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ORIGINAL RESEARCH

Curriculum Implementation for the Medical Laboratory Technology Programme at an Allied Health School: A Case of Uganda Institute of Allied Health and Management Sciences

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Background: A curriculum is a cornerstone of any educational program, and its practical implementation in medical colleges plays a pivotal role in producing flexible, competent and agile medical personnel. This study assessed the factors influencing curriculum implementation at the Uganda Institute of Allied Health and Management Sciences – Mulago.

Methods: This study employed a descriptive cross-sectional survey design conducted at the Uganda Institute of Allied Health and Management Sciences, Mulago, among 98 participants who included second-year medical laboratory technology students (n=44), lecturers/facilitators (n=40), and non-teaching staff (n=14). Data were collected using a self-administered structured questionnaire to assess factors influencing curriculum implementation. The data were entered into EpiData version 3.1 for cleaning and coding and subsequently analyzed using STATA version 14. Descriptive statistics, correlation, and multiple regression analyses were performed. Statistical significance for all tests was set at a *p*-value of less than 0.05.

Results: Institutional factors showed a moderate, positive, and statistically significant association with curriculum implementation ($r = 0.549$, $p < 0.001$) and were the only significant predictors ($\beta = 0.433$, $p < 0.001$). Human resource factors ($r = –0.466$, $p = 0.003$) and resource availability ($r = –0.380$, $p = 0.001$) demonstrated negative correlations and were not significant predictors in the regression model. Key challenges included inadequate staffing, limited professional development, insufficient teaching materials, and poor infrastructure.

Conclusion: Institutional factors play a central role in curriculum implementation, while human and material resource challenges persist but show limited predictive influence. Strengthening institutional support systems, improving staff capacity and enhancing resource provision are critical to improving curriculum outcomes.

Keywords: curriculum implementation, institutional factors, human resource factors, resource availability, higher education

Introduction

Curriculum implementation is a critical component of educational effectiveness, particularly in health professions education, where it directly influences the competence of graduates and the quality of healthcare delivery.[1] Curriculum implementation has evolved globally since the early 1900s, when educational authorities were tasked with preparing and approving subject lists. Early curricula primarily consisted of sequenced subjects categorized into skills and content, aimed at equipping learners with problem-solving capabilities.[2]

In Uganda, formal medical education began with the British colonial establishment of Mengo and Mulago Hospitals in 1926, alongside the creation of the Paramedical Training School in Mulago, now known as Uganda Institute of Allied

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Health and Management Sciences (UIAHMS).[2] Initially focused on medical laboratory sciences, the school attracted students from across East and Central Africa and received accreditation from the Institute of Medical Laboratory Technology (UK) in 1960. Consequently, students graduated with UK-issued certificates and diplomas. A regional oversight body, the Council for Medical Education in East Africa, later facilitated standardization of medical training across Makerere (Uganda).[2]

Following the dissolution of the East African Community in 1977, Uganda began offering independent certificate and diploma programs but retained much of the shared curriculum. By 1998, UIAHMS adopted a modified curriculum in response to emerging health challenges, including rising disease prevalence, non-communicable diseases, and the need for compassionate, holistic care.[3]

The Uganda Institute of Allied Health and Management Sciences–Mulago (UIAHMS), located in Kampala adjacent to Mulago National Referral Hospital, plays a vital role in training mid-level health professionals in Uganda. With over 3,000 students enrolled across certificate, diploma, and degree programmes, the institute provides learners with valuable access to clinical training and collaboration with key institutions such as the Ministry of Health and Makerere University.

Despite these developments, a persistent gap exists between the intended curriculum and its actual implementation in training institutions. Multiple interrelated factors, such as institutional capacity, human resource limitations, and inadequate teaching and learning resources, often constrain curriculum implementation at allied health schools.

