

## A content analysis of articles in the University of Dar es Salaam Library Journal

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### Abstract

Using Zin's Classification Scheme of Information Science, this study seeks to analyze the content of articles published in the University of Dar es Salaam Library Journal (UDSMLJ). All the analyzed articles were retrieved from the African Journals Online (AJOL) platform. A content analysis approach was used to analyze the collected data. Notably, a majority of the analyzed articles focused on three LIS research areas: information use and users; LIS activities; and LIS application areas. A growing trend in the publication of articles related to metrics, evaluation, and research, and a decline in the publication of articles pertaining to information use and users was also noted. Only a moderate number of articles incorporated theoretical frameworks. The majority of the articles employed a mixed-method approach for data collection and analysis. The study found limited international contributions in the journal, as the majority of contributing authors were from Tanzania. The study concludes that the published articles reflect the state of LIS scholarship in the country, given that they predominantly originate from Tanzanian contributors. The study recommends the journal enhances its promotional strategies to attract potential contributors from around the world. Additionally, journal's editors should encourage the submissions of articles that incorporate theoretical perspectives, thereby fostering theoretical advancements in the field of LIS.

**Keywords:** Content analysis; library and information science; University of Dar es Salaam Library Journal; University of Dar es Salaam; Tanzania

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### Introduction

Scholarly journals serve as the primary channel by which the academic community validates new contributions to its established knowledge base, while also providing a platform for individual scientists to vie for acknowledgment and recognition (Bisaria, 2021). Periodic analysis of such journals is imperative as it enables the assessment of how well the published academic research aligns with the objectives, concerns, and principles of a specific discipline (Buboltz *et al.*, 2010). Content analysis of scholarly journals offers valuable insight into the evolution of a profession by identifying prevailing subject trends and significant issues that dominate the profession during a specific timeframe as evidenced by prior studies (Aharony, 2012; Blessinger & Frasier, 2007; Chang *et al.*, 2015) demonstrates. It is also worth mentioning that analyzing the content of a scholarly journal not only provides a means to inform more about the research culture of a nation over time (Bailey *et al.*, 2017), but also acts as a way of demonstrating research productivity, performance, and commitment of researchers involved in an academic community (Ahmad *et al.*, 2020; Chung & Petrick, 2011).

The significance content analysis has on scholarly journals has aroused the attention of many researchers. Different researchers on the subject matter have conducted numerous

studies, albeit with varying emphasis on different research elements covered in LIS journals. For instance, while some researchers (e.g., Ahmad *et al.*, 2020; Bailey *et al.*, 2017; Kalervo & Vakkari, 2022; Stroud *et al.*, 2017; Tuomaala *et al.*, 2014) have focused their attention precisely on the scope of the LIS subject matter covered in different LIS journals, other researchers (Chu, 2015; Gauchi Risso, 2016; Ullah & Ameen, 2018) have focused solely on the research techniques employed in LIS research. Similarly, practical implementation of theoretical frameworks as applied in various LIS research has also been the focus of many LIS researchers (Kumasi *et al.*, 2013; Lor, 2014; Mckechnje & Pettigrew, 2002). On a whole, despite having different research focus, there is a consensus amongst researchers (Bailey *et al.*, 2017; Buboltz *et al.*, 2010) that periodic content analysis of a journal such as the University of Dar es Salaam Library Journal (UDSMLJ) is imperative.

The UDSMLJ is an interdisciplinary academic journal that publishes scholarly articles on various facets of LIS and associated fields of study. These encompass the organization of knowledge, information dissemination, information and knowledge management, Information Technology and its application, management in libraries, communication, human information behaviour, records and archives management, information literacy, information retrieval, reference services, and information systems (University of Dar es Salaam, 2023). This journal is the sole publication outlet in Tanzania that disseminates scholarly research conducted by LIS researchers within the country.

Despite playing a significant role in disseminating scholarly research in Tanzania, the content of this journal is yet to be analysed. Being the sole LIS publication outlet in Tanzania, it is essential to analyse its content to gain insight into whether the content aligns with the scope of the journal as well as determine its alignment with the publications of other LIS international journals. Its analysis is also significant in the sense that it will help to gain insight into the advancement of LIS research and profession in the country. This is true considering the dynamic evolution of the LIS field as demonstrated by the abundance of publications currently available on LIS research trends across the globe (Aharony, 2012; Dora & Kumar, 2020; Elia & Ndenje-Sichalwe, 2022; Garg & Sharma, 2017; Maurya & Shukla, 2017; Sa & Dora, 2019). The publications provide evidence that the field of LIS currently includes not only the traditional aspects of information storage, transmission, and utilization, but also expands into diverse domains such as Science, Technology, Humanities, Law, Management, and Medicine. Given the dynamic nature of this field, it is interesting to explore the research focus and evolving advancements within this discipline, but with specific reference to Tanzania.

This paper, therefore, presents a thorough content analysis of the articles extracted from the UDSMLJ for the period from 2002 to 2023. The study had two specific objectives: the first was to analyse the content covered in the articles published in the journal, including the topics covered, preferred theories, and methods employed. The second focused on authorship patterns, with an emphasis on the geographical distribution of the authors, their institutional affiliations, collaboration, and gender patterns.

