

Instructional Material Management and Teaching Effectiveness at Higher Education Institutions in Uganda

Ssekamatte Yusuf¹; Nabukeera Madinah²; Matovu Musa³;
Ssali Muhammadi Bisaso⁴

¹ Post Graduate Student, Department of Education Management and Administration, Faculty of Education, Islamic University in Uganda.

² Associate Professor, Dr., Department of Public Administration, Faculty of Management Studies, Islamic University in Uganda.

³ Associate Professor, Dr., Department of Educational Psychology, Faculty of Education, Islamic University in Uganda.

⁴ Senior Lecturer., Department of Education Management and Administration, Faculty of Education, Islamic University in Uganda.

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Abstract: This study investigates the influence of instructional material management on teaching effectiveness at the Islamic University in Uganda (IUIU), Kampala Campus. It is motivated by persistent challenges related to material adequacy, utilization, and quality in higher education institutions across Uganda. Drawing from Systems Theory and Cognitive Load Theory, the study adopts a mixed-methods approach to assess how the availability, accessibility, and quality of instructional materials affect student engagement, performance, and satisfaction. Quantitative data were gathered from lecturers and students using structured questionnaires, while qualitative insights were obtained through interviews with department heads and analysis of institutional documents. The findings aim to inform institutional policy and practice, promoting a strategic and efficient instructional resource system that enhances pedagogical delivery. Ultimately, the study contributes to improving teaching standards and student learning outcomes in resource-constrained higher education settings.

The evolution of higher education in Uganda has been marked by expansion in access, infrastructure, and academic programs. Makerere University, established in 1922, was the foundation of higher learning in East Africa. As private universities like the Islamic University in Uganda (IUIU) emerged in the late 20th century, attention shifted from access to quality, particularly in instructional delivery. A significant element of effective instruction is the management of instructional materials ranging from textbooks and laboratory equipment to digital content and teaching aids (Komba Mwandangi, 2015). Instructional material management has increasingly become a pressing concern in many higher education institutions across Uganda, where budget constraints and poor planning limit material access. Historically, instructional materials were considered supplementary; however, in the current knowledge-based economy, they are central to pedagogy and learner engagement.

Keywords: *Instructional Material Management and Teaching Effectiveness at Higher Education.*

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I. INTRODUCTION

➤ Background to the Study

• Historical Background:

Globally, the evolution of instructional management in higher education has been driven by the need to enhance teaching and learning outcomes. In Uganda, higher education has expanded rapidly over the past two decades, resulting in increased demand for improved instructional practices. IUIU was established in 1988 to provide quality higher education grounded in Islamic values. Despite its growth, IUIU faces challenges related to instructional leadership, research funding, and faculty development. UNESCO (2021) emphasizes that the increase in enrollment in Sub-Saharan Africa has not been matched with equivalent improvements in teaching quality.

• Theoretical Background:

This study is guided by instructional leadership theory and systems theory. Instructional leadership theory emphasizes the role of academic leaders in supporting effective teaching, while systems theory views educational institutions as interdependent structures where management decisions influence outputs. Additionally, Fullan's Change Theory supports the understanding of how institutions can effectively manage instructional transformation through leadership and shared goals.

• Conceptual Background:

Instructional management encompasses the strategies, policies, and practices used by educational leaders to guide teaching and learning. Effective teaching refers to instructional activities that lead to improved student outcomes, engagement, and knowledge retention. The study considers how research-related activities (funding, training, leadership) contribute to instructional management and teaching effectiveness. Research productivity, pedagogical innovation, and continuous professional development are included in the framework of instructional management.

• Contextual Background:

At IUIU, efforts have been made to improve instructional quality through training and policy reforms. However, inadequate research funding, limited research training opportunities, and weak leadership structures continue to impede effective teaching. This study uses IUIU as a case to understand the dynamics of instructional management in higher education institutions in Uganda. National Council for Higher Education (NCHE) reports have emphasized gaps in teaching quality and instructional supervision in private universities.

II. LITERATURE REVIEW

Instructional material management refers to the planning, procurement, organization, distribution, and utilization of teaching and learning resources. These resources include physical materials such as lecture rooms, chairs, tables, whiteboards, markers, projectors, computers,

charts, textbooks, laboratory tools, as well as digital e-books and learning management system (LMS) content. For instructional materials to effectively support teaching, they must be adequate in quantity, accessible to both staff and students, relevant to curriculum goals, and properly maintained (UNESCO, 2022).