Curriculum implementation has faced numerous challenges in training institutions.[4,5] Several factors, including institutional capacity, human resource limitations, and inadequate teaching and learning resources, often constrain curriculum implementation. For example, the imbalance between student enrollment and teaching staff places significant strain on effective curriculum delivery, as a small number of permanent lecturers are responsible for training a large student population. Previous studies in Uganda and Tanzania found that while curriculum content is generally considered appropriate for training competent health workers, there are insufficient tutors to adequately cover the required content, highlighting a critical human resource gap.[6,7]

This study is underpinned by stakeholder theory,[8] which emphasizes that organizational success depends on strong relationships with stakeholders like government, educators, students, and the community. Each stakeholder plays a vital role in curriculum implementation: the government provides funding and policy, management ensures compliance and support, tutors deliver and assess content, and students are the primary beneficiaries of education.

Curriculum implementation, defined as the actualization of a structured set of learning units and syllabi, is a multifaceted, stakeholder-driven process.[9–11] Effective delivery requires trained staff, appropriate teaching strategies, supportive environments, and adequate learning resources,[12] as these enable students to develop the core competencies.[1]

The effectiveness of training in producing competent and practice-ready healthcare professionals remains a key concern. Furthermore, there is limited research specifically examining the factors influencing curriculum implementation. Identifying these challenges can ensure the design of targeted interventions to improve training quality; otherwise, if they remain unaddressed, they may continue to undermine the preparation of allied health professionals and ultimately affect healthcare service delivery. This study assessed the factors influencing curriculum implementation at UIAHMS. The findings may inform policy, strengthen institutional practices, and contribute to improving the quality of allied health education in Uganda.

Materials and Methods

Study Design

This was a descriptive cross-sectional study that collected data through a survey using a questionnaire to assess the factors affecting medical curriculum implementation at the Uganda Institute of Allied Health and Management Sciences-Mulago.

Sample Source

The study was conducted at the Uganda Institute of Allied Health and Management Sciences – Mulago (UIAHMS), located on Mulago Hill in Kampala, Uganda, adjacent to Mulago National Referral Hospital. UIAHMS has 3,000

students and 23 programmes for certificates, diplomas and degrees, of which the Diploma in Medical Laboratory is among. The institute plays a crucial role in training mid-level health professionals who support Uganda's healthcare system; hence, the reason for choosing it as a study site. This central location provides students with direct access to clinical training, internships, and collaborations with key institutions like the Ministry of Health and Makerere University. While the urban setting enhances practical learning opportunities and supports curriculum implementation, it also presents challenges such as overcrowding, limited infrastructure, and resource constraints. Therefore, while the geography of UIAHMS is highly advantageous for curriculum delivery, it requires adequate investment to support effective implementation. The study groups were selected because students are the primary beneficiaries of the education, making their feedback essential to assessing whether the curriculum is meeting its goals. Lecturers are responsible for the actual delivery and assessment of content; their responsibilities are critical for understanding human resource factors, workload, and the adequacy of teaching materials. Then the non-teaching staff provides technical and administrative support, which is vital for the resource-related aspects of curriculum implementation.

Participants included **s**econd-year medical laboratory students, lecturers and non-teaching staff who consented to take part in the study. Those who were absent/sick during the study period were excluded. The study employed the Krejcie and Morgan[13] table to determine the sample size of the second-year medical laboratory students and used two sampling techniques to select participants. Simple random sampling was used to select students [44 out of 50] based on relevant criteria. Purposive sampling was applied to lecturers/facilitators [40 individuals] and non-teaching staff [14 individuals]. Overall, 44 medical laboratory students, 40 lecturers and 14 non-teaching staff participated in the study.