## **Related Literature**

The literature available on this subject shows that LIS is a dynamic field with quickly shifting interests in research topics and methods. Numerous studies (Hou *et al.*, 2018; Kalervo & Vakkari, 2022; Ma & Lund, 2020; Tuomaala *et al.*, 2014) conducted to investigate LIS research areas have noted an apparent change in terms of LIS research topics over time. The studies indicate that most earlier LIS research focused on topics such as information systems



design and management (Onyancha, 2018; Tuomaala et al., 2014), information storage and retrieval, scientific communication, library and information service-activities, information seeking, citation behavior, library history, and webometrics (Hou et al., 2018; Kalervo & Vakkari, 2022; Tuomaala *et al.*, 2014). Such research also focused much on organizations rather than individuals (Kalervo & Vakkari, 2022). However, over time, interest in these topics started to decline as newer LIS research topics such as scientometric indicators, citation analysis, scientific collaboration, science mapping and visualization, and information behaviour started to emerge (Hou et al., 2018; Kalervo & Vakkari, 2022). Other topics that have also been the center of current LIS research include scientific communication, information storage and retrieval, information access, information and knowledge management, altmetrics, bibliometrics, user education (Chang *et al.*, 2015; Ma & Lund, 2020; Onyancha, 2018; Tuomaala *et al.*, 2014), and information technology focusing on social media and mobile applications (Han, 2020). The literature also demonstrates that there is an apparent change in the focus of LIS research from system-oriented to user-oriented research (Tuomaala et al., 2014). Overall, the literature provides evidence that the field of LIS is continuously evolving and dynamic, necessitating its researchers to be flexible and adaptable to keep up with the ever-changing LIS environment.

Theory deployment and theory building are key markers of scholarly advancement in every field of study (Connaway & Powell, 2010). Theory plays a crucial role in research, as it possesses the capacity to consolidate current knowledge, explain observed events and relationships, and forecast the emergence of unobserved events and relationships by relying on the explanatory principles embedded within the theory (Collins & Stockton, 2018; Kumasi *et al.*, 2013; Levine & Markowitz, 2023). In fact, the significance of theory is underscored by certain journals (e.g., Wiley), which exhibit a preference for articles that offer substantial theoretical contributions (Díaz Andrade et al., 2023). Although scholars have recognized the importance of applying theories in research, it is undeniable that there is a scarcity of explicit theories in the field of LIS as evidence from research (Hjørland, 2000; Lor, 2014; Roy & Mukhopadhyay, 2023) indicates. As a result, often theories from other disciplines such as psychology, sociology, or management are applied. However, in spite of this limitation, the literature (Kim & Jeong, 2006; Lor, 2014; Mckechnje & Pettigrew, 2002) demonstrates a growing inclination among LIS authors to incorporate theories in their work all thanks to their multidisciplinary background. This situation demonstrates the closer relationship of LIS research with theory (Kim & Jeong, 2006). Some studies have attempted to list mostly dominating theories in most LIS research. In their study, for instance, Roy and Mukhopadhyay (2023) provide a list of the top most dominant theories preferred by LIS researchers. These theories include among others, Grounded theory, Learning theory, Activity theory, Unified Theory of Acceptance and Use of Technology Model, Adult Learning theory, Technology Acceptance Model (TAM), Diffusion of Innovations, Fuzzy set theory, Critical Race theory, Kuhlthau's theory of the information search process, Queer theory, Shannon's theory of communication, and Social Cognitive theory. Other similar studies (e.g., Ukwoma & Ngulube, 2021) have also reported the same. Despite the fact that this list is not exhaustive, it provides evidence that LIS researchers utilize theories in their research.

The utilization of research methods holds great importance in all academic pursuits, including the field of LIS. Any research requires a proper methodology that would enable the researcher to properly collect and analyse data to address the problem under investigation

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(Chu, 2015; Ndenje-Sichalwe & Elia, 2021). Numerous studies have been conducted to investigate methodological issues in LIS research. Both earlier (Hider & Pymm, 2008) and recent studies (Ma & Lund, 2020; Majhi *et al.*, 2016; Ullah & Ameen, 2018) have highlighted excessive dependence on descriptive and survey approaches in most early LIS research. The prevalence of these approaches has resulted in questionnaires, interviews, and informetrics being extensively used. However, there has been a change in the application of research methodologies in LIS research recently. Evidence from studies (Chu, 2015; Ullah & Ameen, 2018) demonstrates that LIS researchers are no longer limited to the traditional research methods such as the use of questionnaires applied in LIS exploration and are now using methodologies that are more sophisticated in their research. Several studies (e.g., Kalervo & Vakkari, 2022; Tuomaala *et al.*, 2014; Ullah & Ameen, 2018) have noted the increasing use of empirical strategies to find and propose solutions to problems confronting the LIS profession. With such a strategy, research methodologies such as survey, scientometric, bibliometric, experiment, case studies, qualitative, and content analysis are increasingly applied by many LIS researchers (Hider & Pymm, 2008; Kalervo & Vakkari, 2022; Majhi *et al.*, 2016; Noruzi, 2017; Tuomaala *et al.*, 2014). Other studies (e.g., Gauchi Risso, 2016) have proposed the utilization of methodologies that combine both quantitative and qualitative approaches for a better understanding of the nature and characteristics of the LIS research. Generally, the literature suggests that the field of LIS employs a diverse array of research methods to adapt to the dynamic nature of the discipline. However, the selection and quantity of specific methodologies employed by a researcher for a given subject matter are contingent upon the research's objectives (Chu, 2015).