Teaching effectiveness involves the extent to which instructors facilitate student learning, engagement, and performance, often evaluated through student outcomes, participation, feedback, and satisfaction (Darling-Hammond, 2017). At the Islamic University in Uganda, the provision of instructional materials varies across faculties. Some departments report insufficient learning aids, while others lack essential digital resources such as projectors in lecture halls, limited computer labs, and updated content. A 2022 internal report from the university highlighted that delays in procuring essential instructional tools disrupted lecture schedules, with an overreliance on theoretical teaching without practical reinforcement undermining education quality (Islamic University in Uganda, 2022, internal report).

The availability and adequacy of instructional materials are key prerequisites for effective teaching. Nwoji (2019), in a study of Nigerian universities, found that the lack of sufficient learning aids significantly limited instructors' ability to deliver curriculum content effectively. Similarly, Namukasa (2020) identified overcrowded classrooms and under-resourced libraries as major barriers to instructional delivery in Ugandan higher education. Availability extends beyond the mere physical presence of materials; it includes timeliness, quantity, and subject relevance (Namukasa, 2020; Nwoji, 2019).

Utilization of instructional materials is equally critical. Muriithi et al. (2018) emphasized that even when materials are available, underutilization due to lack of training or motivation can negate their intended effect. Kaggwa (2021), in a study at Makerere University, revealed that many lecturers relied primarily on lecture notes due to unfamiliarity with instructional technologies or lack of updated reference materials. Effective utilization, therefore, requires both access and competence in employing resources (Kaggwa, 2021; Muriithi et al., 2018).

The quality and relevance of instructional materials directly influence teaching effectiveness. According to UNESCO (2022), instructional materials must be current, culturally sensitive, and aligned with national curriculum standards. Internal reports from the Islamic University in Uganda indicate that some faculties use outdated or non-contextual materials, adversely affecting student engagement and comprehension (Islamic University in Uganda, 2022). Supporting this view, Mtebe and Raisamo (2014) found that high-quality e-learning materials in Tanzanian universities improved student understanding and reduced dropout rates.

Globally, instructional material management trends have shifted towards digitalization, open educational

resources (OER), and inclusive access. In high-income countries, institutions increasingly integrate cloud-based learning platforms, allowing students real-time access to materials. In contrast, developing countries like Uganda face infrastructural, financial, and training-related challenges (Darling-Hammond, 2017; Fullan, 2014). Darling-

Hammond (2017) argues that instructional support requires not only investments in physical resources but also strategic alignment with faculty needs. Fullan (2014) stresses that effective instructional systems must be well-funded and holistically designed to promote teaching quality.

Table 1 The summary of Reviewed Literature

Theme	Findings	Scholars
Availability of Materials	Inadequate resources limit effective teaching	Nwoji (2019); Namukasa (2020)
Utilization	Underuse due to poor training or motivation	Muriithi et al. (2018); Kaggwa (2021)
Material Quality	Outdated and irrelevant materials hinder learning	UNESCO (2022); Mtebe & Raisamo (2014)
Institutional Policies	Strong policies improve access and equity	Knight (2002); Kiwalabye & Lumu (2021)

The theoretical framework for this study is grounded in Ludwig von Bertalanffy's (1968) Systems Theory, which views organizations as complex, interrelated components working together to achieve a common purpose. In higher education, students, instructors, administrative staff, instructional materials, learning technologies, physical infrastructure, and policies form a coherent system. The effectiveness of any one component influences the entire system's performance. Instructional materials, as a critical subsystem, support effective teaching and learning; poor management such as outdated content or inadequate access can disrupt the system, leading to reduced instructional effectiveness and learner outcomes. Conversely, well-managed materials enhance instruction, promote efficiency, and contribute to institutional goals such as student retention and academic achievement (Bertalanffy, 1968).

Applying Systems Theory in the context of Ugandan higher education underscores the importance of managing instructional materials as part of a broader educational ecosystem. Institutional policies, budget allocations, technological infrastructure, and faculty training must align to ensure instructional materials effectively support teaching (Knight, 2002; Kiwalabye & Lumu, 2021).