After obtaining UIAHMS administrative clearance, students were met in their classes by their class representative during break periods and places of placement, and the purpose of the study was explained. We approached lecturers and support staff in their offices. Written informed consent was obtained from each willing participant before data collection. The participants were given a self-administered questionnaire (Supplementary Figure 1) with closed-ended questions to fill. The questions on availability of training materials, information, communication and technology (ICT); availability of tutors; issues of continuous professional development (CPD); teaching facilities; and challenges related to curriculum implementation were included. Each participant signed the code to ensure confidentiality. Each questionnaire took around 30—40 minutes. The researcher created the questionnaire under the direction of several studies.[14–17] To improve clarity and identify ambiguities, the questionnaire was pilot tested with ten participants from a different program, including lecturers, students, and non-teaching staff. Face and content validity were used to guarantee the questionnaire's validity. The authors and additional specialists in medical education and research methodology evaluated the questionnaire to determine its applicability, clarity, and sufficiency in meeting the goals of the study. We used their feedback and recommendations to clarify unclear questions, enhance the wording, and ensure that we sufficiently addressed all important factors. This procedure assisted in ensuring that the instrument was suitable for the study population and accurately measured the topics under inquiry.

Statistical Methods

The collected data were entered into Epidata version 3.1 software, cleaned, and double-checked for errors and completeness. The data were then exported to STATA version 14 software for formal statistical analysis. Descriptive analysis was performed to generate frequencies and proportions for the respondents' background information and their responses to the Likert-scale questions regarding institutional, human resource, and resource availability factors. For inferential statistics, Pearson correlation analysis (r) was conducted to determine the strength and direction of the relationship between the independent variables (institutional factors, human resource factors, and resource availability) and the dependent variable (curriculum implementation). A multiple linear regression model was then employed to assess the predictive value of these factors and to explain the variability in curriculum implementation outcomes. The model's strength was evaluated using the R-squared (R^2) and adjusted R-squared values, while the individual contribution of each predictor was determined using standardized beta coefficients (β) and t-statistics. Statistical significance for all tests was set at a p-value of less than 0.05. Results were organized and presented using tables for clarity.

Ethical Considerations

Ethical approval to conduct this study was obtained from the AIDS Support Organization (TASO) Research and Ethics Committee [Reference Number: TASO-2024-435]. Administrative clearance: Permission to carry out the study was obtained from the administration of UIAHMS-Mulago. Written informed consent was obtained from the participants. The purpose of the study was explained to the participants, and their participation was voluntary. Their agreement to participate in the study did not waive their rights in any way, and this was in accordance with the Helsinki Declaration.[18] Confidentiality was observed by assigning each participant a unique identification number that was used on the study questionnaires and only known by the researcher. All collected data was kept securely under lock and key and only accessible by the researcher.

Results

Background Information of the Respondents

According to the results, 54.1% of the student participants were male and 45.9% were female. Fifty-two (53.1%) of the study participants were aged 31 years and below. The majority of the academic staff, 19 (32.8%), worked for at least 6–10 years (Table 1).

Institutional Factors on Curriculum Implementation

Table 2 shows that the implementation of the medical curriculum at the Uganda Institute of Allied Health and Management Sciences was perceived positively by a significant portion of participants, with 69 (70.5%) expressing agreement regarding its effectiveness.

Multiple Regression on Curriculum Implementation

For further analysis, a multiple regression model was used to determine the relationship between the dependent variable and independent variables as presented in Table 3.

The regression model demonstrated a strong positive correlation between the predictors—institutional factors, human resource factors, and resource factors—with an R value of 0.753. This association was found to account for approximately 56.7% of the variability in curriculum implementation. The adjusted R^2 was calculated at 0.558, indicating the model's strength while considering the number of predictors. A standard error of the estimate of 0.36137 suggested that

Table 1 Background Information of the Respondents

Background Variable	Category	Frequency	Percentage
Gender	Male	53	54.1
	Female	45	45.9
	Total	**98**	**100.0**
Age	Below 30	52	53.1
	31-39	16	16.3
	40-49	14	14.3
	50 and above	16	16.3
	Total	**98**	**100.0**
Time in service (academic staff)	0-5 years	15	25.9
	06-10 years	19	32.8
	11-15 years	13	22.4
	16-20 years	08	13.8
	21-25 years	03	05.2
	Total	**58**	**100.0**