Research collaboration is considered one among the most important key predictors of research performance, reputation, visibility, and productivity of researchers (Adekoya, 2023; Mwantimwa & Kassim, 2023). It provides researchers a chance to partner and refine their ideas while devising multi-faced approaches to attain a common goal and uniform practice (Dlamini *et al.*, 2021). In particular, collaboration in LIS research has been acknowledged for its potency in providing opportunities for the improvement of both library practice and education (Adekoya, 2023). Similar to researchers from various other fields, LIS researchers also actively participate in collaborative research endeavours. The literature demonstrates an increasing trend toward collaborative research among them. Numerous recent studies on LIS research (Ahmad *et al.*, 2020; Armann-Keown & Patterson, 2020; Majhi *et al.*, 2016; Shehatta & Mahmood, 2016) have, for instance, noted an increasing number of co-authored LIS publications, thus suggesting that the authors tend to work in collaboration. However, it seems that the majority of these collaborations remain confined to local settings, despite the widespread adoption of international collaboration among researchers (Ibáñez *et al.*, 2013; Nguyen *et al.*, 2017). Some studies (Adekoya, 2023; Noh & Chang, 2019) have reported a low number of publications by LIS authors that involve international collaboration. This, however, has been attributed to the low awareness of LIS researchers concerning the need and importance of international research (Noh & Chang, 2019). Nevertheless, regardless of these divergent findings, the significance of collaboration in research cannot be overstated.

Studies have presented conflicting findings regarding the extent of male and female contributions in LIS research. While some studies found equal contributions among both male and female authors, others have reported contrasting results. In their study, for instance, Shah *et al.* (2023) found almost equal contributions among both male and female authors in LIS research. Other similar studies (Bisaria, 2021; Scarman, 2013) particularly in the UK also

reported the same. In contrast, other studies (Parabhoi *et al.*, 2020; Vinay *et al.*, 2019; Vinay & Kumar, 2021) reported significant differences among male and female LIS researchers in terms of their contributions to LIS research. Furthermore, the results obtained from these studies exhibit discrepancies. Although some studies (Parabhoi *et al.*, 2020; Vinay *et al.*, 2019) have indicated a higher level of research productivity among male LIS authors, contrasting findings have been reported by other studies. In particular, in their study, Vinay and Kumar (2021) observed an increasing proposition of female authors with a resulting decline in male authors. According to this study, female authors are more productive and have contributed more articles in the studied journals than their male counterparts. However, these variations could be attributed to the fact that distinct journals were examined. Although there is a lack of consensus regarding the gender patterns identified in the reviewed studies, the situation in Tanzania remains unexplored and thus unknown.

## Methods and Materials

This study analysed LIS research areas published in the UDSMLJ. Despite the study's original intention to analyse all articles published since the journal's inception, only articles from 2002 to 2023 were accessible. The choice of the UDSMLJ is predicated upon its noteworthy contribution to LIS scholarly communication in Tanzania. As elucidated earlier, UDSMLJ is the sole publication platform in Tanzania that disseminates scholarly research conducted by LIS researchers within the country. Consequently, its content analysis will facilitate comprehension of the intricacies of research and development in the LIS field within the country. To achieve this within the context of the present study, the African Journals Online (AJOL) platform was used to retrieve all the articles (231) published within the identified period. The areas of concern derived from each of the articles encompassed the topic addressed, the theoretical framework, the research methodology utilized, the extent of collaboration, the geographical dispersion, the affiliations of the authors, and gender distribution.

The collected data was analysed using a content analysis approach. This approach as attested by Armann-Keown and Patterson (2020) is a methodology that has been widely used to analyse different data sources including journal articles, interviews, and websites to address problems within and beyond the LIS discipline. All the crucial procedures of content analysis including initial data preparation, determination of the unit of analysis, and development of categories and a coding scheme were meticulously adhered to. In particular, the Zin's Classification Scheme of Information Science (see Table 1) was used to analyze the content covered in the journal.

**Table 1:** Zin's Classification Scheme of Information Science

<b>1. Foundations of IS</b>	<b>4. Metrics, Evaluation &amp; Research</b>	<b>7. Application areas</b>
1.1 Classification theory	4.1 Evaluation of information systems	7.1 Information industry
1.2 Cognition science	4.2 Evaluation of retrieval	7.1.2 Electronic Publishing
1.3 Communication theory	4.3 User needs studies	7.1.3 Libraries
1.4 Foundations & history of IS	4.4 Usability studies	7.1.4 Digital libraries
1.5 IS epistemology	4.5 Diffusion studies, SNA	7.1.5 Primary Information Services
1.6 Library science	4.6 Economics of information	7.1.6 Secondary Information Services
1.7 Philosophy of information	4.7 Evaluation of information quality	7.1.7 Tertiary Information services
1.8 Museology		7.1.8 Intellectual capital
1.9 Archive science		7.1.9 Business intelligence

