Assessment of scholarly communication channels in selected university libraries in Kenya

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[1] James Njue Mutegi, [2]Lilian Oyieke, [3] Mbenge T. Ndiku

[1] https://orcid.org/0009-0001-6681-8943, [2] https://orcid.org/0009-0007-9559-214X, [3]https://orcid.org/0009-0001-9048-9094

[1]University of Embu, [2,3]Technical University of Kenya

ABSTRACT

This study assessed Scholarly Communication Channels (SCC) in selected university libraries in Kenya. SCC is the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use. The study adopted a descriptive survey research design to assess SCC in selected university libraries in Kenya. The study population consisted of 431 students. The sample size was 376 respondents. The researcher adopted a census approach to involve all the 376 respondents in this study. Data were collected through closed-ended questionnaires and analysed using SPSS. The study established that the selected university libraries offered a range of SCC, such as peer-reviewed journals, academic conferences, open access, and institutional repositories. The study concluded that several challenges, such as underutilization, high publishing fees, delays in publication, lack of recognition, and lack of librarian support, confronted SCC. The study also revealed that the most utilized SCC were institutional repositories and peer-reviewed journals, while the least utilized SCC were academic conferences. Most students lacked self-efficacy in publishing and selecting the best scholarly communication channels.

(Key words**: information; information access; scholarly communication channels; self-efficacy; university libraries; Kenya.)

I. INTRODUCTION

Scholarly Communication Channels (SCC) are essential resources in the University Library. SCC is the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use. (Anon 2024). This shows that besides disseminating information, SCC plays a crucial role in promoting the quality of library resources. For instance, in peer-reviewed journals, articles are written by experts. Several other experts in the field review them before the article is published in the journal to ensure its quality. The four main types of SCC in University Libraries are peer-reviewed journals, academic conferences, open access, and institutional repositories (Tarus et al., 2022).

Guédon et al., (2019) identified several functions of SCC in the university, such as dissemination of knowledge, peer review and validation, academic dialogue and collaboration, establishing research impact and reputation, archiving and preserving knowledge, encouraging Innovation and problem-solving, and promoting professional development. These roles demonstrate how crucial SCC is in assisting the institution in fulfilling its primary mission of teaching, learning, research, and extension. Scholarly Communication Channels are not only gateways to information resources but also collaborative resources. For example, peer-reviewed journals provide an opportunity for joint authorship and enhancement of quality work through peer review.

SCC are mainly managed by Librarians to enable researchers to preserve the written works of their respective institutions' scholarly communities, help researchers and scholars locate pertinent sources and citations to their works, and organize and make physical and virtual collections accessible (Fleming-May 2023). This suggests that librarians are responsible for guaranteeing that SSC are appropriate and accessible. Librarians also must promote and train students on the use of SCC. In Kenya, CUE has guided that all university libraries should provide various SCC resources, such as institutional repositories Weng'ua (2018).

University libraries have undergone many changes. For instance, libraries have embraced electronic-based information resources such as books and journals. This is according to research by Rafiq et al., (2021), who established that the majority of libraries all over the world have embraced electronic resources. Similarly, research by Mathar, Hijrana & Haruddin (2021) pointed out that physical library building without electronic resources is meaningless or an empty shell. In Kenya, the Commission for High Education (CUE) requires universities to acquire varied, appropriate, and adequate print and electronic information resources (CUE, 2014). In adherence to this guideline, Universities in Kenya must subscribe to electronic resources provided by the Kenya Library and Information Service Consortium (KLISC) (CUE, 2014). This shows that digital resources are rapidly becoming a reality in libraries. Given these changes, librarians should ensure that SCC are available and appropriate and that students can access resources independently. One way to ensure students can use SCC is by empowering them with proper skills. This can be done by providing online library resources and training/instruction programs. Additionally, training equips them to locate and use the information they require for their studies, schoolwork, and leisure. (Arua et al., 2019).

Modern library users are technology savvy. The characteristics of Library users have also changed. They are using smartphones primarily out of campus. According to Xing & Gao (2018), current students use social media and collaborative learning communities to share information. For instance, Jermsittiparsert et al., (2019) pointed out that students share information resources through social applications such as Facebook. The use of social media promotes collaborative learning. This raises a fundamental issue of whether the SCC resources align with the library, library user, and mode of access changes. SCC resources should reflect the evolving nature of the library, library users, and information resources.