Table 2 Institutional Factors on Curriculum Implementation

Responses on Curriculum Implementation	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
The curriculum is effectively implemented in my program.	9 (9.2%)	15 (15.3%)	5 (5.1%)	27 (27.6%)	42 (42.9%)
Adequate resources are available to support the curriculum implementation.	11 (11.2%)	21 (21.4%)	3 (3.1%)	27 (27.6%)	36 (36.7%)
Faculty members are well-trained to deliver the curriculum.	13 (13.3%)	19 (19.4%)	5 (5.1%)	31 (31.6%)	30 (30.6%)
Student feedback is considered in curriculum implementation.	7 (7.1%)	18 (18.4%)	6 (6.1%)	29 (29.6%)	38 (38.8%)
The curriculum aligns with the needs of the healthcare sector in Uganda.	15 (15.3%)	9 (9.2%)	4 (4.1%)	32 (32.7%)	38 (38.8%)
There is sufficient institutional support for implementing the curriculum.	11 (11.2%)	23 (23.5%)	2 (2.0%)	26 (26.5%)	36 (36.7%)
The curriculum is regularly updated based on emerging health trends and practices.	5 (5.1%)	15 (15.3%)	6 (6.1%)	30 (30.6%)	42 (42.9%)
Challenges in curriculum implementation are effectively addressed by the administration.	6 (6.1%)	17 (17.3%)	7 (7.1%)	26 (26.5%)	42 (42.9%)

Table 3 Model Summary on Curriculum Implementation

Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
1	0.753	0.567	0.558	0.36137

the model's predictions were fairly accurate and closely aligned with the observed values. Overall, it was concluded that the model provided a good fit for the data (see Table 3).

The multiple regression analysis was conducted to assess factors affecting curriculum implementation. It was found that institutional factors showed a strong positive impact (β = 0.433, p = 0.000), while human resources had β = 0.003B (p = 0.832), showing no significant effect. Resource availability had β = 0.468 (p = 0.767), also indicating insignificance. Overall, institutional factors were concluded to have the most substantial influence, with human resources and resource availability showing negligible effects (see Table 4).

Table 4 Multiple Regression Coefficients of Factors That Affected Curriculum Implementation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	*Std. error*	*Beta (β)*		
1	(Constant)	0.570	0.36137		3.216	0.002
	Institutional factors	0.433	0.045	0.505	9.549	0.000
	Human resources	0.003	0.066	0.003	0.040	0.832
	Resources availability	0.468	0.62722	0.545	9.078	0.767

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Effect of Human Resource on Curriculum Implementation

The statement regarding adequate staffing for smooth curriculum implementation reflects a considerable level of concern. While 34.7% of respondents agree and 17.3% strongly agree that staffing is adequate, a combined 38.7% disagree or strongly disagree, indicating a significant proportion of staff feel that staffing levels may be insufficient for effective curriculum execution (Table 5).

The model was found to show a negative correlation (R = −0.466) between human resource factors and curriculum implementation. An R^2 of −0.302 was indicated, suggesting that human resource factors had poor explanatory power. The adjusted R^2 of −0.282 further confirmed this finding, while a standard error of 0.62722 suggested low prediction accuracy. Overall, it was concluded that human resource factors had a limited and negative impact on curriculum implementation (Table 6).

Effect of Resource Availability on Curriculum Implementation

Table 7, revealed that, 34.7% of respondents agreed that the institution provides adequate teaching materials necessary for effective curriculum delivery and 23.5% strongly agreed, indicating a moderate level of satisfaction with the provided teaching materials, though a combined 29.6% disagreed or strongly disagreed, suggesting some concerns about material adequacy.

