

Mobilization of Funds among Students and Lecturers to Support the Implementation of Virtual Learning among Universities in the Northern Zone, Tanzania

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Abstract

The study assessed how students and lecturers mobilize funds for implementation of virtual learning (VL) among universities. Resource-Based View Theory guided the study. Convergent mixed methods approach that enabled the collection of both quantitative and qualitative data was adopted. Population included 6 DVCs, 6 system administrators, 740 lecturers and 6200 students. Sample consisted of 4 DVCs (selected by criterion purposive), 4 system administrators (expertise sampling techniques), 74 lecturers and 620 students (stratified random sampling techniques). Data were collected using questionnaires, interview guide and observation guide. Experts validated the instruments while reliability (SQ, $r=0.906$ and LQ, $r=0.956$) was established through a pilot. Descriptive statistics was used to analyze the quantitative data in the SPSS version 22 while qualitative data were analyzed thematically with the help of ATLAS.ti software. The study found a moderate level of dissatisfaction regarding the adequacy of financial resources mobilized for VL initiatives that hinders the effective implementation of VL programmes. In conclusion, both lecturers and students reported a moderate level of fund mobilization for the implementation of VL initiatives across institutions. In recommendation, Universities should design additional sources of funds and ensure their accountability and transparency to improve their financial position and meet VL implementation requirements.

Keywords: Mobilization, Funds, Lecturers, Students, Virtual, Implementation, Universities

1. Introduction

The COVID-19 pandemic has accelerated the adoption of virtual learning (VL) across the globe, unveiling significant funding challenges and prompting students and lecturers to explore various strategies for mobilizing resources. The effective implementation of VL necessitates considerable investment in technology, such as computers, software, and high-speed internet connections, as well as ongoing costs related to platform maintenance and technical support. This financial burden highlights the critical need for robust fund mobilization strategies to ensure that educational institutions can deliver high-quality virtual education and address existing disparities in access. In response, students and lecturers have increasingly turned to a variety of funding mechanisms, including institutional budgets, crowdfunding campaigns, and community fundraising efforts (Wong and Lau., 2022.).

Recent research provides a nuanced understanding of how educational institutions are navigating these financial challenges. Ndibalema (2021) identify a range of funding sources employed by universities, including government grants, private donations, and institutional reallocations. Their study emphasizes that while public funding and subsidies are vital, they often fall short of covering the full spectrum of costs associated with VL. The study also highlights the growing importance of alumni donations and corporate sponsorships in bridging funding gaps not addressed by traditional sources. Mwakyusa & Ng`webeya (2022) further illustrate that crowdfunding has become a popular and flexible tool among students and educators, helping to address specific technological needs and promote educational equity. Their report underscores the effectiveness of community-driven funding in supporting VL initiatives, particularly in areas with limited institutional resources.

In the context of universities in the Northern Zone of Tanzania, the preparedness for VL implementation reveals both progress and significant challenges. Mwakyusa & Ng`webeya (2022) conducted a study assessing the readiness of Tanzanian universities for VL and found that while some institutions are making strides, there remains a substantial disparity in preparedness due to limited financial resources. They noted that many universities struggle with inadequate infrastructure and inconsistent funding, which hampers their ability to implement VL effectively. Ndibalema (2021) raise concerns about the transparency and accountability of fund allocation, which can undermine trust and hinder the efficient use of resources. The reliance on external funding sources, such as donations and grants, also poses risks related to sustainability, as fluctuating support and shifting priorities can impact long-term planning. These issues are particularly pronounced in the Northern Zone of Tanzania, where universities face additional challenges such as limited financial resources and infrastructural deficits. Addressing these concerns requires a comprehensive and strategic approach to fund mobilization that includes transparent financial practices, equitable resource distribution, and robust planning to ensure the effective and sustainable implementation of virtual learning initiatives.

2. Statement of the Problem

Resource mobilization has become increasingly essential in ensuring successful implementation of VL among universities in the Northern Zone of Tanzania. However, universities in the Northern

Zone of Tanzania face challenges in mobilizing the necessary financial resources to support the full implementation of VL (Sukums et al., 2023). Limited governmental funding, inadequate technological infrastructure, and the absence of strategic public-private partnerships hinder the institutions' ability to effectively transition to virtual systems, leaving students and faculty struggling with inconsistent access to digital resources. This problem exacerbates educational inequality and slows down the adoption of modern teaching methods (Hamisi et al., 2023). If this concern is not addressed, universities in the Northern Zone of Tanzania will struggle implementing VL. This could lead to several adverse outcomes, including the inability to provide high-quality education through VL, which may compromise the students' learning outcomes in their degree programmes.

The lack of effective fund mobilization strategies has created a major financial gap, restricting universities from investing in critical areas such as digital infrastructure, online learning platforms, and the training of academic staff. Several studies have attempted to investigate the universities' mobilization of funds to support implementation of VL in educational institutions. For instance, studies explored the adoption of e-learning in universities in Tanzania (Almas et al., 2021; Pallangyo et al., 2020; Mgaiwa & Ishengoma, 2023). While these studies provided valuable insights into the significance and opportunities of e-learning adoption, they did not comprehensively address universities' preparedness to mobilize adequate funds to support virtual implementation, funding options and digital facilities. Consequently, this study sought to fill this gap by systematically investigating how students and lecturers mobilize funds to support virtual implementation among universities in the Northern Zone of Tanzania.