Furthermore, Cognitive Load Theory (CLT), developed by John Sweller (1994), provides insights into how human cognitive architecture influences learning. CLT posits that working memory has limited capacity, requiring instructional materials to be designed to optimize cognitive resources. This involves minimizing extraneous cognitive load and maximizing germane load to facilitate efficient processing and retention of information. Poorly designed materials with excessive jargon or cluttered visuals increase

extraneous load, hindering learning, while well-structured content with clear explanations and relevant examples enhances comprehension. Given the diverse linguistic and educational backgrounds of students in Uganda, managing instructional materials to align with learners' cognitive capacities and contextual realities is crucial, especially in resource-constrained environments (Sweller, 1994).

➤ Statement of the Problem

Effective teaching relies heavily on access to and proper use of instructional materials. However, many higher education institutions in Uganda including Islamic University in Uganda struggle with inconsistent supply chains, lack of instructional planning, and outdated materials. These issues have a direct bearing on the quality of instruction and student outcomes. If instructional material management is not improved, the goal of delivering relevant, practical, and student-centered education remains unattainable. This study seeks to investigate the impact of instructional material management on teaching effectiveness at Islamic University in Uganda.

➤ Objectives of the Study

• The Specific Objectives includes;

- ✓ To evaluate the adequacy and availability of instructional materials at Islamic University in Uganda.
- ✓ To assess the utilization of instructional materials by various faculties at Islamic University in Uganda.
- ✓ To examine the relationship between instructional materials management and teaching effectiveness at Islamic University in Uganda.

III. CONCEPTUAL FRAMEWORK

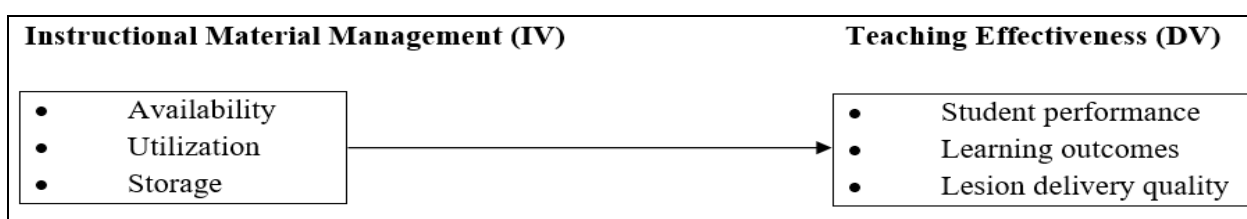


Fig 1 Conceptual Framework

The conceptual framework for this study is grounded in the understanding that effective instructional material management significantly contributes to teaching effectiveness in higher educational institutions. Instructional material management is conceptualized as the **independent variable (IV)**, comprising four main dimensions: **availability, utilization, and storage of materials**. These dimensions represent the extent to which instructional materials are present, reachable, appropriately used, and of high standard for teaching and learning purposes. On the other hand, **teaching effectiveness** is the **dependent variable (DV)**, and it is measured through indicators such as **student performance, learning outcomes, and learning delivery quality**. These aspects reflect how well instructors deliver content, interact with students, and achieve desirable learning outcomes.

The framework assumes a **direct relationship** between effective instructional material management and teaching effectiveness. When instructional materials are readily available, easily accessible, properly utilized, and of high quality, educators are better positioned to deliver lessons effectively, thereby enhancing student learning experiences and outcomes.

This framework serves as a guide for analyzing how different elements of instructional material management affect teaching effectiveness in the context of Islamic University in Uganda and similar higher educational institutions.

IV. METHODOLOGY

➤ Research Design

This study employs a mixed-methods research design, specifically the convergent parallel design. This approach

involves the simultaneous collection of quantitative and qualitative data, which are analyzed independently before being integrated during interpretation. The quantitative component, obtained through structured questionnaires, allows measurement of the extent of instructional material management and its effects on teaching effectiveness. Meanwhile, the qualitative component, gathered via interviews and document analysis, provides in-depth contextual understanding of experiences, perceptions, and institutional practices surrounding instructional materials. The convergent parallel design enables a comprehensive examination of both measurable outcomes and nuanced insights within the same timeframe, enhancing the validity and robustness of the findings.

➤ Study Population and Sampling Frame

The study population comprises academic staff (including lecturers and teaching assistants), top-level university administrators, procurement and store officers, accountants, students, and selected community members affiliated with the Islamic University in Uganda (IUIU), Kampala Campus. According to the university directory and enrollment data for the 2024–2025 academic year, the estimated total population is 130 individuals. The sampling frame was developed using official university records, including staff lists and student registration databases, to ensure an accurate and up-to-date source for sample selection.