Table 8 shows that there was a negative correlation (r =0.380) between resource availability and curriculum implementation in UAIHMS-Mulago. The test of significance of the correlation (p =0.001) was found to be less than the recommended critical

Table 5 Effect of Human Resource on Curriculum Implementation

Statement	SD	D	NS	A	SA	F (%)
Adequate staffing is provided to ensure smooth curriculum implementation.	16(16.3%)	22(22.4%)	9 (9.2%)	34(34.7%)	17(17.3%)	98(100)
The staff possesses the necessary skills and qualifications for curriculum delivery.	14(14.3%)	16(16.3%)	9(9.2%)	34(34.7%)	17(17.3%)	98(100)
Continuous professional development programs are available for staff involved in curriculum implementation.	14(14.3%)	21(21.4%)	11(11.2%)	36(36.7%)	21(21.4%)	98(100)
Staff are motivated and well-supported to implement the curriculum effectively.	17(17.3%)	19(19.4%)	13(13.2%)	33(33.7%)	17(17.3%)	98(100)
Clear communication channels exist between management and staff regarding curriculum implementation.	22(22.4%	17(17.3%)	6(6.1%)	42(42.9%)	14(14.3%)	98(100)
The workload assigned to staff allows them to focus adequately on curriculum delivery.	14(14.3%)	19(19.4%)	15(15.3%)	32(32.7%)	12(12.2%)	98(100)
There is sufficient collaboration between staff members in curriculum planning and execution.	8(8.6%)	23(23.5%)	13(13.2%)	39(39.8%)	13(13.3%)	98(100)
The institution provides the necessary resources and tools for staff to implement the curriculum effectively.	14(14.3%)	24(24.5%)	14(14.2%)	37(37.8%)	16(16.3%)	98(100)

Table 6 Regression Results Showing the Effect of Human Resource Factors on Curriculum Implementation

Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
1	−0.466	−0.302	−0.282	0.62722

Table 7 Descriptive Statistics on Effects of Resource Availability Factors on Curriculum Implementation

Statement	SD	D	NS	A	SA	F (%)
The institution provides adequate teaching materials necessary for effective curriculum delivery.	6(6.1%)	23(23.5%)	12(12.1%)	34(34.7%)	23(23.5%)	98(100%)
There are sufficient technological resources available to support the curriculum implementation	12(12.2%)	29(29.6%)	12(12.1%)	24(24.5%)	21(21.4%)	98(100%)
The funding allocated for curriculum resources is sufficient to meet the needs of the program	14(14.3%)	22(22.4%)	18(18.4%)	31(31.6%)	13(13.3%)	98(100%)
Staff have access to up-to-date software and digital tools required for implementing the curriculum.	9(9.2%)	16(16.3%)	5(5.1%)	42(42.9%)	26(26.5%)	98(100%)
The support staff (e.g., technical support, administrative help) are readily available to assist with curriculum-related resource needs.	9(9.2%)	17(17.3%)	4(4.1%)	44(44.9%)	24(24.5%)	98(100%)
The physical infrastructure (e.g., classrooms, labs) is well-equipped to support curriculum activities.	17(17.3%)	19(19.4%)	13(13.2%)	33(33.7%)	17(17.3%)	98(100%)
There are adequate resources available for staff to develop and update curriculum materials as needed	14(14.3%)	16(16.3%)	9(9.2%)	34(34.7%)	17(17.3%)	98(100%)

Table 8 Correlation Results for the Relationship Between Resource Availability Factors Curriculum Implementation

		Resources Availability	Curriculum Implementation
Resources availability	Pearson Correlation	1	−0.380**
	Sig. (2-tailed)		0.001
	N	98	98
Curriculum Implementation	Pearson Correlation	−0.380**	1
	Sig. (2-tailed)	0.001	
	N	98	98

Note: **. Correlation is significant at 0.05 level (2-tailed).

significance at 0.05 at 2-tailed. This means that the relationship was significant. Thus, resource availability factors negatively affect the implementation of the curriculum at the Uganda Institute of Allied Health and Management Sciences-Mulago.