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<b>2. Technology</b>	4.8 Bibliometric-, Informetric-, Scientometrics	7.1.10 Geospatial Systems (GIS)
2.1 Buildings & equipment	4.9 Webometrics	7.1.11 Patent analysis
2.2 Multimedia	4.10 Research methods	7.1.12 Market research
2.3 Internet, intranets, extranets	4.11 Evaluation of research	7.2 Discipline-oriented systems
2.4 "High tech"		7.2.1 Chemical informatics
2.5 ICT	<b>5. Information use &amp; users</b>	7.2.2 Medical informatics
2.6 Information processing tools	5.1 Information needs & use	7.2.3 Music information retrieval
2.6.1 Classification schemes	5.2 User typologies	7.3. Function-oriented systems
2.6.2 Structured vocabularies	5.3 Information behavior	7.3.1 Marketing
2.6.3 Metadata & schema	5.4 Group psychology	7.3.2 Finance & accounting
2.6.4 Information & data models	5.5 Information usability	7.3.3 Educational systems
2.7 Information workers	5.6 Info & IT literacy	7.3.4 Health informatics
<b>3. Activities</b>	<b>6. Supporting disciplines</b>	7.3.5 Legal information systems
3.1 Systems analysis & design	6.1 Management	7.3.6 e-Government
3.1.1 Information (& knowledge) architecture	6.1.1 Strategy & planning	7.3.7 Citizen's information systems
3.1.2 Information (& knowledge) audit	6.1.2 Financial management	7.4. Media-based
3.1.3 Website design	6.1.3 Human resource mgmt	7.4.1 Text-based systems
3.1.4 Typology & graphic design	6.1.4 Facilities management	7.4.2 Pattern recognition
3.1.5 Standardization	6.1.5 Operations research	7.4.3 Content-Based Image Retrieval
3.2 Knowledge management	6.1.6 Decision support systems	7.4.4 Video systems
3.3 Information management	6.1.7 Management information	7.4.5 Audio systems
3.3.1 Library management	6.2 Mathematics & logic	7.4.6 World Wide Web
3.3.2 Records & archives management	6.2.1 Bayesian probability	7.4.7 Portals and gateways
3.3.3 Document management	6.2.2 Vector space analysis	<b>8. Legal, Ethical &amp; Social issues</b>
3.4 Museum documentation	6.2.3 Information theory	8.1 Intellectual property
3.5 Information processing	6.2.4 Bradford-Zipf analysis	8.2 Information ethics
3.5.1 Information analysis	6.3 Linguistics & logic	8.3 Freedom of Information
3.5.2 Writing and journalism	6.3.1 NLP	8.4 Data privacy, Censorship
3.5.3 Collection management	6.3.2 Computational linguistics	8.5 National information policy
3.5.4 Indexing	6.3.3 Semiotics	8.6 Social exclusion
3.5.5 Abstracting	6.3.4 Semantics	8.7 Third World problems
3.5.6 Cataloguing	6.3.5 Speech recognition	<b>9. IS Education</b>
3.5.7 Classification & categorization	6.4 Artificial intelligence	9.1 Training
3.5.8 Information storage	6.5 Psychology	9.2 e-Learning
3.5.9 Information curation	6.6 Information politics	
3.5.10 Information retrieval	6.7 Communication	
3.5.11 Information dissemination		

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**Source:** Zins (2007)

The scheme records the characteristics of modern Information Science (IS) as observed in the early years of the 21st century (Zins, 2007). This scheme classified LIS into nine broad categories namely: foundation of IS; Technology; Activities; Metrics, Evaluation and Research; Information Use and Users; Supporting Disciplines; Application Areas; Legal, Ethical and Social Issues; and IS Education. Theories and methodologies employed in the articles were also analysed using content analysis. Similarly, content analysis was used to assess the geographical distribution of contributing authors, their institutional affiliations, gender, and their collaboration patterns. Consistent with prior studies (Naheem & Sivaraman, 2022; Parish et al., 2018), collaboration patterns were assessed based on co-authorship and the involvement of international authors.



## Results

### *LIS Topic Covered*

Results show that the articles published in the UDSMLJ covered various topics (see Table 2) as identified in the Zin's classification scheme. Nevertheless, out of the nine topics classified, the analysed articles have only addressed eight.

**Table 2:** LIS topic covered in UDSMLJ

Topic Area	Frequency	Percent
Information Use & Users	62	26.8
Activities	59	25.5
Application Areas	47	20.3
Technology	33	14.3
Metrics, Evaluation & Research	15	6.5
Supporting Disciplines	7	3.0
Legal, Ethical, & Social Issues	4	1.7
IS Education	4	1.7
<b>Total</b>	<b>231</b>	<b>100.0</b>

Generally, more than a quarter of all articles published during the studied period covered topics related to information use and users (26.8%) and LIS activities (25.5%). A moderate proportion of all articles covered topics related to LIS application areas (20.3%) and technology (14.3%). Very few articles covered topics related to legal, ethical and social issues (1.7%) and IS education (1.7%).

### *Year of Publication vs LIS Topics Published*

A cross-tabulation was performed to determine the changes in the publication of LIS topics by analysing the relationship between the year of publication and the specific LIS topic (see Table 3). From Table 3, Tech = Technology; Act = Activities; MER = Metrics, Evaluation & Research; IUU = Information Use & Users; SD = Supporting Disciplines; AA = Application Areas; LESI = Legal, Ethical, & Social Issues; and ISE = IS Education.

**Table 3:** Year of publication vs LIS topic published

Date of Publication	Topic covered							
	Tech	Act	MER	IUU	SD	AA	LESI	ISE
2023	3	2	1	1	0	3	0	0
2022	6	5	2	2	0	6	1	0
2021	0	6	2	0	0	6	0	0
2020	3	4	3	6	3	9	1	0
2019	1	4	2	7	1	2	0	0
2018	2	5	1	5	0	3	0	0
2017	2	4	1	5	0	4	0	0
2016	2	3	0	4	0	4	0	1
2016	0	3	0	4	0	1	0	0
2008	1	4	0	1	0	0	0	1
2007	0	1	1	4	0	1	0	0
2006	1	2	0	4	0	1	0	0
2005	4	1	1	6	1	3	0	0
2004	2	6	0	5	0	2	0	0
2003	3	5	0	5	1	0	1	0
2002	3	4	1	3	1	2	1	2

Results reveal that the UDSMLJ consistently covered subjects about technology and LIS activities in nearly all of its issues throughout the years under investigation, except in 2016 and 2021 for technology-related topics. Results further show that topics related to metrics, evaluation, and research were increasingly being covered from 2017 to 2023 while there was a decline in coverage of topics related to information use and users, particularly from 2020 onwards. A relatively moderate number of articles covering supporting disciplines were published in 2020. Numerous articles covering the application areas of LIS (9) were published in 2020 but experienced a decline from 2021 to 2023. The results indicate that LIS topics related to legal, ethical, and social issues, as well as IS education, received less coverage throughout the entire study period.