➤ Sample Size and Sampling Techniques

A total sample of 97 respondents was drawn based on the Krejcie and Morgan (1970) sample size determination table, ensuring sufficient statistical power and representativeness. The sampling strategy combined purposive and simple random sampling methods tailored to the specific characteristics of each subgroup:

Table 2 Study Population, Sample Size, and Sampling Techniques

Category	Population	Sample Size	Sampling Technique
Top Administrators	15	10	Purposive
Lecturers	30	20	Simple Random
Students	30	20	Purposive
Procurement Officers	2	2	Purposive
Store Managers	5	5	Purposive
Accountants	3	3	Purposive
Community Members	45	37	Purposive
Total	130	97	

Purposive sampling was applied to select participants holding specific roles critical to instructional material management, while simple random sampling ensured unbiased selection among lecturers.

➤ Data Collection Methods and Instruments

Multiple methods were utilized to capture both quantitative and qualitative data comprehensively:

• Questionnaires:

Structured questionnaires were administered to academic staff and students to collect quantifiable data regarding their usage, perceptions, and the effectiveness of instructional materials.

• Interviews:

Semi-structured interviews were conducted with university administrators, department heads, and other key

personnel to obtain rich qualitative insights into procurement processes, challenges, and institutional policies affecting instructional material management.

- *Document Analysis:*

Relevant university documents such as procurement records, inventories of instructional resources, and official policy documents were reviewed to triangulate data and validate information gathered through other methods.

- *Validity and Reliability*

To ensure the validity of instruments, expert reviews were sought from experienced researchers and university educators, and adjustments were made based on their feedback. Additionally, pre-testing was conducted with a small sample to refine questionnaire clarity and relevance. Reliability was established through a pilot study involving 20 participants, which yielded a Cronbach's alpha coefficient of 0.82, demonstrating acceptable internal consistency of the questionnaire items.

- *Data Analysis Procedures*

- *Quantitative Data:*

The collected questionnaire data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics such as frequencies, percentages, means, and standard deviations were computed to summarize respondent characteristics and key variables. Inferential statistics, including Pearson correlation and multiple regression analysis, were applied to examine relationships and predict the impact of instructional material management on teaching effectiveness.

- *Qualitative Data:*

Interview transcripts and document notes were subjected to thematic analysis. Coding was done manually and through qualitative analysis software to identify recurrent patterns, themes, and categories related to instructional material management practices and challenges.

- *Assumptions and Diagnostic Tests*

Prior to inferential analyses, assumptions underlying statistical tests were evaluated. Normality of data distribution was tested using the Shapiro-Wilk and Kolmogorov-Smirnov tests, confirming data suitability for parametric testing. Multicollinearity among predictor variables was assessed via Variance Inflation Factor (VIF) values, all of which were below the threshold of 5, indicating no significant multicollinearity concerns.

V. FINDINGS AND DISCUSSION

- *Adequacy and Availability of Instructional Materials*

The study revealed that instructional materials at IUIU Kampala Campus are inadequate in both quantity and quality. Shortages were observed in key resources such as updated textbooks, laboratory equipment, audio-visual tools, and digital learning platforms. Delays in procurement and inconsistency in supply were cited by lecturers as major

obstacles, often leading to disruptions in lesson planning and delivery.

This finding supports earlier work by Namukasa (2020), who reported that in many East African universities, insufficient instructional resources directly compromise the quality of teaching. Nwoji (2019) similarly observed that without adequate, updated, and accessible instructional tools, lecturers are forced to rely on outdated notes, thereby limiting students' exposure to current knowledge and practices. From a systems theory perspective, the shortage of instructional materials represents a breakdown in one component of the educational system, which subsequently affects all other processes, from lesson preparation to student assessment (Lunenburg, 2011).

Furthermore, the problem of availability is compounded by weak maintenance and inventory tracking. Without proper record-keeping, institutions risk wastage, duplication of purchases, and the misplacement of materials. In the case of IUIU Kampala Campus, several lecturers reported instances where equipment remained locked away in storage rooms due to bureaucratic clearance procedures, rather than being readily available for classroom use.

- *Utilization of Instructional Materials*

Even when materials were available, their use in the teaching process was suboptimal. The study found that many lecturers rely predominantly on traditional lecture notes, with minimal integration of audio-visual tools, laboratory experiments, or interactive digital platforms. This underutilization was attributed to several factors: lack of training on the use of modern instructional technologies, limited institutional incentives to innovate teaching methods, and occasional resistance to change among some staff.