There are several challenges affecting the implementation of SCC in developed countries. Lor (2023) points out that the major weaknesses of the SCC are unavailability, low usage, low publishing fees, delay in publishing, lack of recognition, and librarian support. A related study by Anmol & Muhammad (2021) revealed that the main problem with SCC is that students don't know how to use it. Ultimately, librarians should improve SCC to address the issues of underutilization, availability, and lack of skill. Improvements in SCC benefit librarians in response to problems such as pandemics, changes in information formats, and user characteristics.

The purpose of this study was to assess SCC in selected university libraries. Specifically, the study analyses the quality of Scholarly Communication Channels offered by selected academic libraries in Kenya and investigates students' efficacy on these Channels.

Quality of SCC in university libraries

Globally, Universities are required to provide adequate resources to meet users' needs. The library collects and disseminates information resources to its clients through SCC (Akinola,2022). Resource quality determines the worthiness of SCC. Each university library must provide suitable information resources to its users. Unsuitable information resources may result in endemic threats, which flourish when dependable information sources fail to meet information needs (Dayan, 2024).

International organizations such as the Association of College and Research Libraries (ACRL) guide libraries to provide varied, authoritative, and up-to-date resources. In Kenya, the Commission for University Education (CUE) stipulates that the library should have credible resources that meet the diverse needs of the students (CUE, 2014). In line with this requirement, university librarians are expected to ensure that SCC is suitable for learning. SCC should have a low publishing fee, timely publication, recognition, and librarian support (Madden et al., 2024). To ensure the quality of SCC, University management is required to employ qualified librarians. In addition, librarians are expected to guide users to journals that charge an affordable fee. SCC should also be credible and recognized as a reputable source of information.

Open access offers alternatives to authors who cannot publish in leading publishers due to competition and experience (Holmberg et al., 2020). Open access provides an alternative publishing option to authors (Barr-Walker & Sharifi, 2019). In Kenya, CUE has encouraged all universities to develop and implement institutional repositories (CUE, 2014). University libraries in Kenya use repositories to publish postgraduate students' projects This shows that repositories have opened publishing options for students who would not have made it through commercial publishers. Research by Amutabi (2023) revealed that most of the students in Kenya cannot graduate on time because of the delays in publication and attribute these delays to a lack of competent editors by specific journals.

Student efficacy on SCC

Student self-efficacy refers to a student's belief in their ability to successfully perform a specific task or skill (Tang 2022). Self-efficacy refers to an individual's belief and confidence about their capabilities to execute a specific task within a given context; it recognizes the value of a person's perceptions and competencies as key elements of effective outcomes (Shkëmbi, 2023). Self-efficacy outlines how individuals and communities can be empowered to achieve their goals (Deja, 2021). Self-efficacy has several desirable results. For instance, students with self-efficacy have better skills to access and navigate information databases. (Hayat et al., 2020). Self-efficacy enables the users to use SCC with confidence. Self-efficacy also leads to academic achievement, which can be attributed to metacognitive learning strategies. Academic achievement refers to performance outcomes in intellectual domains taught at school, college, and university (Namoun & Alshanqiti, 2021). Evidence shows that students with higher self-efficacy show more endeavour and perseverance when faced with challenging situations (Hayat et al., 2020). Therefore, a positive association could exist between self-efficacy and metacognitive learning strategies. When applied to using SCC, self-efficacy reflects how confident students feel about their ability to effectively access, interpret, and use academic resources for learning and research. This concept has important implications for their academic success, research outcomes, and overall engagement with SCC.

Using SCC can significantly impact a student's learning experience and academic performance. However, a student's confidence in using these tools is crucial in effectively utilising these resources. Several factors influence a student's self-efficacy concerning scholarly communication. Ben, (2022) pointed out that a lack of digital skills is the key challenge affecting students' efficacy on SCC. Digital skills enable the students to access, utilize, and navigate through SCC. Students who are confident in their ability to navigate these platforms are more likely to use them effectively. The second value for self-efficacy is to facilitate information search skills. Conducting advanced searches in academic databases, filtering results, and evaluating sources is a key aspect of digital literacy, Zlatkin-Troitschanskaia et al., (2021). Students with high self-efficacy are more likely to trust their abilities to search for relevant articles, identify peer-reviewed work, and avoid unreliable sources. A student's self-efficacy directly affects their motivation to engage in scholarly tasks. Those who feel confident are more likely to persist through challenges such as accessing difficult academic papers, understanding complex research methods, or using citation tools.