### ***Utilization of Theories***

This study also sought to determine whether the articles published in the UDSMLJ incorporated theories. Results in Table 4 show that only 19.5% of all articles used theories. A thorough examination of these articles was conducted to ascertain the theories that were utilized. The findings demonstrated that multitudes of theories were utilized, with some articles utilizing more than one theory. Nevertheless, to avoid an extensive list of theories, only the ten most frequently utilized theories are presented.

**Table 4:** Utilization of theories

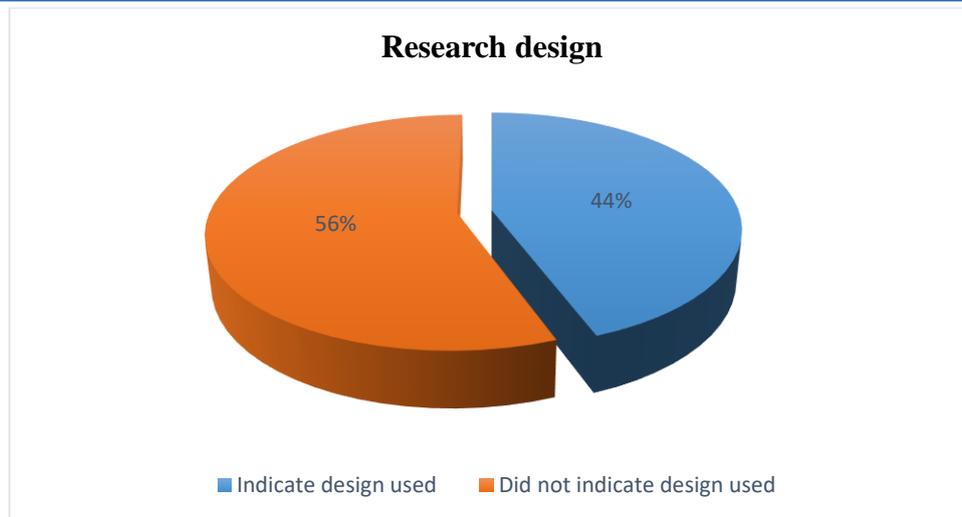
Variable	Frequency	Percent
<b>Articles (n=231)</b>		
Articles with theories	45	19.5
Articles without theories	186	80.5
<b>Top ten utilized theories (n=45)</b>		
Technology Acceptance Model (TAM)	10	22.2
Unified Theory of Acceptance and Use of Technology (UTAUT)	7	15.5
Diffusion of Innovation	3	6.6
Theory of Reasoned Action	3	6.6
Wilson Model of Information Seeking	2	4.4
Motivation, Opportunity, & Ability	2	4.4
Awareness, Interest, Desire, and Action Theory	2	4.4
Theory of Planned Behavior	2	4.4
Social Identity Theory	2	4.4
Records Life Cycle	2	4.4

Results from Table 4 demonstrate that many articles (22.2%) analyzed applied the TAM. Other articles, about a moderate proportion of them (15.5%) employed the UTAUT whereas some applied Diffusion of Innovation (6.6%) and Theory of Reasoned Action (6.6%) to guide their studies.

### ***Research Methodology Applied***

A further analysis of the published articles was conducted to identify the research methodologies employed. Four key components were analyzed for this purpose: research design; research approach; data collection; and data analysis. The findings, as illustrated in Figure 1, reveal that more than half of the analyzed articles (129) did not specify the research design employed.





**Figure 1:** Research design

Among those indicated the research design used (see Table 5), a significant number (72.5%) adopted a descriptive research design, while a smaller proportion (7.8%) employed a case study research design. Other research designs, such as exploratory, experimental, causal, phenomenology, meta-analysis, explanatory, and ethnography, were less commonly utilized in the analyzed articles.

**Table 5:** Type of research design utilized (n=102)

Topic covered	Research Design								
	Descriptive	Exploratory	Experimental	Casual	Case Study	Phenomenology	Meta-Analysis	Explanatory	Ethnography
Technology	12 (11.7%)	1 (0.9%)	1 (0.9%)	1 (0.9%)	1 (0.9%)	1 (0.9%)	0 (0%)	1 (0.9%)	0 (0%)
Activities	13 (12.7%)	3 (2.9%)	1 (0.9%)	0 (0%)	3 (2.9%)	1 (0.9%)	0 (0%)	1 (0.9%)	1 (0.9%)
Metrics, Evaluation & Research	6 (5.8%)	1 (0.9%)	0 (0%)	0 (0%)	1 (0.9%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Information Use & Users	17 (16.6%)	1 (0.9%)	0 (0%)	0 (0%)	1 (0.9%)	0 (0%)	2 (1.9%)	1 (0.9%)	1 (0.9%)
Supporting Disciplines	3 (2.9%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (0.9%)	0 (0%)
Application Areas	21 (20.5%)	0 (0%)	0 (0%)	0 (0%)	2 (1.9%)	0 (0%)	1 (0.9%)	0 (0%)	0 (0%)
Legal, Ethical, & Social Issues	2 (1.9%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
IS Education	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)



Results further demonstrate that the analysed articles utilized different research approaches (see Table 6). Specifically, more than half of all articles (56.2%) utilized a mixed methods approach. While a quarter of all articles (25.1%) utilized solely a qualitative approach, a moderate proportion of them (18.6%) utilized a quantitative research approach.