3. Research Question

One research question guided the study:

1. How do students and lecturers mobilize funds to support virtual implementation among universities in the Northern Zone of Tanzania?

4. Theoretical Framework

The study was guided by Resource-Based View (RBV) theory primarily developed by Birger Wernerfelt in 1984, and further refined by Jay Barney in 1991. Therefore, Resource-Based View (RBV) Theory has evolved through the contributions of several scholars and researchers. Jay Barney, a prominent scholar in strategic management, is often associated with developing and popularizing the RBV framework. While he is not the sole founder, his work has been instrumental in shaping and advancing the theory. The Resource-Based View Theory focuses on an organization's internal resources and capabilities that can contribute to its competitive advantage. These resources are funds, tangible digital assets, intellectual property, human capital, and technology, while capabilities involve the organization's ability to combine and utilize resources effectively. Sustainable competitive advantage is achieved through adequate resource mobilization for successful implementation of VL in the university. In the context of VL system implementation, it can help assess whether universities in the Northern Zone of Tanzania possess the necessary resources and capabilities.

One of the strengths of RBV is that it emphasizes the importance of internal resources and capabilities in achieving competitive advantage. It provides a framework for assessing whether universities have the necessary resources to implement VL. In the context of mobilizing funds for VL in universities in the Northern Zone of Tanzania, the RBV theory can be applied by

examining how universities utilize their internal resources to generate financial support. Universities with valuable and rare resources, such as skilled staff, strategic partnerships, and well-established reputations, can leverage these assets to attract investments and build sustainable funding models for virtual learning. Additionally, institutions that develop inimitable capabilities—such as innovative fundraising approaches or unique educational technologies—will be better positioned to secure long-term financial stability for virtual implementation.

The RBV framework highlights the importance of cultivating internal resources like institutional knowledge, reputation, and financial expertise, which can be crucial in mobilizing funds. By focusing on enhancing these core resources, universities can gain a competitive advantage in securing external funds through grants, partnerships, and collaborations, ultimately facilitating the successful implementation of virtual learning systems. However, the limitations of RBV suggest that universities must also consider external market forces and adapt to changes in the educational landscape to remain competitive.

5. Review of Empirical Studies

Various studies conducted globally, regionally and locally have shown diverse findings and their implications. For example, in Singapore, Wong and Lau, (2022) conducted a study aimed to investigate how students mobilize funds to support their VLendeavours and assess the effectiveness of these financial strategies. The study adopted a quantitative approach and employed a survey questionnaire as a data collection instrument with a sample of 300 students selected using the convenience sampling technique. The study found that most students in Singapore relied on personal savings and family support to finance their VLrequirements. In

China, Li et al. (2024) conducted a study titled "Financial Strategies for Virtual Learning: Insights from Students and Lecturers in Chinese Universities." The study aimed to explore how students and lecturers mobilize funds to support VLactivities, focusing on identifying funding sources, understanding financial challenges, and uncovering innovative approaches to funding. Using a qualitative approach, the researchers adopted focus group discussions and interviews as data collection instruments. The sample comprised 50 participants, comprising 25 students and 25 lecturers, who were selected using purposive sampling. The study's findings indicated that students predominantly relied on family support and part-time work to finance their virtual learning needs. However, these studies could be critiqued for using non-probability sampling technique only to select respondents. This technique doesn't give respondents equal chance of participating in the study.

In various African countries such as Senegal, Chevé et al. (2023) conducted a study that investigated how students and lecturers mobilize funds to support VLinitiatives. The researchers employed a quantitative approach and used structured questionnaires to students and interviews with lecturers to collect data from a sample size of 325 respondents (300 students and 25 lecturers) obtained using stratified random sampling. Quantitative data were analyzed using descriptive statistics, while qualitative data underwent thematic analysis. The study found that scholarships and government grants were crucial funding sources for students engaged in VL. Additionally, Mohammed et al. (2024) conducted a study in Ghana that intended to investigate the strategies employed by students and lecturers to finance VL activities, focusing on assessing the effectiveness of current financial support mechanisms. The study adopted a

mixed-methods approach and used questionnaires for students and focus group discussions for lecturers to collect data. The sample consisted of 200 students and 20 lecturers selected using purposive sampling. The study's findings revealed that students primarily relied on family support and part-time jobs to finance their virtual learning requirements. While the adoption of stratified random sampling may provide good statistical representativeness of the sample for students, lecturers could have been drawn using purposive sampling techniques to select only those who can provide rich qualitative data from interviews.

