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RESEARCH ARTICLE

Assessing the Scholarly Communication Knowledge of Faculty Members in Tamale, Dr. Hilla Limann, and Bolga Technical Universities in Ghana

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ABSTRACT

Introduction: Scholarly communication is essential to academic research, enabling the creation, dissemination, and preservation of knowledge. However, faculty engagement with scholarly communication practices in Ghana's technical universities remains underexplored, especially in institutions with lower research visibility. This study investigates the scholarly communication knowledge and practices of faculty members at Tamale Technical University (TaTU), Dr. Hilla Limann Technical University (DHLTU), and Bolgatanga Technical University (BTU).
Methods: Guided by the positivist paradigm and using a quantitative survey design, data were collected from 212 faculty members using proportionate sampling.
Results: The findings reveal significant institutional differences in faculty familiarity with scholarly journals, copyright and licensing issues, and research data management. DHLTU faculty demonstrated stronger engagement with scholarly publishing, while TaTU faculty showed greater awareness of licensing practices. However, a general lack of deep understanding of research impact metrics and emerging scholarly communication technologies was observed across all three institutions.
Discussion & Conclusion: The study underscores the critical role of academic libraries in shaping scholarly communication literacy through training, infrastructure, and policy support. By addressing these gaps, technical universities in Ghana can enhance faculty research output, visibility, and contribution to the global academic community.

Keywords: scholarly communication, faculty engagement, open access, copyright and licensing, research data management, research visibility, academic libraries, technical universities, scholarly publishing, Ghana

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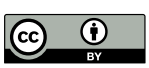

IMPLICATIONS FOR PRACTICE

1. **Need for targeted training programs in scholarly communication for the faculty:** Institutions should acknowledge the significant disparities in faculty familiarity with scholarly communication practices. Libraries, in partnership with other stakeholders, can lead the development of effective training and support programs aimed at closing these gaps, thereby enhancing faculty engagement and expertise. The study underscores the necessity of offering library-led and scholarly communication office-led training in areas where faculty knowledge is lacking, such as Creative Commons (CC) licenses, fair use policies, and copyright transfer agreements. Targeted training programs should be designed to meet these specific needs, ensuring that faculty gain a comprehensive understanding of scholarly communication practices and their legal and ethical dimensions. Standardized and comprehensive training across institutions is essential to ensure all faculty members have a solid foundation in these critical areas.
2. **Enhancing faculty development through strategic institutional support:** Institutional strategy development: Institutions should refine their strategies to better support faculty development, especially through the roles played by libraries and scholarly communication offices. By focusing on areas where knowledge gaps exist, these institutional bodies can more effectively provide the necessary resources and training that facilitate faculty development, particularly in areas like research data management, open-access publishing, and copyright issues.
3. **Emerging trends in scholarly communication:** Adaptation to emerging trends: The study's focus on emerging trends and technologies in scholarly communication, such as open-access publishing, preprints, and alternative peer review models, highlights the need for institutions to keep faculty informed about new developments. Libraries and scholarly communication offices should integrate these trends into their training and support systems to ensure relevance, enhance research impact, and help faculty stay current in the rapidly evolving academic publishing landscape.

INTRODUCTION

Scholarly communication has been defined in multiple ways, each reflecting the evolving nature of academic research and knowledge dissemination. Björk & Solomon (2013) describe it as the process through which scholars create, evaluate, disseminate, and preserve the scholarly record. Wolfram (2019) characterizes scholarly communication as the multifaceted system by which research outputs are produced, rigorously evaluated, disseminated through both formal and informal channels, and ultimately preserved for long-term access to the scholarly

community and beyond. More recently, Rieger & Schonfeld (2023) broaden this definition to include diverse research outputs such as audiovisual materials, datasets, code, and methodologies, emphasizing both formal and informal channels. These perspectives highlight scholarly communication as a dynamic, multifaceted system that extends beyond traditional publishing.

The importance of scholarly communication lies in its role in advancing knowledge, promoting research visibility, and enabling interdisciplinary collaboration. Harnad & Brody (2004) aptly describe it as the "lifeblood of scholarship," while Gargouri et al. (2010) highlight its contribution to enhancing research impact and accessibility. Fitzpatrick (2011) underscores its potential in fostering innovation across disciplinary boundaries. Building on these insights, this study examines faculty members' understanding of scholarly communication, specifically their knowledge of processes, tools, and practices that enhance research dissemination and visibility. Identifying gaps in this knowledge can inform institutional support and capacity-building initiatives.

Scholars have proposed various models for understanding scholarly communication. Tenopir & King (2004) identify four key components: knowledge creation, peer review, dissemination, and preservation. Borgman (2007) expands this to six (discovery, access, use, management, preservation, and evaluation), emphasizing their interdependence. Rowlands et al. (2011) propose a framework comprising people, objects, tools, and networks, while Lynch (2003) focuses on publication, dissemination, and preservation. While Lynch's model offers a foundational understanding, more recent scholarship highlights the relevance of open access, digital platforms, and collaborative practices (Harnad & Brody, 2004; Fitzpatrick, 2011). This study adopts Lynch's framework while integrating contemporary elements to provide a comprehensive assessment of faculty engagement with scholarly communication.

Despite the growing importance of scholarly communication, the rapid evolution of digital tools and global standards poses challenges. Kirsop & Chan (2005) note that inadequate knowledge and skills in this area can limit access to information, hinder collaboration, and negatively impact research productivity. In Ghana's technical universities, these challenges are particularly pronounced, yet there is limited empirical data on faculty knowledge, attitudes, and practices related to scholarly communication.

The transformation of Ghana's polytechnics into technical universities under the Technical Universities Act of 2016 was intended to enhance technical and vocational education and strengthen research output across the country. This study focuses on faculty members' scholarly communication practices at three technical universities in Ghana: Tamale Technical University (TaTU), which originated as Tamale Polytechnic in 1951 and is located in the

Northern Region; Dr. Hilla Limann Technical University (DHLTU), formerly Wa Polytechnic, established in 1999 and located in the Upper West Region; and Bolgatanga Technical University (BTU), previously known as Bolgatanga Polytechnic, which began as a Technical Institute in the early 1990s and was upgraded to a polytechnic in 2003, situated in the Upper East Region. These institutions are strategically positioned to support regional development through applied research and innovation. However, they continue to face challenges such as limited funding, inadequate research infrastructure, and a historical emphasis on teaching over research, all of which constrain their research productivity and visibility (Nkrumah, 2022).