**Table 6:** Research approach utilized

LIS Topic	Research Approach		
	Quantitative Approach	Qualitative Approach	Mixed Methods Approach
Technology	11 (4.7%)	5 (2.1%)	17 (7.3%)
Activities	4 (1.7%)	22 (9.5%)	33 (14.2%)
Metrics, Evaluation & Research	3 (1.2%)	8 (3.4%)	4 (1.7%)
Information Use & Users	4 (1.7%)	16 (6.9%)	42 (18.1%)
Supporting Disciplines	2 (0.8%)	1 (0.4%)	4 (1.7%)
Application Areas	17 (7.3%)	3 (1.2%)	27 (11.6%)
Legal, Ethical, & Social Issues	2 (0.8%)	1 (0.4%)	1 (0.4%)
IS Education	0 (0%)	2 (0.8%)	2 (0.8%)

Regarding data collection, results as indicated in Table 7 revealed that a significant number of the analysed articles (54.9%) used triangulation method. This method involves more than one data collection technique including questionnaires, interview, and focus group discussion. Results further show that nearly a quarter (21.6%) of all published articles used documentary review.

**Table 7:** Data collection methods

LIS Topic	Data Collection Method				
	Quest	Interview	FGD	DR	Triangulation
Technology	11 (4.7%)	0 (0%)	0 (0%)	6 (2.5%)	15 (6.4%)
Activities	4 (1.7%)	2 (0.8%)	0 (0%)	16 (6.9%)	37 (16%)
Metrics, Evaluation & Research	0 (0%)	0 (0%)	0 (0%)	10 (4.3%)	4 (1.7%)
Information Use & Users	8 (3.4%)	2 (0.8%)	1 (0.4%)	9 (3.8%)	41 (17.7%)
Supporting Disciplines	3 (1.2%)	0 (0%)	0 (0%)	0 (0%)	4 (1.7%)
Application Areas	18 (7.7%)	0 (0%)	0 (0%)	6 (2.5%)	23 (9.9%)
Legal, Ethical, & Social Issues	2 (0.8%)	0 (0%)	0 (0%)	0 (0%)	2 (0.8%)
IS Education	0 (0%)	0 (0%)	0 (0%)	3 (1.2%)	1 (0.4%)

\*Quest = Questionnaire; FGD = Focus Group Discussion; DR = Documentary Review.

Results from Table 7 show that only a moderate number (19.9%) of the articles analyzed used questionnaires as the primary means of data collection. Other methods such as interviews and focus group discussions were barely used as the sole means of data collection in the reviewed articles, accounting for only 1.7% and 0.4% respectively.

The examination of the findings indicates that the studied articles employed various methodologies to analyze their data as depicted in Table 8. More than half of the articles (53.2%) adopted a mixed-method approach, incorporating both descriptive and inferential statistics in their analysis. A considerable portion of the articles (15.1%) utilized thematic analysis, while a smaller proportion relied solely on descriptive (9.5%) or inferential statistics (6%). Although certain articles employed alternative approaches such as multivariate statistical analysis, PLS-SEM, and structural equation modeling, these techniques were barely utilized.

**Table 8: Data analysis**

LIS Topic	Data Analysis							
	Descriptive	Inferential	Content Analysis	Thematic Analysis	Mixed Method	Multivariate Statistical Analysis	PLS-SEM	Structural Equation Modelling
Technology	5 (2.1%)	5 (2.1%)	2 (0.8%)	5 (2.1%)	14 (6%)	1(0.4%)	1(0.4%)	0 (0%)
Activities	6 (2.5%)	1(0.4%)	4 (1.7%)	13 (5.6%)	14 (6%)	1(0.4%)	0 (0%)	0 (0%)
Metrics, Evaluation & Research	0 (0%)	0 (0%)	7 (3%)	3 (1.2%)	4 (1.7%)	0 (0%)	0 (0%)	0 (0%)
Information Use & Users	5 (2.1%)	2 (0.8%)	4 (1.7%)	8 (3.4%)	41 (17.7%)	1(0.4%)	0 (0%)	0 (0%)
Supporting Disciplines	0 (0%)	1(0.4%)	0 (0%)	0 (0%)	4 (1.7%)	0 (0%)	1(0.4%)	1(0.4%)
Application Areas	6 (2.5%)	4 (1.7%)	2 (0.8%)	5 (2.1%)	23 (9.9%)	2 (0.8%)	5 (2.1%)	0 (0%)
Legal, Ethical, & Social Issues	0 (0%)	1(0.4%)	0 (0%)	0 (0%)	2 (0.8%)	1(0.4%)	0 (0%)	0 (0%)
IS Education	0 (0%)	0 (0%)	2 (0.8%)	1(0.4%)	1(0.4%)	0 (0%)	0 (0%)	0 (0%)
	22 (9.5%)	14 (6%)	21 (9%)	35 (15.1%)	123 (53.2%)	6 (2.5%)	7 (3%)	1(0.4%)

\* PLS-SEM = Partial Least Square Structural Equation Modelling.

### ***Geographical Distribution and Affiliation of Contributing Authors***

The geographical distribution and affiliation of the contributing authors were also analysed. Nevertheless, to maintain conciseness, only the top five countries and top ten institutions of the authors are presented as depicted in Table 9.

**Table 9:** Geographical distribution and affiliation of authors

<b>Variable</b>	<b>Frequency</b>	<b>Percent</b>
<b>Top five contributing countries</b>		
Tanzania	168	72.7
Uganda	23	10.0
Nigeria	21	9.1
Kenya	7	3.0
South Africa	3	1.3
<b>Top ten institutions of contributing authors</b>		
University of Dar es Salaam	106	45.9
Sokoine University of Agriculture (SUA)	22	9.5
Makerere University	21	9.1
Tumaini University	6	2.6
Open University of Tanzania	6	2.6
Obafemi Awolowo University	6	2.6
Mzumbe University	4	1.7
University of Ibadan	4	1.7
Muhimbili University of Health and Allied Sciences	3	1.3
Moshi Cooperative University	2	.9

Results from Table 9 show that the largest share (72.7%) of the contributing authors came from Tanzania. A considerable portion of the international contributing authors was from Uganda (10%) and Nigeria (9.1%). A very small number of the contributors were from other countries including Kenya and South Africa.