Kassim et al. (2022) conducted a study in Kenya aimed to examine the financial strategies utilized by students and lecturers, as well as the institutional support available for VL initiatives. The study adopted a qualitative approach and utilized focus group discussions and semi-structured interview guides to collect data. There were 30 respondents, 15 of whom were students and 15 were lecturers, who were selected using convenience sampling. The study's findings showed that students commonly relied on part-time work and government loans to finance their VL endeavours. In contrast, lecturers encountered challenges accessing grants for professional development necessary for effective virtual teaching. Ngowi et al. (2022) conducted a study in Tanzania titled whose purpose was to investigate the funding mechanisms lecturers utilise to support VL implementation. The study adopted a qualitative approach and used semi-structured interviews with a sample of 20 lecturers selected through purposive sampling. It was found that lecturers predominantly relied on institutional grants, research funding, and international collaborations to finance virtual learning implementation. However, lecturers encountered barriers to mobilizing funds, such as bureaucratic processes and limited access to external funding sources. These findings in Kenyan universities are relevant to this study, except that part-time jobs may not apply to the Tanzanian context. To address this gap, this study in Tanzania did not assess part-time jobs as one of the sources from which students and lecturers will mobilize funds. Instead, this study considered other sources of funds, as well as their transparency and guidelines available for students and lecturers. The use of lecturers alone as respondents in Ngowi et al. (2022) may not fully capture all key insights that could be obtained from students and administrators. To address this gap, this study in Tanzania employed a mixed-methods approach, incorporating quantitative questionnaires and interview guides across a broader spectrum of students, lecturers and administrators.

6. Demonstration of Knowledge Gap

The reviewed empirical studies have shown that mobilization of funds to support virtual implementation vary among universities, with studies in developed countries revealing disparities between lecturers and students, as well as challenges related to mobilization of funds and digital resources. While studies in African countries have explored similar themes, they often focus on specific contexts and utilize single modes of data collection, limiting generalizability. For instance, study in Singapore by Wong and Lau, (2022) investigated how students mobilize funds to support their VL endeavours and assess the effectiveness of these financial strategies. In China, Li et al. (2024) explored how students and lecturers mobilize funds to support VL activities, focusing on identifying funding sources, understanding financial challenges, and uncovering innovative approaches to funding. In Senegal, Chevé et al. (2023) investigated how students and lecturers mobilize funds to support VL initiatives. In addition, Mohammed et al. (2024) conducted a study in Ghana, Kassim et al. (2022) conducted a

study in Kenya and Ngowi et al. (2022) conducted a study in Tanzania all have examined the financial strategies utilized by students and lecturers, as well as the institutional support available for VL initiatives. Despite the recommendation from these studies, the issue of mobilization of funds to successfully support virtual implementation is still a subject for discussion among universities in the Northern Zone of Tanzania. This could lead to several adverse outcomes, including the inability to provide high-quality education through VL, which may compromise the students' learning outcomes in their degree programmes. Thus, there is a knowledge gap regarding effective resource mobilization for successful VL implementation. Consequently, there is a need to conduct a comprehensive study to establish how students and lecturers mobilize funds to support virtual implementation among universities in the Northern Zone of Tanzania

7. Research Methodology

The study utilized a mixed methods approach, combining quantitative and qualitative data collection techniques. The convergent design under the mixed methods approach allowed for simultaneous collection of both types of data (Creswell & Creswell, 2018). This enabled separate analysis followed by an integrated interpretation of findings. This design facilitated an understanding of the subject matter by combining the strengths of both quantitative and qualitative methods. The target population was 6 Deputy Vice Chancellors for Academics, 6 system administrators, 740 lecturers, and 6200 university students from six full-fledged universities in the northern zone, Tanzania. This diverse population represented key stakeholders involved in academic affairs and VL implementation within the university context.

The study employed both probability and non-probability sampling techniques to select the study sample that consisted of 4 deputy vice chancellors responsible for academics (15%), 4 system administrators (15%), 74 lectures (10%) and 620 students (10%). This makes a total of 702 respondents. Stratified random sampling was utilized to select four universities out of six, considering ownership (public and private). This sample was representative as supported by Kim et al (2022) who pointed that a good sample should be at least 10 % to 30% of the target population. Stratified random sampling was employed to select lecturers and university students based on their gender. Criterion purposive sampling was used for selecting Deputy Vice Chancellors responsible for academic affairs, and expert purposive sampling was used to select system administrators based on their roles and expertise in ICT.

The study used questionnaires, interview guides and observation guide as instruments for data collection. The questionnaires were used to collect quantitative data from lecturers and students. These instruments consisted of 5-point Likert scale items aiming at assessing the perceptions of lecturers and students with regard to the implementation of VL. The interview guide was used to collect data from the DVCs and system administrators. The instruments had probing questions that allowed the researcher to collect detailed data through verbal discussion with the key informants. Validity of data collection instruments was ensured through content and face validity checks, involving experts in the field to review and provide feedback on the instruments. Pilot testing was conducted in two universities involving 2 DVCs, 2 System administrators, 18 lecturers and 100 students.

