relatively moderate standard deviations for these items suggest a reasonable

level of consensus among lecturers, implying that awareness and perceived adequacy of services are fairly consistent across staff. Interview data from IT staff and university administrators reinforce these findings, with participants noting that "most institutions have incorporated counselling services into their digital platforms" and that "awareness campaigns are often conducted through institutional portals and communication systems."

Lecturers also indicated that universities provide accessible online mental health counselling services ($M = 3.18$, $SD = 0.71$), although the moderate standard deviation suggests

some variability in experiences. Similarly, perceptions regarding confidentiality and privacy in virtual counselling services ($M = 3.12$, $SD = 0.74$) and the availability of counsellors across multiple platforms ($M = 3.09$, $SD = 0.77$) recorded slightly lower means with relatively higher standard deviations. These variations are significant, as they point to inconsistencies in service delivery, particularly in ensuring privacy and multi-platform accessibility. Interview findings support this interpretation, with administrators acknowledging that “while confidentiality protocols exist, not all students fully trust digital systems,” and IT personnel noting that “the integration of counselling services across multiple platforms is still evolving.” These findings are consistent with literature emphasizing that trust, confidentiality, and accessibility are critical determinants of effective digital mental health services (Hodges et al., 2020; Means et al., 2020).

In contrast, students’ perceptions of virtual mental health services were notably lower and characterized by substantial variability, as reflected in the overall mean ($M = 2.86$, $SD = 1.06$). Students reported relatively low agreement regarding their ability to access online counselling services when needed ($M = 2.84$, $SD = 1.05$) and their awareness of where to find information about such services ($M = 2.79$, $SD = 1.09$). The standard deviations exceeding 1.00 for these items are particularly critical, as they indicate a very wide dispersion of responses, suggesting that while some students are well-informed and able to access services, a significant proportion face challenges in awareness and accessibility. Interview data from IT staff and administrators provide further insight, indicating that “information about counselling services is often available online, but student engagement with these resources is limited,” and that “there is a need for more proactive and targeted communication strategies.”

Students also expressed moderate to low agreement regarding the safety and privacy of virtual counselling platforms ($M = 2.91$, $SD = 1.03$) and the availability of counsellors through online sessions or chats ($M = 2.86$, $SD = 1.07$). The high standard deviations for these items highlight considerable inconsistencies in student experiences, suggesting that perceptions of confidentiality and availability vary widely. This may reflect differences in individual experiences with counselling services, as well as varying levels of trust in digital platforms. Furthermore, students reported that virtual counselling services only moderately meet their emotional and psychological needs ($M = 2.88$, $SD = 1.04$), with the large standard deviation indicating that while some students find these services helpful, others perceive them as insufficient or ineffective.

A comparative analysis of lecturers’ and students’ responses reveals a clear disparity. Lecturers generally

perceive virtual mental health services as available, accessible, and moderately effective, whereas students report lower levels of satisfaction and significantly higher variability in their experiences. This suggests a disconnect between institutional provision and user experience, where services that are perceived as adequate by staff and administrators may not fully meet the needs or expectations of students. Interview findings further support this interpretation, with administrators noting that “mental health services are available but underutilized,” and IT staff highlighting that “digital platforms alone are not sufficient without strong user engagement and trust.”

The large standard deviations observed across student responses are particularly significant, as they point to inequalities in access, awareness, and perceived effectiveness of virtual mental health services. Such variability may be influenced by factors such as stigma associated with seeking mental health support, differences in digital literacy, and varying levels of institutional outreach. These findings align with existing literature, which emphasizes that the success of online mental health interventions depends not only on availability but also on accessibility, user trust, and proactive engagement strategies (Hodges et al., 2020; Kahu & Nelson, 2018).

Overall, the findings suggest that while universities have made commendable efforts to integrate mental health support into virtual student services, significant gaps remain in terms of awareness, accessibility, and perceived effectiveness—particularly from the student perspective. Addressing these challenges would strengthen the role of mental health support within virtual student services and contribute to improved student well-being and academic success.

5 Conclusion and Recommendation

5.1 Conclusion

The study concludes that institutional policies play a fundamental role in shaping the effectiveness of virtual student services. Universities with well-defined, coherent, and consistently implemented policies are more likely to achieve efficient and coordinated service delivery. However, the presence of policy implementation gaps limits the potential impact of these frameworks, indicating the need for continuous review and enforcement.

Institutions of higher learning should develop and regularly review comprehensive institutional policies that provide clear guidelines for the planning, implementation, management, and evaluation of virtual student services. These policies should be aligned with emerging technologies, national higher education policies, and international best practices to ensure their continued relevance and effectiveness.

5.2 Recommendations

1. **Institutions of higher learning should** establish effective implementation, monitoring, and evaluation mechanisms for virtual student service policies to ensure consistency in service delivery across departments. Regular assessments should be conducted to identify implementation gaps and inform continuous quality improvement.
2. **Institutions of higher learning should** invest in reliable and sustainable technological infrastructure by providing high-speed internet connectivity, secure digital platforms, updated information systems, modern hardware, and robust cybersecurity measures. Such investments will enhance the accessibility, efficiency, and security of virtual student services.
3. **Institutions of higher learning should** allocate adequate financial resources to support the acquisition, maintenance, upgrading, and expansion of digital systems and technologies used in delivering virtual student services. Sustainable funding should also be provided for software licensing, technical maintenance, and innovation initiatives.
4. **Institutions of higher learning should** recruit, develop, and retain qualified ICT professionals and technical support staff to ensure efficient management of digital systems. Continuous professional development opportunities should be provided to enhance staff competencies in supporting evolving technological demands.
5. **Institutions of higher learning should** strengthen virtual mental health and psychosocial support services by recruiting qualified counselors, providing continuous training in online counseling practices, and increasing staffing levels to meet the growing demand for student support services.
6. **Institutions of higher learning should** integrate counseling, academic advising, career guidance, library services, financial aid support, and other student support services into a centralized digital platform to enhance accessibility, improve coordination, and provide students with seamless access to institutional services.

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