Effective scholarly communication is essential for improving institutional research productivity and visibility. Adakawa (2022) emphasizes the role of communication strategies in enhancing research impact across African higher education institutions. Nonetheless, TaTU, DHLTU, and BTU rank relatively low within Ghana's academic hierarchy. According to the 2024 4ICU.org rankings, DHLTU ranks 62nd, BTU 50th, and TaTU 53rd. Webometrics similarly places DHLTU at 81st nationally (Webometrics, 2024). These rankings often reflect limited scholarly output, potentially due to low levels of faculty engagement with scholarly communication practices (Modern Ghana, 2024).

This study, therefore, investigates the scholarly communication knowledge, attitudes, and practices of faculty members in these three technical universities. By exploring these dimensions, the research aims to identify critical gaps and propose strategies to enhance research productivity, institutional visibility, and the overall academic performance of Ghana's technical universities.

Objectives of the Study

The specific objectives of this study are to compare:

1. Faculty members' familiarity with reputable scholarly journals across the selected Technical Universities in Ghana (TaTU, DHLTU, and BTU).
2. Faculty members' knowledge of copyright policies and licensing options across the selected Technical Universities in Ghana.
3. The level of familiarity with best practices for managing research data among faculty members from TaTU, DHLTU, and BTU.
4. The level of familiarity with research impact metrics among faculty members across the selected Technical Universities.
5. Familiarity with emerging trends and technologies in scholarly communication among faculty members from TaTU, DHLTU, and BTU.

LITERATURE REVIEW

Scholarly communication has evolved significantly in response to global trends such as open access (OA), digital publishing, research data management, and the increasing use of metrics to assess research impact. Understanding the knowledge, attitudes, and practices of faculty members with respect to these developments is crucial, particularly in the context of technical universities where research visibility and output remain integral to institutional growth and academic standing. This review synthesizes global, digital-era, ethical, and regional (African) perspectives to contextualize the study's focus on scholarly communication practices among faculty in Ghanaian technical universities.

Global perspectives on scholarly communication knowledge

Numerous international studies have investigated the scholarly communication practices of faculty members, emphasizing the role of knowledge in shaping engagement with contemporary dissemination tools and publishing models. Segado-Boj et al. (2021), in a study involving contributors to Spanish scholarly journals, found that researchers' awareness and attitudes toward OA, copyright, and alternative metrics significantly influenced their publishing decisions and openness to adopting non-traditional dissemination methods such as open peer review and altmetrics platforms. Similarly, Van Leeuwen et al. (2012) highlighted the importance of bibliometric literacy among researchers at Dutch institutions like Leiden University, emphasizing that an understanding of citation metrics is vital for maximizing research visibility and impact in increasingly metric-driven academic systems. These studies underscore the need for faculty to possess a foundational understanding of scholarly communication principles, including OA policies, impact indicators, and institutional mandates. In the absence of such knowledge, scholars may miss opportunities to amplify their work's reach and contribute meaningfully to collaborative and interdisciplinary research networks.

Scholarly communication in the digital era

The digital transformation of scholarly communication has introduced both opportunities and challenges. While digital platforms facilitate rapid dissemination and greater access, they also require users to navigate complex technological and procedural systems. Matonkar & Dhuri (2021) observed that despite increased exposure to OA resources during the COVID-19 pandemic, many faculty members still lacked sufficient awareness and understanding of how to effectively access and utilize these platforms. This limited digital literacy poses a barrier to the optimal use of OA resources and hinders the broader dissemination of scholarly outputs.

Institutional repositories, for example, offer considerable potential for expanding access to research outputs. However, Dallmeier-Tiessen et al. (2011) found that many faculty members lack the requisite knowledge to utilize these repositories effectively. This highlights the need for structured institutional support in the form of training, technical assistance, and policy clarity to ensure that digital tools fulfill their promise in enhancing research visibility and accessibility.

Ethical considerations in scholarly communication

Ethical conduct remains a cornerstone of scholarly communication, particularly as the academic community navigates issues of data sharing, intellectual property, and publication integrity in an increasingly open digital environment. Morain et al. (2022) highlight the ethical challenges associated with sharing research data, particularly in pragmatic clinical trials, where issues such as maintaining participant confidentiality and navigating informed consent are central concerns. These considerations are especially critical in the context of open science, where the push for transparency must be carefully balanced against the ethical obligation to protect sensitive information and uphold research integrity.

Intellectual property concerns, including copyright and licensing, also play a critical role in scholarly communication. Morrison (2013) and Bunker (2019) emphasize that academic authors must understand fair use and copyright doctrine, particularly the concept of "transformative use," to responsibly employ copyrighted material in their work and uphold the legal and ethical standards of scholarly publishing. Furthermore, ethical publication practices, including transparency in authorship, avoidance of plagiarism, and strict adherence to peer review protocols, are crucial for safeguarding the credibility and integrity of scholarly outputs. As Nguyen & Tuamsuk (2025) assert, upholding scientific integrity requires a firm commitment to responsible authorship, prevention of both plagiarism and self-plagiarism, and ensuring the authenticity and originality of research contributions.

Scholarly communication in the African context

In Africa, the scholarly communication landscape is shaped by a unique set of challenges, including limited access to publishing infrastructure, low visibility of African research, and uneven levels of faculty awareness of scholarly communication tools and practices. Ngulube (2019) highlights that despite the promise of OA platforms in democratizing knowledge, many African academics remain disengaged due to inadequate institutional support, low awareness of OA benefits, and persistent infrastructural constraints. Similarly, Ocholla & Ocholla (2016) found that while African universities increasingly recognize the importance of OA and digital repositories, uptake among faculty remains low, primarily due to insufficient

training, limited incentives, and poor integration of scholarly communication practices into research workflows. These challenges are compounded by broader systemic issues such as underfunding, lack of policy frameworks, and the prioritization of teaching over research.

Nevertheless, opportunities exist. Adakawa (2022) underscores the need for African higher education institutions to strengthen their scholarly communication ecosystems by investing in infrastructure, policy development, and capacity building. Doing so could significantly enhance the visibility and global impact of African research, particularly from technical universities striving to assert their relevance in national and regional development agendas.

METHODS

This study adheres to the positivist research paradigm, which asserts that all factual knowledge is derived from empirical data and that beyond factual data lies pure logic and mathematics. Positivism relies on quantifiable observations and statistical analysis, and has long been a dominant approach in business and management research. Collins (2010) supports this view, aligning with the empiricist perspective that knowledge arises from human experience. This perspective adopts an atomistic ontological stance, seeing the world as composed of discrete, observable elements and events that interact in a consistent and determined manner.