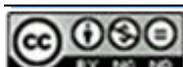
Table 9 further reveals that a significant proportion (45.9%) of the contributing authors were associated with the UDSM. The SUA and Makerere University had a relatively modest representation of contributing authors, accounting for 9.5% and 9.1% respectively. Conversely, a negligible number of contributing authors were affiliated with other institutions, as depicted in the table.

### ***Collaboration Patterns***

This study also identified the number of collaborated articles published in the journal for the studied period. An analysis was also done to determine the nature of such collaboration in terms of whether it is local or international. The number of collaborators and topics with collaborative contributions were also determined to help further establish the collaboration pattern. Results are summarized in Table 10.

**Table 10:** Collaboration patterns

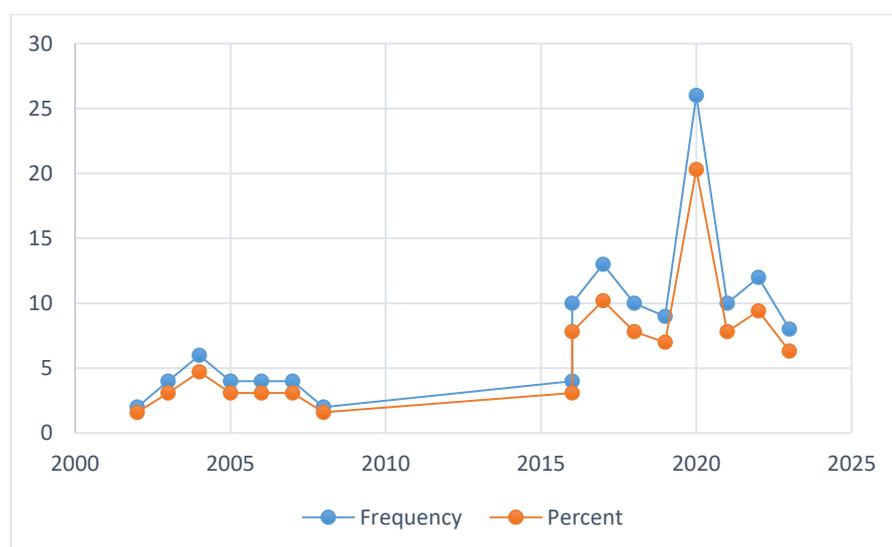
<b>Collaboration Pattern</b>	<b>Frequency</b>	<b>Percent</b>
<b>Whether collaborated or not (n=231)</b>		
Collaborated	128	55.4
Not Collaborated	103	44.6
<b>Local vs International Collaboration (n=128)</b>		
Local Collaboration	114	89.1
International Collaboration	14	10.9
<b>Number of collaborators (n=128)</b>		
Two Authors	98	76.5
Three Authors	25	19.5



Four Authors	3	2.3
More than Four Authors	2	1.7
<b>Topic with Collaborative Contributions</b>		
Technology	15	11.7
Activities	32	25
Metrics, Evaluation & Research	9	7
Information Use & Users	32	25
Supporting Disciplines	3	2.3
Application Areas	35	27.4
Legal, Ethical, & Social Issues	1	0.8
IS Education	1	0.8

The results indicated that over half of all published articles (55.4%) were collaborated. Among these, 89.1% involved local collaboration. The analysis further shows that a majority (76.5%) of the collaborated articles comprised two authors whereas very few articles comprised more than four authors. Regarding topics with collaborative contributions, slight differences were observed particularly in topics such as information use and users (25%) and LIS application areas (27.4%). Topics such as legal, ethical, and social issues as well as IS education were less collaborated.

Concerning the collaboration trend, results from Figure 2 demonstrate its dynamic nature, constantly evolving. The trend exhibited an upward trajectory from 2002 (1.6%) to 2004 (6%), followed by a decline to 3.1% in 2005 and further down to 1.6% in 2008. Subsequently, there was a resurgence in the number of articles with collaborative contributions, reaching 20.3% in 2020, only to decrease once more to 6.3% in 2023.



**Figure 2:** Number of collaborated articles with date of publication

### **Gender Patterns**

This study also examined gender patterns. Results as illustrated in Table 11 show that more than half (58.9%) of all articles published in the journal were from male contributors alone whereas a quarter of them (25.1%) were from both male and female contributors. Conversely, the number of articles authored solely by females was relatively small, indicating notable disparities in the contributions of male and female authors to the journal.

**Table 11: Gender patterns and collaboration**

Variable	Frequency	Percent
<b>Gender patterns (n=231)</b>		
Male	136	58.9
Female	37	16.0
Both	58	25.1
<b>Gender vs Collaboration (n=128)</b>		
Male	57	44.5
Female	13	10.2
Both	58	45.3

The study also sought to determine the level of collaboration across gender. Results from Table 11 reveal that of all collaborated articles, nearly half (44.5%) were from male authors. The number of collaborated articles from female authors was relatively minimal (10.2%) compared to their male counterparts. The rest of the collaborated articles were from both male and female authors.