The results of pilot testing were used to improve the instruments before being used for the actual data collection. Reliability was assessed using Cronbach's Alpha coefficient. The reliability for the students' questionnaire was 0.906, while the reliability for the lecturers' questionnaire was

0.883. These values exceeded the threshold of 0.7, indicating acceptable reliability as suggested by (Okendo et al., 2020). Data collection commenced following the issuance of an introduction letter from the Directorate of Postgraduate Research Innovation and Consultancy at Mwenge Catholic University. The researcher administered questionnaires and conducted face-to-face interviews.

Descriptive and inferential statistics were used to analyze quantitative data whereby mean scores, frequencies and percentages were generated while an independent sample t-test was used to test the hypothesis at 95% confidence. Qualitative data from the interviews were analyzed through content analysis following the guidelines outlined by Hirose and Creswell (2023). This resulted into the generation of themes, sub-themes, codes and citations identified and analyzed using ATLAS.ti software. Ethical considerations were paramount throughout the research process. During data collection, anonymity, confidentiality, and voluntary informed consent of participants were ensured. Finally, during data analysis and reporting, ethical standards regarding plagiarism, data confidentiality, and compliance with data protection laws were upheld.

8. Data Presentation and Discussion of the Findings

The research question focused on the assessment of how university students and lecturers in the Northern Zone of Tanzania mobilize funds to support VL. Students and lecturers were requested to rate the sentences provided in the questionnaire using the five-point Likert scale (Strongly Disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5). The responses were then analyzed to generate percentages and mean scores. As suggested by Spector (1992), a mean score from 1.00–1.80: Strongly disagree; mean score from 1.81–2.60: Disagree; mean score from 2.61–3.40: Neutral; mean score from 3.41–4.20: Agree and mean score from 4.21–5.00: Strongly agree. For clarity of reporting, it was necessary to collapse cells and categories of Strongly Disagree and Disagree have been merged as Disagree while Agree and Strongly Agree were merged as Agree. The responses are presented in Table 1.

Table 1: Students' (n = 551) and Lecturers' (n = 71). Responses on how students and lecturers Mobilize Funds for Virtual Learning Implementation

Funds Mobilization Strategy	Respondents	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Mean	Grand mean
		f	%	F	%	f	%	f	%	f	%		
Seek funding from educational foundations and NGOs that support technology in education	Students	64	11.6	101	18.3	109	19.8	202	36.7	75	13.6	2.78	2.74
	Lecturers	1	1.4	9	12.7	37	52.1	16	22.5	8	11.3	2.70	
Apply for government loans and grants for VL	Students	49	8.9	118	21.4	92	16.7	181	32.8	111	20.1	2.66	2.48
	Lecturers	1	1.4	21	29.6	26	36.6	20	28.2	3	4.2	2.31	
Apply for institutional research grants that can be used to develop and implement VL tools and methodologies	Students	77	14.0	208	37.7	104	18.9	122	22.1	40	7.3	3.29	2.93
	Lecturers	1	1.4	10	14.1	30	42.3	18	25.4	12	16.9	2.58	
Request the university administration to reallocate existing funds or earmark a portion of the university budget for VL	Students	87	15.8	123	22.3	101	18.3	143	26.0	97	17.6	2.93	2.9
	Lecturers	4	5.6	11	15.5	34	47.9	16	22.5	6	8.5	2.87	
Approach major donors and philanthropic organizations with detailed proposals for virtual learning projects.	Students	60	10.9	97	17.6	104	18.9	146	26.5	144	26.1	2.61	2.7
	Lecturers	2	2.8	6	8.5	29	40.8	16	22.5	17	23.9	2.39	
Work with student government bodies to allocate a portion of their budget towards VL initiatives.	Students	52	9.4	101	18.3	89	16.2	126	22.9	183	33.2	2.48	2.7
	Lecturers	1	1.4	21	29.6	26	36.6	17	23.9	6	8.5	2.92	

Organize fundraising campaigns targeting alumni to support VL	Students	71	12.9	145	26.3	100	18.1	137	24.9	98	17.8	2.92	2.96	
	Lecturers	2	2.8	19	26.8	32	45.1	13	18.3	5	7.0	3.0		
Request alumni networks to support in kind, such as equipment or expertise.	Students	51	9.3	206	37.4	106	19.2	133	24.1	55	10.0	3.12	2.47	
	Lecturers	1	1.4	16	22.5	31	43.7	16	22.5	7	9.9	2.83		
Engage local businesses to sponsor virtual learning programmes in exchange for advertising or other partnership benefits.	Students	68	12.3	162	29.4	96	17.4	172	31.2	53	9.6	3.04	2.87	
	Lecturers	0	0.0	16	22.5	33	46.5	16	22.5	6	8.5	2.83		
Receive family support to fund VL.	Students	66	12.0	110	20.0	108	19.6	131	23.8	136	24.7	2.71	2.45	
	Lecturers	0	0.0	12	16.9	33	46.5	21	29.6	5	7.0	2.73		
Grand mean score	Students												2.85	2.81
	Lecturers												2.78	

Source: Field data (2023) Key; *f*= Frequency, %= Percentage, Students *n*= 551, Lecturers' *n*=71