The research utilized a survey design to collect quantitative data on scholarly communication among faculty members at three technical universities in Ghana: TaTU, DHLTU, and BTU. The survey focused on faculty familiarity with scholarly journals, knowledge of copyright and licensing, research data management, research impact metrics, and awareness of emerging trends. The survey instrument was developed from a review of literature on scholarly communication, incorporating insights from studies by Owens & Manolovitz (2021) and Ngulube (2019), addressing aspects such as OA publishing and ethical considerations. Closed-ended questions and Likert scales were employed to quantify familiarity and agreement, with pre-testing ensuring clarity and reliability. The final survey was designed for comprehensive yet concise completion, facilitating effective statistical analysis.

The study targeted faculty members from TaTU, DHLTU, and BTU. Using Miller & Brewer's (2003) sample size determination formula (n = N/1 + N(e)^2), and considering a population size of 451 with a 0.05 margin of error, the sample size was calculated to be 212. This formula was chosen due to its simplicity and applicability in social science research. Proportionate stratified random sampling was employed to ensure fair representation of each institution: TaTU ($194/451 \times 212$), BTU ($147/451 \times 212$), and DHLTU ($110/451 \times 212$). Within each university, the researcher obtained a list of full-time faculty members from the academic affairs registry. Using these lists as sampling frames, simple random sampling

was conducted to recruit participants. This method ensured that every faculty member had an equal chance of being selected, thereby enhancing the representativeness of the sample.

Data were collected using structured questionnaires, which are suitable for systematic and computer-based analysis. The data were analyzed using Statistical Package for the Social Sciences (SPSS 26) to ensure accurate statistical evaluation and interpretation. The questionnaires, distributed personally by the researcher, included closed-ended questions to facilitate the collection of quantifiable data. The questionnaires were distributed manually to ensure a higher response rate and allow for immediate clarification of any ambiguities. This approach was preferred over electronic distribution due to potential internet accessibility challenges and the need to efficiently reach the target sample of 212 participants. These questions provided categorical responses that could be easily quantified and analyzed, supporting statistical interpretation and ensuring that the data collection process was both methodical and efficient. Inferential statistics, one-way analysis of variance was applied. This statistical test was chosen because it allows for the comparison of mean differences across multiple independent groups, helping to identify variations in key survey responses.

RESULTS

A total of 212 copies of the questionnaire were distributed to respondents, out of which 197 were returned and found valid for analysis. This represents a high response rate of 93%, which falls within the acceptable range proposed by Babbie (2020). This section presents the analyses of the data collected through the survey questionnaire in relation to the objectives of the study. The one-way ANOVA results are displayed in tabular format, with each column representing key statistical measures. The "Mean Difference (I–J)" column shows the difference in mean scores between each pair of institutions: a positive value indicates that institution "I" has a higher mean than institution "J," while a negative value indicates the reverse. The "Standard Error" measures the variability in the estimate of the mean difference. The "Sig." (*P* value) column indicates statistical significance, where values less than 0.05 suggest a meaningful difference between the institutions. Finally, the "95% Confidence Interval" provides a range within which the true mean difference is expected to lie; if this range does not include zero, the difference is considered statistically significant.

Demographic data

The demographic characteristics of the research respondents are provided in Table 1. The demographic data analyzed for this study are institutional affiliation, respondents' faculty, and respondents' rank.

	TaTU	DHLTU	BTU	Total
Academic Rank				
Assistant Lecturer	11	8	9	38
Lecturer	39	19	28	86
Senior Lecturer	21	18	26	65
Associate Professor	0	0	1	1
Assistant Librarian	1	2	2	4
Senior Assist. Librarian	1	2	0	3
Faculty				
Applied Science & Technology	28	17	22	67
Business	18	13	16	47
Applied Art, Design, and General Studies	8	11	12	31
Engineering	30	19	20	59
Library	4	1	2	7

(Source: Field Survey, 2023)

Table 1. Distribution of study participants

Table 1 presents the distribution of respondents by academic rank and faculty affiliation across TaTU, DHLTU, and BTU. In terms of academic rank, Lecturer rank is the most common rank across all three institutions, accounting for 86 respondents, with TaTU (39) contributing the highest number. Senior Lecturers also form a significant portion (65 total), most notably from BTU (26). Assistant Lecturers are relatively evenly distributed across the institutions, with a total of 38. A few respondents hold library academic ranks, including Assistant Librarian (4) and Senior Assistant Librarian (3). In the context of Ghana's technical universities, senior library staff such as Assistant Librarians and Senior Assistant Librarians are classified under academic staff and hold the rank of faculty members as per the Harmonized Statutes for Technical Universities. Only one Associate Professor is present in the entire sample, from BTU. With regards to faculty affiliation, the majority of respondents are from Applied Science & Technology (67) and Engineering (59) faculties. Business and Applied Art, Design and General Studies have 47 and 31 respondents, respectively. Library staff, classified as academic staff or faculty in these universities, contribute seven respondents, spread across the three institutions.

Faculty members' familiarity with scholarly journals

The one-way ANOVA analysis, whose results are presented in Table 2, revealed significant differences in faculty familiarity with scholarly journals across various dimensions. DHLTU faculty were significantly more familiar with established journals than TaTU faculty (mean

Dependent Variable	(I) Institutional Affiliation	(J) Institutional Affiliation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Familiarity with Established Journals	TaTu	DHLTU	−.450*	.175	.029	−.86	−.04
		BTU	.004	.163	1.000	−.38	.39
	DHLTU	TaTU	.450*	.175	.029	.04	.86
		BTU	.454*	.187	.042	.01	.90
	BTU	TaTU	−.004	.163	1.000	−.39	.38
		DHLTU	−.454*	.187	.042	−.90	−.01
Familiarity with Their Scope	TaTu	DHLTU	−.063	.180	.935	−.49	.36
		BTU	.893*	.168	.000	.50	1.29
	DHLTU	TaTU	.063	.180	.935	−.36	.49
		BTU	.956*	.193	.000	.50	1.41
	BTU	TaTU	−.893*	.168	.000	−1.29	−.50
		DHLTU	−.956*	.193	.000	−1.41	−.50
Familiarity with Target Audience	TaTu	DHLTU	−.058	.201	.956	−.53	.42
		BTU	.586*	.187	.006	.14	1.03
	DHLTU	TaTU	.058	.201	.956	−.42	.53
		BTU	.643*	.215	.009	.14	1.15
	BTU	TaTU	−.586*	.187	.006	−1.03	−.14
		DHLTU	−.643*	.215	.009	−1.15	−.14
Familiarity with Types of Articles Published	TaTu	DHLTU	−.334	.162	.101	−.72	.05
		BTU	.330	.151	.076	−.03	.69
	DHLTU	TaTU	.334	.162	.101	−.05	.72
		BTU	.664*	.173	.000	.25	1.07
	BTU	TaTU	−.330	.151	.076	−.69	.03
		DHLTU	−.664*	.173	.000	−1.07	−.25

(Source: Field Survey, 2023)

Table 2. Faculty members' familiarity with scholarly journals

difference = 0.450, $P = 0.029$) and BTU faculty (mean difference = 0.454, $P = 0.042$). There was no significant difference in familiarity with scholarly journals between TaTU and BTU (mean difference = 0.004, $P = 1.000$). In terms of journal scope, TaTU faculty were more familiar than BTU faculty (mean difference = 0.893, $P = 0.000$), and DHLTU faculty were also more familiar than BTU (mean difference = 0.956, $P = 0.000$), with no significant difference between TaTU and DHLTU (mean difference = −0.063, $P = 0.935$).