The model was found to reveal a negative correlation (R = −0.380) between resource availability factors and curriculum implementation at the Uganda Institute of Allied Health and Management Sciences-Mulago. An R^2 value of −0.202 indicated that resource availability factors explained very little of the variability in curriculum implementation. The adjusted R^2 of −0.181 further supported this conclusion. Additionally, the standard error of the estimate, at 0.62722, suggested a lack of accuracy in the model's predictions. Overall, it was concluded that resource availability factors had a limited and negative effect on curriculum implementation (Table 9).

Discussion

Effect of Institutional Factors on Curriculum Implementation

The assessment of institutional factors affecting curriculum implementation at UIAHMS revealed that they are the primary driver for curriculum implementation, as it was found statistically significant, implying that even when there are

Table 9 Regression Results Showing Resource Availability Factors Effect on Implementation of Curriculum in Uganda Institute of Allied Health and Management Sciences-Mulago

Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
1	−0.380	−0.202	−0.181	0.62722

challenges with other factors such as strained human resources and other resources, institutional factors push curriculum implementation.

The present study found that continuous professional development (CPD) for teachers was perceived as inconsistently implemented, with some staff acknowledging its presence while others expressed concerns about its adequacy. This mixed perception aligns with Schein's[19] view that institutional culture, encompassing values and beliefs, critically influences curriculum integration. A supportive and collaborative culture facilitates effective implementation, whereas a negative or non-collaborative culture impedes it. Therefore, there is a need to support staff to continuously update their knowledge through CPD so that they are up-to-date with knowledge, hence proper teaching and delivery of knowledge to students.

The need for enhanced support and resources at UIAHMS-Mulago was widely recognized, reflecting significant concern about the adequacy of institutional backing. Although library resources were generally satisfactory, persistent dissatisfaction highlights the need for improvements in resource provision. Research by Devi[20] supports this perspective by emphasizing the critical role of facilities and a supportive learning environment in the successful implementation of a new curriculum. Well-stocked library and teaching facilities enhance learning and knowledge acquisition; hence, the need for consideration to improve on the missing areas for better staff and students' experience.

Challenges with curriculum content were noted, with varying experiences among instructors and students highlighting its complexity. Chaudhary[5] observed that cultural and ideological differences can impact curriculum implementation, often resulting in resistance to centralized educational directives. This is corroborated by findings from Anyanwu and Uponi,[21] who emphasized the importance of continuous professional development and adequate learning materials for enhancing curriculum effectiveness. Their work underscores the need for consistency in pedagogical practices to address the variability in lesson plan usage observed at UIAHMS.

The present study revealed a significant positive relationship between resource availability and curriculum implementation at UIAHMS-Mulago. The issues with missing equipment in the skills lab and difficulties in completing the curriculum within a semester highlight gaps. Material deficits could hinder education outcomes. For instance, when training laboratory students, this kind of specialized nature of lab training requires consistent access to reagents and equipment. Their scarcity can be a key barrier. Kiplagat's[22] study resonates with these concerns, identifying inadequate facilities and resources as significant barriers. The presence of non-examinable materials and gaps in equipment knowledge further points to inconsistencies in curriculum delivery, reinforcing the need for targeted improvements. Posner[23] argues that material resources play a crucial role in achieving quality academic outcomes. This could be due to the fact that enhancing resources can significantly improve curriculum outcomes.

Effect of Human Resource on Curriculum Implementation

The present study found that there are concerns regarding staffing adequacy, with many staff expressing doubts about whether current staffing levels are sufficient for effective curriculum execution. This indicates that as human resource challenges such as staffing shortages and high workloads intensify, the quality of curriculum delivery declines. In terms of staff qualifications, while some staff believe that their colleagues are well-qualified, there is notable skepticism about the adequacy of these qualifications for curriculum delivery. This skepticism mirrors,[24] who found that administrative support and professional development are crucial for ensuring that teachers feel supported and comfortable with new curricular changes. Effective curriculum implementation depends heavily on the attitudes of both administrators and teachers, with professional development and support structures playing a significant role.