From table 1, data on the strategy of seeking funds from educational foundations and NGOs to support technology in university education revealed that students and lecturers generally did not approve the strategy as being mostly applied to mobilize funds to support VL. This is evident from the higher percentages of disagreement (50.3% of students and 33.8% of lecturers) compared to agreement (29.9% of students and 14.1% of lecturers). A significant proportion of lecturers (52.1%) were neutral, indicating doubt about the strategy. In contrast, fewer students (19.8%) were neutral, suggesting that students were more decisive. The mean scores close to 2.74 (slightly below the neutral midpoint of 3 on a 5-point scale) support the observation that the overall sentiment is more negative than positive. Students were generally more polarized in their views, with higher percentages of agreement and disagreement, while lecturers tended to be more neutral. This might reflect differences in their perspectives on funding strategies and educational technological support. In summary, the findings suggest that the strategy of seeking funds from educational foundations and NGOs to support technology in education was not widely supported by either students or lecturers, with a notable portion of lecturers being neutral and a more significant fraction of students disagreeing. The finding aligns with Resource-Based View (RBV) Theory that guided this study. The Theory focuses on an organization's internal resources and capabilities that can contribute to its competitive advantage. RBV emphasizes the importance of internal resources and capabilities in mobilizing funds.

During interviews qualitative data also supported quantitative data, one of the Open and Distance Learning Coordinator was quoted saying: *We don't receive adequate funds from external educational foundations and NGOs, only a tiny amount is coming from Higher Education for Economic Transformation (HEET) project* (Open and Distance Learning Coordinator, Personal communication, November 28th 2023). This data implies that external sources of mobilization of funds as a strategy used by students and lecturers to support VL implementation were insufficient. However, there are fewer sources used to support VL implementation. In other words, the data indicated the minimum role NGOs and other external sources played in financing students and lecturers to acquire the required VL facilities. Sometimes, these NGOs provided funds in cash for lecturers and students through internet bundles and other essential tools and software. Generally, these data revealed that both students and lecturers were somehow dissatisfied with the initiatives undertaken by external sources to support VL in Tanzanian universities. Also, another DVC academic during an interview remarked as follows;

The university receives a small fraction of the budget from our well-wishers and friends, who usually support virtual learning initiatives. For instance, last year, we received 35 million donations from church members in the USA. This was purposively meant to help students and lecturers acquire VL tools to meet the requirements for digital learning environments. Since our institution is church-based, we usually receive donations from other well-wishers, but it's still not enough to fully adopt and implement VL. We therefore appeal for more financial help (DVC academic, personal communication, 17th November 2023).

Still, another DVC academic supported this argument on the strategy of seeking funds from educational foundations and NGOs to support VL technology by pointing out that;

Programmes funded by NGOs usually use VL to facilitate these programmes. Sometimes participants from NGOs participate virtually to see how these programmes are implemented. It was first meant to support the disadvantaged group, especially disabled people who cannot access university education because of various reasons, including financial constraints and physical accessibility due to lack of the required facilities to support them to access university education (DVC academic, Personal communication, 29th November 2023).

The data from the respondents during interviews implies that students and lecturers undertake several initiatives to effectively mobilize funds to implement VL technologies. NGOs realized the need to support disadvantaged groups, and this support is sometimes given in kind or cash to cover salaries of lecturers who are teaching these groups. The argument that it was initially meant to support the disadvantaged group indicates that the project has extended beyond the scope, mainly to support lecturers as the key facilitators of these programmes. Despite the challenges encountered during the implementation of these programmes, there are visible steps undertaken by the universities to utilize the little funds and other resources to support VL implementation. First, in terms of relative advantage, if students and lecturers do not see a clear advantage in seeking funds from external sources like educational foundations and NGOs compared to traditional funding methods, they are less likely to support this strategy. Moreover, resistance or neutrality may arise if seeking external funding is perceived as incompatible with the university's culture or operational norms. Further, acquiring and managing funds from foundations and NGOs might be seen as complex and bureaucratic, deterring support from lecturers and students. The finding concurs with Wong and Lau, (2022) that found out that most students in Singapore relied on personal savings and family support to finance their VL requirements. This implies that NGOs support is minimum, students mainly depend their personal saving financed by their parents to support virtual learning programs.

Disagreement with the strategy could also stem from perceptions of the complexity and feasibility of securing funds from educational foundations and NGOs. Lecturers and students might view the process as cumbersome, bureaucratic, or unlikely to yield significant results (King & He, 2022). If the effort required to obtain and manage these funds is considered disproportionate to the benefits, this could explain the general reluctance to endorse the strategy. Highlight that perceived ease of implementation is crucial in accepting new strategies, particularly in educational contexts where time and resources are often limited.