For target audience familiarity, TaTU faculty were significantly more familiar than BTU (mean difference = 0.586, $P = 0.006$), and DHLTU faculty were more familiar than BTU (mean difference = 0.643, $P = 0.009$), with no significant difference between TaTU and DHLTU (mean difference = −0.058, $P = 0.956$). Regarding article types, DHLTU faculty were significantly more familiar than BTU faculty (mean difference = 0.664, $P = 0.000$). No significant differences were found between TaTU and DHLTU (mean difference = −0.334, $P = 0.101$) or between TaTU and BTU (mean difference = 0.330, $P = 0.076$).

Faculty members' knowledge of copyright and licensing issues

The assessment of faculty knowledge on copyright and licensing issues across TaTU, DHLTU, and BTU focused on copyright transfer agreements, CC licenses, and fair use policies. Data presented in table in Table 3 shows that no significant differences were found in

Dependent Variable	(I) Institutional Affiliation	(J) Institutional Affiliation	Mean Difference (I−J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Knowledge of Copyright Transfer Agreements	TaTu	DHLTU	.142	.207	.772	−.35	.63
		BTU	.326	.192	.209	−.13	.78
	DHLTU	TaTU	−.142	.207	.772	−.63	.35
		BTU	.185	.221	.681	−.34	.71
	BTU	TaTU	−.326	.192	.209	−.78	.13
		DHLTU	−.185	.221	.681	−.71	.34
Knowledge of Creative Commons Licenses	TaTu	DHLTU	.192	.174	.513	−.22	.60
		BTU	.506*	.162	.006	.12	.89
	DHLTU	TaTU	−.192	.174	.513	−.60	.22
		BTU	.314	.186	.211	−.12	.75
	BTU	TaTU	−.506*	.162	.006	−.89	−.12
		DHLTU	−.314	.186	.211	−.75	.12
Knowledge of Fair Use Policies	TaTu	DHLTU	.794*	.213	.001	.29	1.30
		BTU	.490*	.198	.038	.02	.96
	DHLTU	TaTU	−.794*	.213	.001	−1.30	−.29
		BTU	−.304	.227	.375	−.84	.23
	BTU	TaTU	−.490*	.198	.038	−.96	−.02
		DHLTU	.304	.227	.375	−.23	.84

(Source: Field Survey, 2023)

Table 3. Knowledge of copyright and licensing issues

knowledge of copyright transfer agreements among the three institutions. Faculty at TaTU and DHLTU showed similar levels of knowledge, with a mean difference of 0.142 ($P = 0.772$), and the comparison between TaTU and BTU also indicated no significant difference (mean difference = 0.326, $P = 0.209$). Likewise, the difference between DHLTU and BTU was not significant (mean difference = 0.185, $P = 0.681$).

In contrast, significant differences emerged in knowledge of CC licenses and fair use policies. TaTU faculty demonstrated significantly greater knowledge of CC licenses compared to BTU (mean difference = 0.506, $P = 0.006$), but there was no significant difference between TaTU and DHLTU (mean difference = 0.192, $P = 0.513$). Similarly, significant differences were observed in knowledge of fair use policies, with TaTU faculty showing more knowledge than both DHLTU (mean difference = 0.794, $P = 0.001$) and BTU (mean difference = 0.490, $P = 0.038$). However, no significant difference was found between DHLTU and BTU (mean difference = −0.304, $P = 0.375$).

Faculty members' knowledge of research data management

Faculty knowledge of research data management (RDM) was assessed across TaTU, DHLTU, and BTU, focusing on data sharing policies, data repositories, data citation practices, and the importance of openly sharing research data. Table 4 indicates that significant differences were found in familiarity with data sharing policies, with TaTU faculty being less familiar compared to BTU (mean difference = −0.560, $P = 0.004$). No significant differences were observed between TaTU and DHLTU (mean difference = −0.070, $P = 0.756$) or DHLTU and BTU (mean difference = 0.080, $P = 0.844$). For data repositories, TaTU faculty were more familiar than DHLTU (mean difference = 0.584, $P = 0.012$), while DHLTU faculty were more familiar than BTU (mean difference = −0.610, $P = 0.015$), with no significant difference between TaTU and BTU (mean difference = −0.021, $P = 0.911$).

In contrast, there were no significant differences in familiarity with data citation practices (TaTU vs. DHLTU: mean difference = −0.077, $P = 0.779$; TaTU vs. BTU: mean difference = 0.085, $P = 0.745$; DHLTU vs. BTU: mean difference = 0.162, $P = 0.421$) or the importance of openly sharing research data (TaTU vs. DHLTU: mean difference = −0.095, $P = 0.695$; TaTU vs. BTU: mean difference = 0.053, $P = 0.837$; DHLTU vs. BTU: mean difference = 0.148, $P = 0.485$), indicating a consistent level of understanding about these aspects among faculty members at all three institutions.