II. METHODOLOGY

The study used a descriptive survey research design to evaluate SCC in selected university libraries in Kenya. While descriptive research is a valuable method of gathering information about the study phenomena, it offers an edge to studying target populations in their natural environment, free from the influence of artificial constructs (Fadhel et al., 2024)

The researcher used purposeful sampling by adapting inclusion and exclusion criteria shown in Table 1 to select the universities and students who qualified for this study. Inclusion and exclusion criteria are used to select the respondents for research (Baltes & Ralph, 2022). According to Campbell et al. (2020), inclusion criteria entail the features that members must have to be included in a study. On the other hand, Radez et al. (2022) noted that exclusion criteria are the characteristics that respondents must not have to be included in a study. In addition, the researcher used information on the status of the universities provided on the CUE website and Kenya National Bureau of Statistics (KNBS). Commission for University Education has grouped universities into public chartered universities, public constituent colleges, and private chartered universities (CUE, 2022). KNBS provides data on the number of students enrolled in different programs per university (KNBS, 2023).

The criteria for selection of the universities focused on aspects such as universities that offer Information Science programmes, evidence of subscription to electronic information resources, adoption of ICT resources and infrastructure, and engagement of ICT and Reference Librarians. The fourteen Universities that met this criterion were Egerton University, University of Nairobi, Kenya Methodist University, Technical University of Kenya, Kenya Highlands Evangelical University, Kabianga University, Jomo Kenyatta University of Agriculture and Technology, Rongo University, Tharaka University, Meru University of Science and Technology, Karatina University, Kisii University, Chuka University and Masai Mara University. The criteria for the students' selection entailed programme, registration status, level of study, and mode of study. The total number of universities and students that met this criterion were 14 and 431 respectively and are shown on shown on Table 2. Data was collected through closed-ended questionnaires and analysed using SPSS.

Table 1: Inclusion and exclusion criteria

Criteria type	Inclusion	Exclusion
Universities		
Subscription to electronic information resources	Evidence of subscription to resources	Universities that have not subscribed to electronic resources
ICT Infrastructure	Universities that have adopted ICT resources and infrastructure such as KENET internet, ICT equipment's such as computers	Universities that have not acquired ICT sources such as KENET and ICT resources
ICT Librarian / Reference Librarian	Universities that have engaged ICT and Reference Librarian	Universities that have not employed ICT and Reference Librarians
Program	Universities offering Information Science (IS) Programme	Universities not offering IS
Students		
Status	Registered Students	Non-registered
Level of study program	Fourth and second year in Bachelor and Master's in Information Science programs respectively	First, second- and third-years Bachelor. First years in Master's in Information Science programs
Mode of study	Full time	Part time, Open

Table 2: Population of the study

University	Undergraduate	Postgraduate	Total
Egerton University	22	25	47
University of Nairobi	43	15	58
Kenya Methodist University	8	4	12
Technical University of Kenya	36	25	61
Kenya Highlands Evangelical University	8	0	8
Kabianga University	15	0	15
Jomo Kenyatta University of Agriculture and Technology	0	13	13
Rongo University	27	0	27
Tharaka University	4	8	12
Meru University	20	0	20
Karatina University	37	0	37
Kisii University	42	4	46
Chuka	45	0	45
Masai Mara University	30	0	30
Total	**337**	**94**	**431**

III. RESULTS AND DISCUSSION

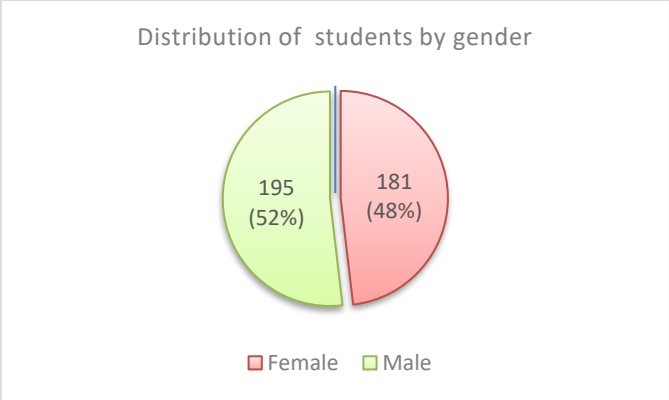
Questionnaires were distributed to 431 students. However, 376 respondents returned their questionnaires, giving a response rate of 87%. According to Creswell (2020), a response rate of over 75 per cent is satisfactory for obtaining objective results in any study.

Characteristics of the respondents

All the students in this study were in their final year of study and, therefore were able to provide reliable information on use of SCC from their respective university libraries. The highest range of respondents included TUK, Chuka, Kisii, UoN, and Karatina as demonstrated by the values 48 (13%), 45 (12%), 43 (11%), 43 (11%), and 37 (10%) respectively. The next highest range of respondents were from Egerton, Maasai Mara, Rongo, and Meru as demonstrated by the values 28 (7%), 27 (7%), 27 (7%), and 21 (6%) respectively. The third range of respondents were from Kabianga and KeMU as demonstrated by the values 16 (4%) and 12 (3%). Tharaka, JKUAT, and Kenya Highlands had the lowest range of respondents as demonstrated by the values 10 (3%), 10 (3%), and 9 (2%).