This observation is consistent with Muriithi, Gatimu, and Ndiritu (2018), who argued that without targeted professional development, the integration of instructional materials into pedagogy remains low, even in resource-rich institutions. Kaggwa (2021) also found that Ugandan lecturers often underuse available teaching tools due to inadequate ICT skills and the absence of structured pedagogical support.

The findings align with Vygotsky's socio-cultural theory, which underscores the importance of tools and mediators in facilitating learning (Vygotsky, 1978). If such tools are absent or underused, students are denied opportunities for active engagement, practical demonstration, and collaborative learning. Moreover, underutilization weakens student motivation, as lessons become overly theoretical and abstract.

- *Relationship Between Instructional Material Management and Teaching Effectiveness*

The third objective examined the link between effective instructional material management and teaching outcomes. The study established a significant positive correlation: well-managed instructional materials — those

that are adequate, accessible, well-maintained, and appropriately utilized — directly contribute to improved lesson delivery, greater student participation, and enhanced learning outcomes.

This finding reinforces UNESCO's (2022) assertion that effective learning environments depend on the systematic management of educational resources. Cognitive Load Theory further explains that when instructional materials are well-designed and readily available, they reduce extraneous cognitive load, allowing students to focus on meaningful learning tasks (Sweller, 2011). Conversely, poorly managed resources increase mental strain for both lecturers and students, leading to reduced comprehension and retention.

In practical terms, this relationship at IUIU was evident in courses where materials were readily available and effectively deployed, students in such classes reported higher satisfaction, better engagement, and improved assessment performance compared to those in classes where resources were inadequate or poorly managed.

VI. CONCLUSION

From the study findings, three key conclusions emerge. First, the availability of instructional materials at IUIU Kampala Campus is insufficient, with both quantitative and qualitative gaps undermining effective teaching. Second, even where materials exist, their underutilization limits their potential impact, primarily due to inadequate lecturer training, institutional constraints, and resistance to pedagogical change. Third, there is clear evidence that effective instructional material management significantly enhances teaching effectiveness, reinforcing the need for strategic improvements in procurement, utilization, and oversight.

RECOMMENDATIONS

Based on the conclusions drawn from the study, several key recommendations are proposed to improve the management and effective use of instructional materials in higher education institutions.

➤ Enhance Availability of Instructional Materials

A critical factor in improving teaching effectiveness is ensuring the timely availability of instructional resources. Institutions should streamline their procurement processes to minimize delays and ensure that resources are delivered when needed. This requires clear policies and efficient communication channels between departments responsible for procurement and academic staff. Additionally, adequate budget allocations must be prioritized for purchasing instructional materials, with particular emphasis on digital tools and subject-specific resources that address the evolving needs of both lecturers and students. Establishing a centralized inventory system would further enhance resource management by providing an up-to-date overview of available materials, tracking their distribution, and preventing shortages or duplications. Such a system would

support informed decision-making regarding resource replenishment and equitable allocation.

➤ Improve Utilization of Instructional Materials

Availability alone is insufficient unless instructional materials are effectively utilized in the teaching and learning process. To promote better utilization, regular training workshops should be organized to equip lecturers with the necessary skills and confidence to use both traditional and digital instructional tools effectively. These workshops would also serve as platforms to introduce new technologies and innovative pedagogical methods. Encouraging peer mentoring and the sharing of best practices among lecturers can foster a collaborative culture that supports continuous professional development. Furthermore, institutional incentives such as recognition awards, teaching grants, or career advancement opportunities could motivate lecturers to experiment with and integrate instructional materials innovatively, ultimately enhancing student engagement and learning outcomes.

➤ Strengthen Management Systems for Instructional Materials

Robust management systems are essential to ensure the sustainability of resource availability and utilization. Institutions should develop and implement standard operating procedures (SOPs) that govern the acquisition, storage, maintenance, and distribution of instructional materials. These SOPs would provide clarity and consistency in managing resources, minimizing losses and damage. Additionally, digitizing key instructional resources and making them accessible through an institutional Learning Management System (LMS) would significantly improve accessibility for both lecturers and students, supporting flexible and blended learning approaches. To maintain the effectiveness of these systems, periodic audits that incorporate feedback from both lecturers and students should be conducted. These audits would help identify existing gaps and areas requiring improvement, enabling institutions to adapt their strategies and ensure instructional materials meet the evolving educational demands.

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