Dependent Variable	(I) Institutional Affiliation	(J) Institutional Affiliation	Mean Difference (I–J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Familiarity with Data Sharing Policies	TaTu	DHLTU	−.303	.185	.235	−.74	.14
		BTU	−.560*	.173	.004	−.97	−.15
	DHLTU	TaTU	.303	.185	.235	−.14	.74
		BTU	−.257	.198	.398	−.72	.21
	BTU	TaTU	.560*	.173	.004	.15	.97
		DHLTU	.257	.198	.398	−.21	.72
Familiarity with Data Repositories	TaTu	DHLTU	.584*	.203	.012	.10	1.06
		BTU	−.025	.189	.990	−.47	.42
	DHLTU	TaTU	−.584*	.203	.012	−1.06	−.10
		BTU	−.610*	.217	.015	−1.12	−.10
	BTU	TaTU	.025	.189	.990	−.42	.47
		DHLTU	.610*	.217	.015	.10	1.12
Familiarity with Data Citation Practices	TaTU	DHLTU	.109	.219	.873	−.41	.63
		BTU	.091	.204	.896	−.39	.57
	DHLTU	TaTU	−.109	.219	.873	−.63	.41
		BTU	−.018	.234	.997	−.57	.54
	BTU	TaTU	−.091	.204	.896	−.57	.39
		DHLTU	.018	.234	.997	−.54	.57
Familiarity with Importance Research Data Openly	TaTu	DHLTU	−.109	.204	.854	−.59	.37
		BTU	.088	.190	.889	−.36	.54
	DHLTU	TaTU	.109	.204	.854	−.37	.59
		BTU	.197	.218	.638	−.32	.71
	BTU	TaTU	−.088	.190	.889	−.54	.36
		DHLTU	−.197	.218	.638	−.71	.32

(Source: Field Survey, 2023)

Table 4. Faculty's knowledge of research data management

Faculty members' familiarity with research impact metrics

The study assessed faculty familiarity with research impact metrics across TaTU, DHLTU, and BTU, focusing on citation analysis, journal impact factors, author-level metrics, and altmetrics. The results are contained in Table 5, which indicates no significant differences in familiarity with citation analysis among the institutions, with mean differences of −0.054 between TaTU and

Dependent Variable	(I) Institutional Affiliation	(J) Institutional Affiliation	Mean Difference (I–J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Familiarity with Citation Analysis	TaTu	DHLTU	−.054	.198	.960	−.52	.41
		BTU	.170	.184	.629	−.27	.60
	DHLTU	TaTU	.054	.198	.960	−.41	.52
		BTU	.223	.212	.543	−.28	.72
	BTU	TaTU	−.170	.184	.629	−.60	.27
		DHLTU	−.223	.212	.543	−.72	.28
Familiarity with Journal Impact Factors	TaTu	DHLTU	−.112	.193	.832	−.57	.34
		BTU	−.276	.180	.275	−.70	.15
	DHLTU	TaTU	.112	.193	.832	−.34	.57
		BTU	−.165	.206	.703	−.65	.32
	BTU	TaTU	.276	.180	.275	−.15	.70
		DHLTU	.165	.206	.703	−.32	.65
Familiarity with Author −Level Metrics	TaTU	DHLTU	−.303	.200	.288	−.78	.17
		BTU	−.334	.186	.175	−.77	.11
	DHLTU	TaTU	.303	.200	.288	−.17	.78
		BTU	−.031	.214	.988	−.54	.47
	BTU	TaTU	.334	.186	.175	−.11	.77
		DHLTU	.031	.214	.988	−.47	.54
Familiarity with Altmetrics	TaTu	DHLTU	.274	.213	.403	−.23	.78
		BTU	.439	.198	.071	−.03	.91
	DHLTU	TaTU	−.274	.213	.403	−.78	.23
		BTU	.165	.227	.748	−.37	.70
	BTU	TaTU	−.439	.198	.071	−.91	.03
		DHLTU	−.165	.227	.748	−.70	.37

(Source: Field Survey, 2023)

Table 5. Faculty's familiarity with research impact metrics

DHLTU ($P = 0.960$), 0.170 between TaTU and BTU ($P = 0.629$), and 0.223 between DHLTU and BTU ($P = 0.543$), indicating uniform familiarity. Similarly, familiarity with journal impact factors showed no significant differences, with mean differences of −0.112 between TaTU and DHLTU ($P = 0.832$), −0.276 between TaTU and BTU ($P = 0.275$), and −0.165 between DHLTU and BTU ($P = 0.703$), suggesting comparable understanding across all institutions.

The analysis of author-level metrics also revealed no significant differences, with mean differences of −0.303 between TaTU and DHLTU ($P = 0.288$), −0.334 between TaTU and BTU ($P = 0.175$), and −0.031 between DHLTU and BTU ($P = 0.988$). Lastly, familiarity with altmetrics was consistent, with mean differences of 0.274 between TaTU and DHLTU ($P = 0.403$), 0.439 between TaTU and BTU ($P = 0.071$), and 0.165 between DHLTU and BTU ($P = 0.748$), reflecting similar levels of knowledge about alternative impact measures across the universities.

Knowledge of emerging trends and technologies in scholarly communication

The comparison of faculty knowledge across TaTU, DHLTU, and BTU on various research-related topics reveals several insights as presented in Table 6. For knowledge of preprints and preprint servers, no significant differences were found, with mean differences of −0.180 between TaTU and DHLTU ($P = 0.710$), −0.286 between TaTU and BTU ($P = 0.370$), and 0.106 between DHLTU and BTU ($P = 0.900$), indicating similar familiarity across institutions. Regarding alternative peer review models, TaTU and DHLTU showed no significant difference (mean difference = −0.102, $P = 0.858$). The difference between TaTU and BTU approached significance (mean difference = −0.404, $P = 0.065$), while DHLTU and BTU had no significant difference (mean difference = −0.302, $P = 0.309$), suggesting varied but not statistically significant knowledge levels.

For open research data, no significant differences were observed, with mean differences of 0.168 between TaTU and DHLTU ($P = 0.703$), 0.291 between TaTU and BTU ($P = 0.299$), and −0.122 between DHLTU and BTU ($P = 0.849$), indicating similar understanding across the institutions. In terms of knowledge of hybrid journals, there were marginally significant differences. TaTU and DHLTU had a mean difference of 0.402 ($P = 0.097$), suggesting a potential difference, while the difference between TaTU and BTU was not significant (mean difference = −0.044, $P = 0.968$), and DHLTU and BTU showed a mean difference of 0.445 ($P = 0.081$), indicating some variation in understanding.