The researcher sought to understand the gender distribution of the students' respondents. The data is presented in Figure 1.

Figure 1: Distribution of students by gender



The data indicates that the male students were 195 (52%) and the female students were 181 (48 %). This shows that there was a small margin between the female and male gender. Gathering this information was crucial to enable the researcher to obtain a balance between the male and the female respondents.

Scholarly Communication Channels offered in universities

The students' responses to the SCC offered in universities are summarised in Table 3 below.

Table 3: Students' responses on Scholarly Communication Channels

Resource	Variable	Yes (Freq.)	Yes (%)	No (Freq.)	No (%)	Total (Freq.)
Peer Reviewed Journals	Usage	329	88%	47	13%	376
	Low publishing fee	29	8%	347	92%	376
	Fast in publishing	115	30%	261	70%	376
	Recognized	277	74%	99	26%	376
	Librarian support	62	16%	314	84%	376
Academic Conferences	Usage	71	19%	305	81%	376
	Low publishing fee	55	15%	321	85%	376
	Fast in publishing	155	41%	221	59%	376
	Recognized	277	74%	99	26%	376
	Librarian support	39	10%	337	90%	376

Resource	Variable	Yes (Freq.)	Yes (%)	No (Freq.)	No (%)	Total (Freq.)
Open Access	Usage	268	71%	108	29%	376
	Low publishing fee	221	59%	155	41%	376
	Fast in publishing	233	62%	143	38%	376
	Recognized	264	71%	109	29%	376
	Librarian support	135	36%	241	64%	376
Institutional Repository	Usage	360	96%	16	4%	376
	Low publishing fee	205	55%	171	45%	376
	Fast in publishing	233	62%	143	38%	376
	Recognized	229	61%	147	39%	376
	Librarian support	322	86%	54	14%	376

Table 3 shows the (Yes) and (No) responses of Students on several questions. Regarding using peer-reviewed journals in their libraries, the students who responded (Yes) were 329 (88%). The (No) responses to the same question were 47 (12%). On the question of peer-reviewed journals having an affordable publishing fee, the students who responded (No) were 47 (92%). The (Yes) responses to the same question were 29 (8%). On the question of timely publishing, the (No) responses were 261 (70%). The (Yes) response to the same question was 115 (30 %). On the question of whether peer-reviewed journals are recognized by scholars as reputable/credible, the (Yes) responses were 277 (74%). The (Yes) responses to the same question were 99 (26 %) and 6 (14%). Regarding the question of Librarian support, the (No) responses were 314 (84%). The (Yes) responses to the same question were 62 (16 %).

On the question about the usage of Academic Conferences, the Students who responded (No) were as follows 305 (81%). The (Yes) responses to the same question were 71 (19%). On the question that Academic Conferences have a low publishing fee, the students who responded (No) were 321 (85%). The (Yes) responses to the same question are 55 (15%). On the statement of Academic conferences being fast in publishing, the (No) responses were 221 (59%). The (Yes) response on the same statement is 155 (41 %). On the question that Academic Conferences are recognized, the (Yes) responses were 277 (74%). The (No) response to the same question was 99 (26 %). On the question that the Librarian offers support on Academic Conferences, the (No) responses were 337 (90%). The (Yes) responses to the same question were 39 (10%).

On the question about the usage of Open Access, the Students who responded (Yes) were as follows: 268 (71%). The (No) responses to the same question were 108 (29%). On the question that Open Access offers a low publishing fee, the students who responded (Yes) were as follows: 221 (59%). The (No) responses to the same question were 55 (41%). On the question that Open Access is fast in publishing, the (Yes) responses were 233 (62%). The (No) responses to the same question are 143 (38 %). On the question of Open Access publications are recognized, the (Yes) responses were 264 (71%). The (No) responses to the same question were 109 (29 %) and 5 (18%). On the question of Librarian support, the (Yes) responses were 322 (94%). The (Yes) responses on the same statement were 135 (36%).