Furthermore, as shown in table 1, the data on the university students' and lecturers' responses on the mobilization of funds by applying for government loans and grants for VL revealed that both students and lecturers had mixed reactions towards the strategy. Still, the overall sentiment leans towards disagreement, particularly among lecturers. Roughly, 30% of both students and lecturers approved the strategy. A notable portion of lecturers (36.6%) were neutral, suggesting some uncertainty about the effectiveness or feasibility of applying for government loans and grants. Most students (52.9%) disagreed with the strategy, while a significant portion of lecturers (32.4%) disagreed. This indicates that many students and lecturers are not in favour of this approach for funding VL.

The mean score for students (2.66) falls close to neutral, suggesting that while many disagreed, a considerable number were neutral or in agreement. The mean score for lecturers (2.31) falls in the disagreement category, indicating a stronger overall sentiment of disagreement among lecturers than students. The grand mean score of both groups (2.48) indicated an overall sentiment of disagreement, but it is not a strong disagreement, reflecting the mixed responses. Students showed a more definitive stance with higher disagreement and a lower proportion of neutral responses than lecturers. Lecturers exhibited more neutrality, indicating uncertainty or varied opinions about the strategy. In line with this finding, Chevé et al. (2023) in Senegal found that scholarships and government grants were crucial funding sources for students engaged in VL. However, lecturers encountered challenges securing funds for necessary technology upgrades and personal training.

In synopsis, the findings suggest that the strategy of mobilizing funds through government loans and grants for VL was not extensively supported. While a significant portion of both groups agreed, the overall sentiment, particularly among lecturers, leaned towards disapproval, with students showing a more polarized view. Lecturers might express concerns regarding the sustainability and efficiency of funding VL through government loans and grants. While in agreement, Ngowi et al. (2022) found that lecturers predominantly relied on institutional grants, research funding, and international collaborations to finance virtual learning implementation.

These findings also agree with qualitative data obtained during interviews as one of the System administrators expressed reservations by putting forth the views that;

Ordinarily, there is no support from the government in terms of either grants or loans to support the implementation of VL for our lecturers. Besides, we also receive several complaints from our students regarding the modalities of government loans, which are unevenly distributed among applicants. There is a wrong notion that private school students come from wealthy families and, therefore, receive a small percentage of loans through HESLB (System administrator, personal communication, 19th December 2023).

Furthermore, another interviewee reported that, "*The process of acquiring government loans is very complicated and time-consuming*" (System administrator, personal communication, 17th November 2023). The excerpt from System administrator demonstrates that students in most universities in Tanzania are characterized by inadequate funds to support the implementation of VL. They depend on government loans and grants, which involve a lot of bureaucracy and screening that may pull out students who acquired their primary and secondary education from private schools for receiving loans and grants. Inadequate funds may cause students to fail to buy the essential learning gadgets such as laptops necessary to support VL use. While the quotation from another System administrator implies that the government provides funds for VL initiatives. However, acquiring it is very complex, and sometimes it may be delayed,

affecting the implementation of VL. In this regard, Msuya and Mbogoro (2023) weighs in by revealing that students primarily relied on personal savings, government loans, and family support to fund their needs. Conversely, lecturers relied on institutional funding for teaching facilities. The study's findings imply that improving access to financial resources and fostering collaborative partnerships with industry and government entities are critical for supporting sustainable virtual learning funding in Tanzania. These findings likewise align with a study by Masue & Innocent (2022), who found scepticism about whether government funding for technological initiatives in education can be sustained over the long term, given the competing demands on public resources. Furthermore, there are concerns about the efficient use of these funds, as mismanagement or inadequate infrastructure can undermine the effectiveness of VL initiatives.

The polarized views among students can be attributed to their diverse financial backgrounds. Some students, particularly those from low-income families, may view government loans and grants as essential for accessing VL opportunities. On the other hand, students who are already managing significant debt or have concerns about the long-term financial implications of loans might be more hesitant. This dichotomy is reflected in the findings of Mgaiwa & Ishengoma (2023), who discuss how the burden of student debt impacts different socioeconomic groups differently. Many students may also exhibit loan aversion, a phenomenon where they are reluctant to take on debt even if it means forgoing educational opportunities. Research by Boatman et al. (2017) highlights that loan aversion is particularly prevalent among low-income and minority students, who may have a greater fear of debt due to financial instability.

In addition, from table 1, the data on the university students' and lecturers' responses to applying for institutional research grants to develop and implement VL tools and methodologies revealed a significant divergence in opinions between students and lecturers regarding this strategy. Students are more supportive of the idea, while lecturers are more neutral or disagree. Most students (51.7%) agreed with applying for institutional research grants for VL, showing strong support from the student body. Only 15.5% of lecturers agreed, with a substantial portion (42.3%) disagreeing. This indicates that lecturers are generally less supportive of this strategy than students. A notable percentage of students (18.9%) were neutral, suggesting some ambivalence or lack of a strong opinion among a segment of the student population. A significant proportion of lecturers (42.3%) were neutral, reflecting uncertainty or varied views about the effectiveness or feasibility of this funding strategy.