Dependent Variable	(I) Institutional Affiliation	(J) Institutional Affiliation	Mean Difference (I–J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Knowledge of Preprints and Preprint Servers	TaTu	DHLTU	−.180	.228	.710	−.72	.36
		BTU	−.286	.212	.370	−.79	.21
	DHLTU	TaTU	.180	.228	.710	−.36	.72
		BTU	−.106	.243	.900	−.68	.47
	BTU	TaTU	.286	.212	.370	−.21	.79
		DHLTU	.106	.243	.900	−.47	.68
Knowledge of Alternative Peer Review Models	TaTu	DHLTU	−.102	.193	.858	−.56	.35
		BTU	−.404	.179	.065	−.83	.02
	DHLTU	TaTU	.102	.193	.858	−.35	.56
		BTU	−.302	.206	.309	−.79	.18
	BTU	TaTU	.404	.179	.065	−.02	.83
		DHLTU	.302	.206	.309	−.18	.79
Knowledge of Open Research Data	TaTU	DHLTU	.168	.210	.703	−.33	.66
		BTU	.291	.195	.299	−.17	.75
	DHLTU	TaTU	−.168	.210	.703	−.66	.33
		BTU	.122	.224	.849	−.41	.65
	BTU	TaTU	−.291	.195	.299	−.75	.17
		DHLTU	−.122	.224	.849	−.65	.41
Knowledge of Hybrid journals	TaTu	DHLTU	.402	.193	.097	−.05	.86
		BTU	−.044	.180	.968	−.47	.38
	DHLTU	TaTU	−.402	.193	.097	−.86	.05
		BTU	−.445	.206	.081	−.93	.04
	BTU	TaTU	.044	.180	.968	−.38	.47
		DHLTU	.445	.206	.081	−.04	.93

(Source: Field Survey, 2023)

Table 6. Emerging trends and technologies in scholarly communication

DISCUSSION

This section discusses the findings of the study in accordance with the objectives presented earlier.

Faculty members' familiarity with scholarly journals

The present study revealed significant differences in faculty members' familiarity with scholarly journals across the three institutions. Faculty at DHLTU reported a higher level of familiarity with established journals than their counterparts at TaTU and BTU. While the study did not explore the root causes of these disparities in depth, the findings align with previous research that has observed similar institutional-level differences in academic journal familiarity.

For instance, Schwartz et al (2005), in their study titled "US Doctoral Students' Familiarity with Accounting Journals: Insights into the Structure of the US Academy," found considerable variation in doctoral students' awareness and understanding of core accounting journals across different academic institutions in the United States. Their research attributed these discrepancies to structural differences in doctoral training programs, faculty mentorship, and the research culture prevalent in individual institutions. The study emphasized that exposure to scholarly journals was not uniform and depended heavily on the institutional environment and the level of academic support provided.

This comparative insight supports the interpretation that the observed differences in faculty journal familiarity in the current study may stem from contextual institutional factors such as access to library resources, availability of training on scholarly communication, and overall academic culture. Schwartz et al.'s (2005) findings highlight how academic structures and institutional priorities shape scholarly engagement, reinforcing the importance of institutional investment in scholarly infrastructure to bridge familiarity gaps across academic settings.

Faculty members' knowledge of copyright and licensing issues

The study identified significant differences in faculty members' knowledge of CC licenses and fair use policies across the three institutions. Specifically, faculty at TaTU demonstrated greater familiarity with these concepts compared to their counterparts at DHLTU and BTU. This disparity indicates that TaTU faculty are more informed about copyright and licensing issues. In contrast, faculty at DHLTU and BTU demonstrate limited awareness in this area, pointing to a clear gap. These findings are supported by the study

conducted by Menzli et al. (2022), titled "Investigation of Open Educational Resources Adoption in Higher Education Using Rogers' Diffusion of Innovation Theory." Their research, which examined faculty attitudes toward Open Educational Resources (OER), revealed that many faculty members experienced challenges in understanding the nuances of CC licenses and copyright frameworks. The study found that such knowledge gaps served as a barrier to the effective adoption and use of OER in higher education. Moreover, the level of familiarity with these legal and ethical concepts varied across institutions and was influenced by factors such as access to professional development opportunities, institutional policies promoting OA, and the presence of support structures for academic innovation.

The alignment between the current study and the findings of Menzli et al. (2022) emphasizes the role of institutional context in shaping faculty knowledge and practices related to copyright and licensing. Faculty at institutions with more exposure to OER training or a stronger culture of OA are more likely to be knowledgeable about CC licenses and fair use policies. Thus, targeted interventions such as capacity-building workshops and institutional policy reforms could help reduce the observed disparities and promote more equitable engagement with open educational practices.

Faculty members' knowledge of RDM

The study found significant differences in faculty familiarity with data sharing policies and data repositories, with faculty at TaTU demonstrating lower levels of awareness compared to their counterparts at the other institutions. This may be due to institutional characteristics, including the availability of infrastructure, training opportunities, and library support for RDM. Carlson et al. (2011) and Tenopir et al. (2015) highlight that successful RDM practices are often associated with strong institutional support, particularly from academic libraries. Libraries play a pivotal role in curating data repositories, delivering training on data management plans, and advising researchers on data sharing and long-term preservation. Institutions with established, library-led RDM support structures tend to report higher faculty engagement with data management practices. To enhance research productivity and compliance with data sharing requirements, institutions such as TaTU and BTU could benefit from strengthening their RDM infrastructure and library-based training programs.

Faculty members' familiarity with research impact metrics

The study found that familiarity with research impact metrics does not significantly differ across the three institutions, suggesting a widespread surface-level awareness, yet a lack of

substantive engagement with these evaluative tools. This aligns with Bornmann & Marx (2015), who argue that while normalized citation impact metrics are increasingly central to research evaluation, their effective use requires a deep understanding of disciplinary differences and methodological nuances. The authors emphasize that many researchers, even when aware of such metrics, lack the training necessary to interpret them meaningfully or to apply them in ways that accurately reflect their scholarly contributions. To address this, Bornmann & Marx (2015) implicitly recommend the provision of bibliometric training and the development of clear, standardized guidelines for metric interpretation. This would help to bridge the gap between awareness and informed usage, enabling researchers to engage with citation-based indicators more critically and effectively. As such, institutional strategies must go beyond promoting awareness to include targeted capacity-building initiatives that enhance bibliometric literacy across academic communities.

Knowledge of emerging trends and technologies in scholarly communication

The study found no significant differences in faculty knowledge of emerging trends and technologies in scholarly communication across the three universities. This may be due to the generally limited depth of understanding and engagement with these trends among faculty, rather than institutional differences. While developments such as OA publishing, preprints, and alternative peer review models are increasingly discussed within academic circles, faculty knowledge of these trends appears to remain largely superficial. This finding aligns with Nicholas et al. (2017) and Tenopir et al. (2016), who observed that although awareness of new scholarly communication practices is growing, it often does not translate into meaningful adoption or change in behavior. The persistence of this awareness–adoption gap may be attributed to inadequate training, institutional support, or incentives. As noted by Cox & Pinfield (2014), academic libraries play a pivotal role in fostering the transition from awareness to practical implementation by providing relevant services, education, and infrastructure. The shallow but uniform familiarity observed across the institutions studied may partly be due to the absence of such targeted support.