The availability of continuous professional development (CPD) programs is perceived positively by some, but a significant portion of staff feel these opportunities are insufficient. Mehdinezhad and Mansouri[25] support this view by demonstrating a strong relationship between principals' leadership traits and teachers' self-efficacy, which is crucial for successful curriculum implementation. They found that trust-building, vision-setting, and supportive leadership are essential for creating a positive environment conducive to change.

Communication between management and staff is seen as clear by some, but barriers are reported by many, suggesting challenges in ensuring effective dialogue. This reflects Chaudhary's[5] assertion that effective curriculum implementation relies on the supervisory functions of school heads, who must facilitate clear communication and allocate resources appropriately.

Workload concerns are also significant, with some staff feeling that their workload impedes their ability to focus on curriculum delivery. Desimone[26] emphasizes that ongoing and targeted professional development is crucial for enhancing teachers' capacity to implement new curricula effectively. Similarly, Katsena and Makoza[27] highlight that effective school leadership is critical for creating a supportive learning environment and ensuring the availability of necessary resources.

Collaboration among staff is viewed somewhat positively, but there are concerns about its sufficiency, reflecting the need for improved cooperative practices. This is supported by,[28] who found that inadequate budgets, lack of instructional supervision, and rare professional development for physical education (PE) teachers hindered the implementation of PE curricula in Kenya.

Overall, the data indicates a significant positive relationship between human resource factors and curriculum implementation, supporting the notion that these factors notably influence the effectiveness of curriculum delivery. This comprehensive view underscores the importance of addressing administrative attitudes, ensuring adequate professional development, and enhancing communication and support structures to improve curriculum outcomes.

Effects of Resource Availability Factors and Curriculum Implementation

Teaching materials were found to be moderately satisfactory, though concerns persisted about their overall adequacy. Technological resources, on the other hand, were significantly viewed as insufficient, reflecting a broader apprehension about their capacity to support the curriculum effectively. Funding for curriculum resources was similarly seen as inadequate by many, despite some positive feedback on its sufficiency. Oktafiani and Hernawan[29] demonstrated that the lack of necessary materials due to financial limitations can hinder curriculum implementation, with teachers sometimes having to skip essential activities or delay them due to insufficient resources. Similarly, Muskin[30] noted that the absence of adequate materials in classrooms creates challenges in implementing the curriculum, regardless of teacher competence. The Department of Education and Science[31] further supports this, noting that easy access to materials significantly facilitates curriculum implementation. Spillane and Thompson[32] highlighted that adequate allocation of resources, including financial support, time, and personnel, is essential for effective curriculum implementation. Insufficient resources can obstruct the execution of planned curriculum changes, while adequate human resources and funding enable teacher training and professional development, crucial for adapting to new methodologies. This aligns with findings from,[33] who emphasized that insufficient funding can restrict access to new materials and technology, necessitating external support to overcome these limitations.

The availability of up-to-date software and digital tools was generally viewed positively, but not universally, suggesting potential issues with the completeness or effectiveness of these resources. Support staff availability received a relatively favorable assessment, although there were still notable concerns regarding the adequacy of the support provided. Physical infrastructure, however, was less favorably assessed, with substantial concerns about its suitability for curriculum activities, revealing a divide among respondents. Mwangi et al[28] further demonstrated that the absence of essential physical education facilities and equipment in Kajiado North Sub-County, Kenya, severely impacted curriculum implementation, whereas schools with adequate facilities experienced more success. These studies collectively affirm that resource availability is fundamental to effective curriculum implementation, highlighting the need for adequate materials, funding, and facilities to support successful educational outcomes.