The strategy recorded a mean score of 3.29 for students which is close to neutral but leans slightly towards agreement, indicating a more positive sentiment among students. On the other hand, the strategy posted a mean score of 2.58 for lecturers which fall in the disagreement category, reflecting a more negative sentiment among lecturers. The grand mean score (2.93) is nearly neutral, balancing students' more favourable views with lecturers' opposing views. The finding shows that students strongly preferred this funding strategy, with a majority in giving affirmative approval and fewer in disagreement. Lecturers exhibit more uncertainty with higher levels of disagreement and a significant proportion remaining neutral. To sum up, the findings suggest a notable difference in perspectives between students and lecturers regarding mobilizing funds through institutional research grants for VL. Students generally supported this strategy, while lecturers were more divided, with many expressing disagreement or neutrality. As per the RBV theory, universities should utilize their internal resources to generate financial support. Universities with valuable and rare resources, such as skilled staff, strategic partnerships,

and well-established reputations, can leverage these assets to attract investments and build sustainable funding models for virtual learning (Peteraf, 1993).

Following this revelation, the study indicates that students believe institutional grants can improve the quality of VL. The finding has equally received support from other scholars. For instance, a study by Eli-Chukwu et al. (2022) found that students view online learning as beneficial when it is well-supported by institutional resources, which can help ensure a high-quality, engaging educational experience. Institutional grants can alleviate some financial burdens associated with VL, such as the cost of digital technology and internet access. This support is crucial for students from lower socio-economic backgrounds. Similarly, a study by Smith & Caris (2021) highlights how institutional funding can provide essential support services, such as tutoring and technical assistance, making VL more accessible and effective for all students.

Another strategy identifies in table 1 is mobilization of funds by requesting the university administration to reallocate existing funds or earmark a portion of the university budget for VL. This was revealed that both students and lecturers who showed a predominantly neutral attitude towards the strategy of reallocating or earmarking funds for VL. In this regard, a minority (38.1%) of students agreed with the proposal, indicating some support for the strategy among students. Only a smaller fraction (21.1%) of lecturers agreed, suggesting less enthusiasm among faculty regarding this funding approach. A significant percentage of lecturers (47.9%) remained neutral, reflecting a considerable degree of uncertainty or lack of strong opinion about the feasibility or impact of reallocating funds for VL. The neutral response (18.3%) is less prominent for students, indicating that more students had clearer opinions, whether in agreement or disagreement.

A remarkable proportion of students (43.6%) disapproved the strategy, suggesting a skepticism or lack of confidence in the effectiveness of requesting fund reallocations. The disapproval among lecturers (31.0%) is less pronounced, showing that while some members of departments are against the strategy, a majority are neutral. The mean score for students (2.93) is close to neutral, indicating that while there was some positive approval, a significant portion did not support the strategy. The mean score for lecturers (2.87) was also close to neutral, reflecting a similar sentiment. The grand mean score (2.90) indicates an overall neutral position for the entire group, emphasizing that the responses are balanced and that there are no strong feelings in either opinion. These findings also corroborate Ngowi et al. (2024), who found that lecturers depended on institutional grants, research funding, and international collaborations. Likewise, Chimbunde (2022) highlighted that universities faced significant financial constraints in supporting online teaching and learning. They also encountered obstacles like bureaucratic procedures and restricted access to external funds. Universities face the challenge of balancing various competing priorities with limited budgets. Both students and lecturers may recognize the importance of VL but also see the necessity of funding other critical areas such as infrastructure, faculty salaries, and research projects. According to a study, reallocating existing budgets often entails trade-offs that create tensions among stakeholders with different priorities and concerns.

During the interviews, qualitative data obtained showed differences in the mobilization of funds in the public and private universities. From the responses gathered, in the public universities, the level of mobilizing of funds for different projects, including VL, was higher than in the private universities. The interview data showed that public universities receive considerable financial

support from the government, which is evident in various initiatives. In this respect, one Coordinator for distance learning highlighted that:

Indeed, there is a budget for financial support for Wi-Fi learning in the university. Likewise, we have an ICT budget, and it's substantial. Alright, mobilizing of funds for VL is more significant compared to other priorities. It's a priority for us. The funding comes from the government. It's government-generated funding. We have support from the Higher Education for Economic Transformation (HEET) project, a government initiative aiding in our digitalization efforts. Sincerely, we acknowledge the efforts made by the government to support VL in this university (Coordinator for distance learning, personal communication, 29th November 2023).

Another respondent expressed similar reaction regarding the university students' and lecturers' responses to applying for institutional research grants to develop and implement VL tools and methodologies. During a face-to-face interview, this respondent argued that;

The management of our university offers support to students and lecturers through training programmes to equip them with digital skills to support the implementation of VL. For both teaching and non-teaching staff, there are ongoing training staff programmes where lecturers from different departments are taught how to use virtual tools so that in case of pandemics like Covid-19, lecturers will be ready to deliver various programmes online (DVC academic, personal communication, 29th November 2023)

This data from interview shows that the university had allocated a significant ICT budget specifically for supporting Wi-Fi learning and other learning resources to support lecturers and students with the implementation of VL. This indicates a prioritization of technological infrastructure to enhance educational delivery. Moreover, it was learned that since this was a public university, the funding for these initiatives came from the government, specifically through the Higher Education for Economic Transformation (HEET) project financed by the World Bank. This government support underscores the university's reliance on external funding to advance its digitalization efforts. Furthermore, the data highlight a significant difference between public universities and most private institutions in adopting Wi-Fi learning. While public universities have embraced this technology, most private universities have not fully integrated Wi-Fi learning into their educational systems.