Advancing knowledge and understanding

This study contributes to the existing body of knowledge by highlighting the variations in scholarly communication practices across different technical universities in Ghana. Although the study did not directly assess library services, the findings suggest that libraries may play a critical role in shaping faculty familiarity with scholarly journals, copyright and licensing, data management, impact metrics, and emerging technologies. This interpretation is informed by prior literature (Tenopir et al., 2015; Cox & Pinfield, 2014), which underscores the central

role of academic libraries in supporting scholarly communication. By identifying gaps in faculty knowledge and institutional disparities, this study provides actionable insights for academic leaders and policymakers aiming to enhance research productivity, visibility, and global impact.

Moreover, this research advances our understanding by contextualizing the challenges faced by faculty in less-resourced institutions like TaTU and BTU. Strengthening the role of libraries through enhanced training and infrastructure development could significantly improve scholarly communication practices and outcomes. Future research could build on these findings by exploring the specific institutional and library-related factors that most effectively support faculty in navigating the evolving landscape of scholarly communication.

CONCLUSION

This study examined faculty members' familiarity with scholarly journals, copyright and licensing issues, RDM, and research impact metrics across three technical universities in Ghana. The findings revealed significant differences in familiarity levels, with faculty at DHLTU generally more knowledgeable about established journals, likely due to stronger institutional research support and access to digital resources. Faculty at TaTU exhibited greater awareness of CC licenses and fair use policies, suggesting the presence of effective training initiatives. However, familiarity with the types of articles published remained consistent across all institutions.

While institutions with more robust research support showed higher faculty engagement with scholarly communication, this study did not directly assess the role of library services in influencing these familiarity levels. Nonetheless, existing literature strongly suggests that academic libraries play a key role in facilitating access to resources and training. Future research should explore whether library-led initiatives, institutional policies, and faculty motivation contribute to variations in scholarly communication practices. Additionally, gathering data on specific training programs and library services would offer deeper insights into their effectiveness in enhancing faculty awareness and engagement. Understanding these dynamics will be crucial for developing targeted interventions and best practices that promote a more informed and active academic community, ultimately strengthening research visibility and productivity within Ghanaian technical universities.

REFERENCES

4icu.org. (2024). Ghana University ranking 2024. Retrieved June 17, 2025, from https://www.4icu.org/gh/

Adakawa, M. I. (2022). Scholarly Communication Practice and Strategies in Institutions of Higher Learning in Africa: An Overview. In D. Alemneh (Ed.), *Handbook of research on the global view of open access and scholarly communications* (pp. 81–107). IGI Global. https://doi.org/10.4018/978-1-7998-9805-4.ch005

Babbie, E. R. (2020). The practice of social research (15th ed.). Belmont, CA: Cengage Learning

Björk, B. C., & Solomon, D. (2013). Open access versus subscription journals: A comparison of scientific impact. *BMC Medicine*, *11*, 1–12. https://doi.org/10.1186/1741-7015-10-73

Borgman, C. L. (2007). *Scholarship in the digital age: Information, infrastructure, and the Internet*. The MIT Press. https://doi.org/10.7551/mitpress/7434.001.0001

Bornmann, L., & Marx, W. (2015). On the causes of subject-specific citation rates in Web of Science. *Scientometrics*, *102*, 1823–1827. https://doi.org/10.1007/s11192-014-1499-9

Bunker, M. D. (2019). Decoding academic fair use: Transformative use and the fair use doctrine in scholarship. *Journal of Copyright in Education & Librarianship*, *3*(1). https://doi.org/10.17161/jcel.v3i1.6481

Carlson, J., Fosmire, M., Miller, C. C., & Nelson, M. S. (2011). Determining data information literacy needs: A study of students and research faculty. *Portal: Libraries and the Academy*, *11*(2), 629–657. https://doi.org/10.1353/pla.2011.0022

Collins, H. (2010). *Creative research: The theory and practice of research for the creative industries*. Singapore: AVA Publications.

Cox, A. M., & Pinfield, S. (2014). Research data management and libraries: Current activities and future priorities. *Journal of Librarianship and Information Science*, *46*(4), 299–316. https://doi.org/10.1177/0961000613492542

Dallmeier-Tiessen, S., Darby, R., Goerner, B., Hyppoelae, J., Igo-Kemenes, P., Kahn, D., & Ullrich, C. (2011). Highlights from the SOAP project survey. What Scientists Think about Open Access Publishing. *arXiv preprint arXiv*:1101.5260. https://doi.org/10.48550/arXiv.1101.5260

Fitzpatrick, K. (2011). *Planned obsolescence: Publishing, technology, and the future of the academy*. NYU Press.

Gargouri, Y., Hajjem, C., Larivière, V., Gingras, Y., Carr, L., Brody, T., & Harnad, S. (2010). Self-selected or mandated, open access increases citation impact for higher-quality research. *Plos One*, *5*(10), e13636. https://doi.org/10.1371/journal.pone.0013636

Harnad, S., & Brody, T. (2004). Comparing the impact of open access (OA) vs. non-OA articles in the same journals. *D-Lib Magazine*, *10*(6). http://eprints.soton.ac.uk/id/eprint/260207

Kirsop, B., & Chan, L. (2005). Transforming access to research literature for developing countries. *Serials Review*, *31*, 246–255. https://doi.org/10.1080/00987913.2005.10764998

Lynch, C. (2003). Institutional repositories: Essential infrastructure for scholarship in the digital age. *Libraries and the Academy*, *3*(2), 327–336. https://doi.org/10.1353/pla.2003.0039

Matonkar, P. V., & Dhuri, K. R. (2021). Open access and free resources on the internet: awareness and use during Covid-19 pandemic. *Library Philosophy and Practice*, *5153*. https://digitalcommons.unl.edu/libphilprac/5153

Menzli, L. J., Smirani, L. K., Boulahia, J. A., & Hadjouni, M. (2022). Investigation of open educational resources adoption in higher education using Rogers' diffusion of innovation theory. *Heliyon*, *8*(7), e09885. https://doi.org/10.1016/j.heliyon.2022.e09885

Miller, R. L., & Brewer, J. D. (2003). The A-Z of social research: a dictionary of key social science research concepts. SAGE Publications.