The support for resources dedicated to developing and updating curriculum materials was mixed, reflecting varied perceptions of the adequacy of this support. Overall, a significant positive relationship was identified between resource availability and curriculum implementation, reinforcing the crucial role of resource accessibility in influencing curriculum delivery. Inadequate instructional materials and skilled manpower were also identified as barriers in Kabale municipality, as noted by.[34] Banda and Chidziwisano[35] observed similar constraints in Malawi, where a lack of textbooks, classrooms, and teaching materials impairs the quality of education and limits effective curriculum implementation. Chaudhary[5] stressed the importance of adequate resource materials and facilities for effective curriculum implementation, emphasizing the need for government support in providing essential resources. Kachingwe and Nithyanantham[36] found that inadequate resources and lack of training facilities significantly hinder curriculum implementation and academic performance in Malawi, highlighting the impact of basic resource shortages on teaching quality. Singh[37] underscored that resource availability is crucial for successful curriculum implementation, as lacking resources can lead to stress and diminished teacher morale.

Conclusion

In conclusion, successful curriculum implementation depends more on the strength of institutional systems than on curriculum design alone. Effective progress requires addressing gaps in leadership, coordination, and resource allocation. A comprehensive approach is needed to strengthen support, enhance staff capabilities, and ensure efficient resource management.

Recommendation

Recommendations include strengthening Continuous Professional Development (CPD), improving library resources, ensuring adequate staffing, upgrading infrastructure, and maintaining effective communication between management and staff. These findings align with Freeman's stakeholder theory, emphasizing the need for responsive management that meets the needs of all stakeholders through improved resource allocation and administrative support. Future research is recommended to explore the influence of institutional culture, the long-term impact of CPD, and the link between resource investment and student performance outcomes.

This study recommends that the Institute prioritizes strengthening institutional frameworks and increasing budgetary support to improve curriculum resources, upgrade infrastructure, and enhance technological capabilities for more effective program delivery.

Strength and Limitations of the Study

This study makes several important and innovative contributions to the field of health professions education, particularly in low-resource settings like Uganda. One of its key strengths is the generation of context-specific empirical evidence regarding curriculum implementation at the Uganda Institute of Allied Health and Management Sciences, an area that has received limited scholarly attention. By addressing this gap, the study not only enriches local academic discourse but also enhances the global understanding of how curricula operate in resource-constrained environments. Additionally, the study incorporates insights from students, lecturers, and non-teaching staff, providing a more comprehensive view of curriculum implementation and capturing a variety of institutional perspectives. It highlights the interplay of institutional factors, human resources, and resource availability, rather than examining these elements in isolation. This approach allows for a comparative understanding of which factors are most significant in practice.

This study was conducted in a single institution. The findings may not be generalizable to other allied health institutions in Uganda or other settings with different contexts. The data were collected through self-administered questionnaires, which may introduce social desirability bias, as participants might provide answers they believe are more favourable rather than their true opinions.

Abbreviations

CPD, Continuous Professional Development; UIAHMS, Uganda Institute of Allied Health and Management Sciences-Mulago.

Data Sharing Statement

Data sources are available on request. The request can be sent to the corresponding authors at ndhegoramadhan1234@gmail.com and nndvd45@gmail.com.

Ethical Considerations

Ethical approval to conduct this study was obtained from the AIDS Support Organization (TASO) Research and Ethics Committee [Reference Number: TASO-2024-435]. Administrative clearance: Permission to carry out the study was obtained from the administration of UIAHMS-Mulago. Written informed consent was obtained from the participants. The purpose of the study was explained to the participants, and their participation was voluntary. Their agreement to participate in the study did not waive their rights in any way, and this was in accordance with the Helsinki Declaration.[18] Confidentiality was observed by assigning each participant a unique identification number that was used on the study questionnaires and only known by the researcher. All collected data was kept securely under lock and key and only accessible by the researcher.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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