This observation suggests a discrepancy in technological adoption and digitalization strategies between public and private educational institutions. The tendency of private universities to rely entirely on collecting school fees, which may not suffice the need for supporting VL initiatives, contributed to this notable gap. These findings imply that the university's strategic focus on Wi-Fi learning supported by government funding positions is unique in public universities in the higher education subsector, potentially enhancing its technological infrastructure and educational offerings compared to its private counterparts. Also, qualitative data obtained from interviews revealed that the primary cause of institutions' failure to address issues related to the implementation of VL is that private institutions face significant hurdles due to a lack of government funding. Based on this, one informant highlighted that:

Imagine students and lecturers in private universities in Tanzania do not receive any subsidy from the government to support teaching and learning, including VL facilities.

Apparently, it is the university that set a little fund from their sources to support VL facilities. And, of course, this depends on the availability of financial sources. Our primary source is tuition fees, usually unpaid on time. As a result, there is little budget for buying virtual learning for students and lecturers. However, there is virtually no budget for VL in private universities coming from the government (System administrator, personal communication, 28th November 2023).

This data indicates that students and lecturers in Tanzania's private universities do not receive government subsidies to support teaching and learning, including VL facilities. This lack of governmental financial support places the entire burden of funding VL facilities on private universities. As such, this can significantly limit the resources available for such purposes. Besides, private universities allocate only a small portion of their funds to support VL facilities. The limited budget dedicated to VL facilities indicates that these universities may prioritize other areas due to constrained financial resources. The reliance on tuition fees as the primary funding source further exacerbates this issue, as it restricts the overall budget available for enhancing VL infrastructure. This lack of support for private institutions is consistent with studies by Mwakyusa and Ng`webeya (2022) and Zhou et al. (2022), emphasizing the challenges stemming from insufficient funding during the transition to VL. The implication here is that private institutions might struggle more with the financial demands of implementing effective VL strategies due to the absence of government subsidies, potentially affecting their ability to invest in necessary technological infrastructure and training programmes. This may lead to a moderate or low level of implementing VL, as the lecturers and students reported in the questionnaires.

Data from Table 1, also shows mobilization of funds for VL by receiving family support which indicated that students and lecturers exhibited a generally neutral stance towards the strategy. However, the overall sentiment reflected by the grand mean score leans towards disagreement. A notable portion of students (32.0%) agreed with the plan, indicating some level of support among students. A smaller portion of lecturers (16.9%) agreed, showing less support among faculty. A substantial percentage of lecturers (46.5%) were neutral, reflecting considerable uncertainty or ambivalence about the strategy among faculty. Among students, 19.6% were neutral, indicating that fewer were undecided than lecturers. A significant proportion of students (48.5%) disagreed with the strategy, suggesting that many students were skeptical or opposed to this approach. Among lecturers, 36.6% disagreed, indicating less opposition than students, but there was still significant skepticism.

The mean score for students (2.71) falls in the neutral category but leans slightly towards disagreement, reflecting divided opinions among students. The mean score for lecturers (2.73) also falls in the neutral category, indicating a balanced view with no strong lean towards agreement or disagreement. The grand mean score (2.45) indicates an overall disagreement stance, reflecting the combined opinions of both groups leaning towards skepticism. Students were more polarized in their views, with a higher percentage in agreement and disagreement than lecturers. Lecturers exhibited more neutrality, suggesting they are either unsure about the strategy's effectiveness or equally see potential benefits and drawbacks. In summary, the findings suggest that the strategy of mobilizing funds for VL by receiving family support had mixed responses. Students were more divided in their opinions, with a significant portion agreeing but

an even larger portion disagreeing. Lecturers tended to be more neutral, with a considerable number expressing uncertainty.

9. Conclusion and Recommendations

With reference to the findings, the study concludes that students and lecturers in the Northern Zone of Tanzania reported moderate fund mobilization for implementing VL initiatives across institutions. Public universities notably benefit from substantial government support, which plays a critical role in facilitating the adoption and expansion of VL programmes. This financial backing allows public institutions to invest in advanced technological resources, training for staff, and the development of active online platforms. Contrary to this, private universities encounter significant obstacles due to the absence of similar governmental subsidies. These institutions often struggle with limited financial resources, which hamper their ability to implement and sustain VL initiatives effectively. Consequently, the disparity in funding between public and private universities creates a noticeable gap in the quality and accessibility of virtual learning opportunities provided to students.

Based on the conclusion of the study, the researcher recommended the following:

- 1) Universities should design additional sources of funds and ensure their accountability and transparency to improve their financial position and meet VL implementation requirements.
- 2) The government should set aside adequate funds for both public and private universities to increase room for VL accessibility for both lecturers and students.

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