Modern Ghana. (2024). Challenges affecting research output in Ghanaian universities. Retrieved June 17, 2025, from https://www.modernghana.com/

Morain, S. R., Bollinger, J., Weinfurt, K., & Sugarman, J. (2022). Ethics challenges in sharing data from pragmatic clinical trials. *Clinical Trials*, *19*(6), 681–689. https://doi.org/10.1177/17407745221110881

Morrison, H. (2013). Creative Commons and open access to scholarly works. *Impact of Social Sciences Blog*. London School of Economics and Political Science. https://blogs.lse.ac.uk/impactofsocialsciences/2013/03/07/creative-commons-and-open-access-to-scholarly-works/

Ngulube, P. (2019). Open access publishing in African universities: Faculty members' awareness and attitudes. *Information Development*, *35*(3), 480–491. https://doi.org/10.1142/S0219649220500161

Nguyen, L. T., & Tuamsuk, K. (2025). Scientific integrity of researchers in scholarly publishing. *Journal of Academic Ethics*, *1–23*. https://doi.org/10.1007/s10805-025-09638-8

Nkrumah, M. A. (2022). The state of research in technical universities: Evidence from four Ghanaian Technical Universities. *East African Journal of Education and Social Sciences*, *3*(5), 76–83. https://doi.org/10.46606/eajess2022v03i05.0221

Ocholla, D. N., & Ocholla, L. (2016). Information and research resources availability and use by researchers in agriculture and food security in Uganda and Kenya. *Library Management*, *37*(6/7), 362–377. https://doi.org/10.1002/leap.1087

Owens, E. E., & Manolovitz, T. (2021). Scholarly Communication outside the R1: Measuring faculty and graduate student knowledge and interest at a doctoral/professional university. *Journal of Librarianship and Scholarly Communication 9*(1), eP2413. https://doi.org/10.7710/2162-3309.2413

Rieger, O. Y., & Schonfeld, R. C. (2023, April 24). *Common scholarly communication infrastructure landscape review*. https://doi.org/10.18665/sr.318775

Rowlands, I., Nicholas, D., Russell, B., Canty, N., & Watkinson, A. (2011). Social media use in the research workflow. *Learned Publishing*, *24*(3), 183–195. https://doi.org/10.1087/20110306

Schwartz, B. N., Williams, S., & Williams, P. F. (2005). US doctoral students' familiarity with accounting journals: Insights into the structure of the US academy. *Critical Perspectives on Accounting*, *16*(3), 327–348. https://doi.org/10.1016/S1045-2354(03)00021-2

Segado-Boj, F., Martín-Quevedo, J., & Prieto-Gutiérrez, J. J. (2018). Attitudes toward open access, open peer review, and altmetrics among contributors to Spanish scholarly journals. *Journal of scholarly publishing*, *50*(1), 48–70. https://doi.org/10.3138/jsp.50.1.08

Tenopir, C., & King, D. W. (2004). Communication patterns of engineers. *Journal of the American Society for Information Science and Technology*, *55*(2) https://doi.org/10.1002/0471683132

Tenopir, C., Allard, S., Sinha, P., Pollock, D., Newman, J., Dalton, E., & Baird, L. (2016). Data management education from the perspective of science educators. https://doi.org/10.2218/ijdc.v11i1.389

Tenopir, C., Dalton, E. D., Allard, S., Frame, M., Pjesivac, I., Birch, B., & Dorsett, K. (2015). Changes in data sharing and data reuse practices and perceptions among scientists worldwide. *PloS one*, *10*(8). https://doi.org/10.1371/journal.pone.0134826

Van Leeuwen, T. N., Moed, H. F., Tijssen, R. J., Visser, M. S., & Van Raan, A. F. (2012). Language biases in the coverage of the Science Citation Index and the Social Sciences Citation Index. *Scientometrics*, *51*(1), 335–346. https://doi.org/10.1023/A:1010549719484

Webometrics. (2024). Ranking of world universities – Ghana. Retrieved June 17, 2025, from https://www.webometrics.info/en/Africa/Ghana

Wolfram, D. (2019). Understanding and navigating the scholarly communication landscape in the twenty-first century. *Frontiers in Research Metrics and Analytics*, *4*, 4. https://doi.org/10.3389/frma.2019.00004

APPENDIX: QUESTIONNAIRE

Dear Sir/ Madam,

I am researching the topic "Assessing the Knowledge, Attitudes and Practices of Faculty Members towards Scholarly Communication at Tamale, Dr. Hilla Limann and Bolga Technical Universities". I shall be grateful if you could spend some time completing the following questionnaire. All information provided shall be treated confidentially.

Thank you.

Yours sincerely

Section A: Demographic Data

1. What is your institutional affiliation?
   a). Tamale Technical University [ ]
   b). Dr. Hilla Limann Technical University [ ]
   c). Bolga Technical University [ ]
2. Please indicate your specific Department.
   .....
3. What is your field of study?
   .....
4. What is your faculty rank?
   a). Professor [ ]
   b). Associate Professor [ ]
   c). Senior Lecturer [ ]
   d). Assistant Lecturer [ ]
   e). Other (please specify) .....

Section B: Levels of Awareness and Knowledge of Some Scholarly Communication Aspects

5. **Familiarity with reputable Scholarly Journals:**

Please indicate your level of familiarity with reputable scholarly journals in your field of study

Journal Attributes	Not Familiar at All	Somewhat Familiar	Moderately Familiar	Very Familiar	Extremely Familiar
Established Journals					
Their scope					
Target audience					
Types of articles they publish					

6. **Knowledge of Copyright and Licensing:**

Please specify your knowledge of copyright policies and licensing options under scholarly communication.

Licensing Options	Very Limited Knowledge	Limited Knowledge	Moderate Knowledge	Extensive Knowledge	Expert Knowledge
Copyright Transfer Agreements					
Creative Commons licenses					
Fair Use Policies					

7. **Familiarity with Research Data Management**

Please indicate your level of familiarity with the following aspects of research data management.

Data Management Aspects	Not Familiar at All	Somewhat Familiar	Moderately Familiar	Very Familiar	Extremely Familiar
Data Sharing Policies					
Data Repositories					
Data Citation Practices					
Importance of Open Research Data					

8. **Familiarity with Research Impact Metrics**

Please indicate your level of familiarity with the following research impact metrics.

Research Impact Metrics	Not Familiar at All	Somewhat Familiar	Moderately Familiar	Very Familiar	Extremely Familiar
Citation Analysis					
Journal Impact Factors					
Author-Level Metrics					
Altmetrics					

9. **Familiarity with Emerging Trends and Technologies**

Please indicate your level of knowledge regarding the following emerging trends and technologies in scholarly communication.

Emerging Trends and Technologies	Very Limited Knowledge	Limited Knowledge	Moderate Knowledge	Extensive Knowledge	Expert Knowledge
Preprints and Preprint Servers					
Alternative Peer Review Models					
Open Research Data					
Hybrid Journals					