### Discussion

This study sought to analyse the content of articles published in the UDSMLJ. Generally, the study's findings reveal several LIS topic areas published by the journal in the studied period. Despite the publication of various topics, the findings reveal that the majority of the published articles concentrated on LIS topics related to information use and users, LIS activities, application areas, and technology. Conversely, the study noted that subjects such as legal, ethical, and social issues, as well as IS education, metrics, evaluation, and research, and other supporting disciplines featured less in the journal. This may suggest that these topics received less attention by the contributing authors. However, similar to the findings of prior studies (Hou et al., 2018; Ma & Lund, 2020; Onyancha, 2018), the present study noted a rising trend in the publication of LIS topics related to metrics, evaluation, and research particularly from 2017 to 2023 and a declining trend in terms of articles focusing on information use and users. This dynamic nature of the LIS topics published in the journal signifies the changes in LIS scholarship in Tanzania. This is true given the fact that a substantial number of the contributing authors came from within the country.

Although the utilization of theories in research cannot be overemphasized (Kumasi *et al.*, 2013; Levine & Markowitz, 2023), findings from the present study reveal that not all the published articles incorporated theories. Only a relatively moderate number of all articles utilized theories. This finding suggests that the contributing authors of the journal have a lower tendency to incorporate theories in their research. This finding, however, is in contrast with those from previous studies (Lor, 2014; Mckechnje & Pettigrew, 2002) which reported an increasing trend among LIS authors to utilize theories. A further analysis of the articles utilizing theories demonstrates that the articles utilized a multitude of theories. Nonetheless, of all utilized theories, TAM and UTAUT were found to be the most frequently utilized ones. Previous LIS studies (Roy & Mukhopadhyay, 2023; Ukwoma & Ngulube, 2021) have also confirmed the extensive use of these theories in most LIS research.

In terms of research methodology, the findings indicate that a significant proportion of the analyzed articles did not specify the research design employed. This absence is considered a weakness, as authors are expected to indicate the design used to demonstrate that their research has followed appropriate methodologies, guaranteeing the reliability and validity of



their findings. The study, however, shows that a majority of all articles used descriptive research design. This finding, nevertheless, is not peculiar to this study as similar findings have been documented in previous studies (Majhi *et al.*, 2016; Ullah & Ameen, 2018). Additionally, the study revealed that more than half of the articles utilized a mixed-method approach, incorporating triangulation as a data collection and analysis method. The use of this approach, as affirmed by Gauchi Risso (2016) offers a better understanding of the phenomenon being investigated. However, it is also worth noting that other authors have exclusively utilized other approaches such as qualitative or quantitative. Hence, the significance of these approaches should not be underestimated. This is because the selection of research methodology primarily depends on the type of data needed to address a research problem.

Regarding authorship distribution, this study reveals that a significant proportion of the contributing authors originated from Tanzania, while a moderate number hailed from Uganda and Nigeria. Additionally, the findings indicate that close to half of all authors were affiliated with the UDSM, whereas the representation of authors from other institutions was minimal. It is possible to infer from these findings that the UDSMLJ may not have received sufficient promotion to attract international contributions. By implementing effective promotional strategies, the journal can enhance its worldwide recognition among prospective authors, consequently leading to a rise in international contributions.

Although the literature (Armann-Keown & Patterson, 2020; Shehatta & Mahmood, 2016) demonstrates an increasing trend toward collaborative research, the findings of this study indicate that not all articles analyzed were collaborative. Additionally, even for articles with a collaborative nature, the trend of such collaboration is dynamic as it keeps changing over time. This constant change makes it difficult to draw a definitive conclusion regarding the upward trajectory of this trend. Furthermore, similar to findings from other preceding studies (Adekoya, 2023; Noh & Chang, 2019), the present study also noted a small number of articles that involved international collaboration. The fact that most of the contributing authors are from Tanzania raises the possibility that they may not be sufficiently proactive in seeking international collaboration. In line with the research conducted by Noh and Chang (2019), this study also supports the notion that a considerable number of authors lack awareness regarding the importance of international collaboration. Consequently, their level of engagement in such collaborative efforts remains notably low.

This study also noted a low number of female authors who contributed to the journal. The confirmation of the minimal contribution of female authors is evident from the analysis, which reveals that males solely authored over half of all the articles, while slightly over a quarter were co-authored by both males and females. Given the minimal number of female contributors to the journal, it is not surprising to find that their involvement in collaborative contribution is also low. These findings, while aligning with those by Parabhoi *et al.* (2020), contrast those from Bisaria (2021) and Scarman (2013) which reported equal contributions of male and female authors in LIS research. One possible reason for this disparity, however, is that the aforementioned studies were conducted in different settings, thus encompassing distinct research environments.

## **Conclusion and Recommendations**

Undoubtedly, the regular content analysis of scholarly journals holds immense value in gauging the extent to which published academic research aligns with the objectives and

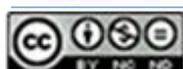
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concerns of a given field of study. It is apparent from the findings of this study that the published topic areas align with the objective and concerns of the LIS field. Furthermore, considering that content analysis of a journal provides an opportunity to assess the research culture of a nation, the fact that a substantial number of contributing authors are from Tanzania highlights the active involvement of LIS researchers in the country in advancing the LIS field. Nonetheless, the limited participation of international contributors in the journal serves as a cause of concern among those who hold the responsibility for its management. To appeal to potential contributors globally, the journal should strengthen its promotion strategies. This can be accomplished by employing a multi-channel approach that leverages a blend of marketing tactics and campaigns. Given the limited application of theories in the published articles, it is incumbent upon journal editors to actively encourage the submission of articles that incorporate theoretical perspectives. This proactive approach will not only strengthen the scholarly relevance, identity, and legitimacy of research findings but also foster theoretical advancement in the field of LIS.

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