On the question about using Institutional Repository, the Students who responded (Yes) were 360 (96%). The (No) responses to the same question were 16 (4%). On the question on Institutional Repositories offering low publishing fees, the students who responded (Yes) were 205 (55%). The (No) responses on the same question statement were 171 (45%). On the question that Open Access is fast in publishing, the (Yes) responses were 233 (62%). The (No) responses to the same question were 143 (38 %). The (Yes) responses were 229 (61%) on the question that Open Access is recognised. The (No) question on the same statement was 147 (39 %). On the question that the Librarian offers support on Institutional Repository Publishing, the (Yes) responses were 322 (94%). The (No) responses to the same question were 54 (6%).

The findings in Table 3 on students' utilisation of scholarly communication channels indicate a preference for institutional repositories and peer-reviewed journals. Research by Nunda & Frank, (2019) noted that most students prefer institutional repositories. Similar sentiments were echoed by (Weng'ua et al., 2018), stating that most universities in Kenya encourage students to publish in peer-reviewed journals. CUE guides all postgraduate students in Kenya to publish their work in peer-reviewed journals (Weng'ua et al., 2018).

These findings can be attributed to several reasons. First, the librarians may not have sensitised students on other forms of scholarly communication, such as academic conferences. Second, students lack the necessary expertise to present at academic conferences. The findings reveal the need to train students to participate in academic conferences. One way of addressing this gap is by organising student conferences where students can sharpen their presentation skills. Second, libraries could identify free meetings and share information with the users. A study by Xie et al. (2020) pointed out that library services provided in top-ranking universities include scholarly communication such as open access, institution repositories and peer-reviewed journals. Another study by Sarvenaz Sarabipour et al. (2020) noted that the majority of the students in universities cannot afford to pay the conference fees charged at the academic conferences.

The findings depicted in Table 3, the students indicate that the cost of publishing in peer-reviewed journals and academic conferences is not affordable. To the contrary, most peer-reviewed journals are free. These results show that students have not been trained to establish the cost of the peer journals. This implies that librarians should teach users how to identify the qualities of a good journal. These findings also reveal the need to guide students on the criteria of identifying peer-reviewed journals that do not charge Article Processing Fees (APC). For instance, the Directorate of Open Access Journals (DOAJ) indicates journals that do not offer APC charges (Morrison et al., 2022). To address this gap, the library can work with faculty to identify credible journals that meet university publishing policy and share the list with the students. In addition, the library can also share information about features of credible journals via email and handouts. A study by Johnston et al. (2022) pointed out that open-access publishing is one of the key areas where students can publish their research. Studies by Mamtora and Pandey (2021) and Kaur et al. (2022) shared the same sentiments that academic librarians in universities need to be strategically positioned and knowledgeable in the latest scholarly publishing platform.

The findings depicted in Table 3 on the time taken to publish in various scholarly communication channels revealed that publishing in open-access and institution repositories takes a short time. These findings can be attributed to the following two reasons. One, librarians in Kenya have made commendable efforts to promote open-access resources. Two, students have been sensitised to features of open-access publishing. The findings further revealed that publishing in peer-reviewed journals and academic conferences takes longer than expected. The findings indicate the need to develop students' capacity to publish in peer-reviewed journals. The lack of student capacity can be attributed to a lack of librarian support for publishing. One way of improving students' capacity for peer-reviewed journals is encouraging group publishing amongst students so that the students learn from each other. A study by Mwambari et al., (2022) pointed out that open-access publishing has been significantly successful and has enhanced knowledge production and consumption. Studies by Cox et al. (2017) and Chawinga & Zinn (2020) shared the same findings that there is a need to re-train librarians on the skills relevant to publishing in scholarly communication channels and also pointed out challenges related to infrastructure, policy, inaccessible resources, and inadequate skills among librarians respectively.

The findings depicted in Table 3 on the recognition of various scholarly communication channels indicated that reviewed journals, academic conferences, open access, and institutional repositories are recognized scholarly communication channels. Research by Bornmann (2011) pointed out that peer-reviewed journals are credible and recommended by many universities. Sang (2022) also noted that some universities in Kenya have implemented institutional repository

These findings can be attributed to two reasons: First, librarians in Kenya have made commendable efforts to provide scholarly communication channel resources. The findings also revealed that all the participating University Libraries meet CUE guidelines stipulating that they should provide Scholarly Communication Channels (CUE, 2014). They underscore the importance of Scholarly Communication Channels in facilitating access to information resources. A study by Ratanya & Muthee, (2018) pointed out that university libraries in Kenya subscribe to Scholarly Communication Channels, such as peer-reviewed journals and open-access resources. Another study by Sánchez-Caballé et al. (2020) pointed out that the majority of the students at university can identify scholarly communication channels that are reputable. The CIL approach could ensure both recognition of open access and institution repositories.

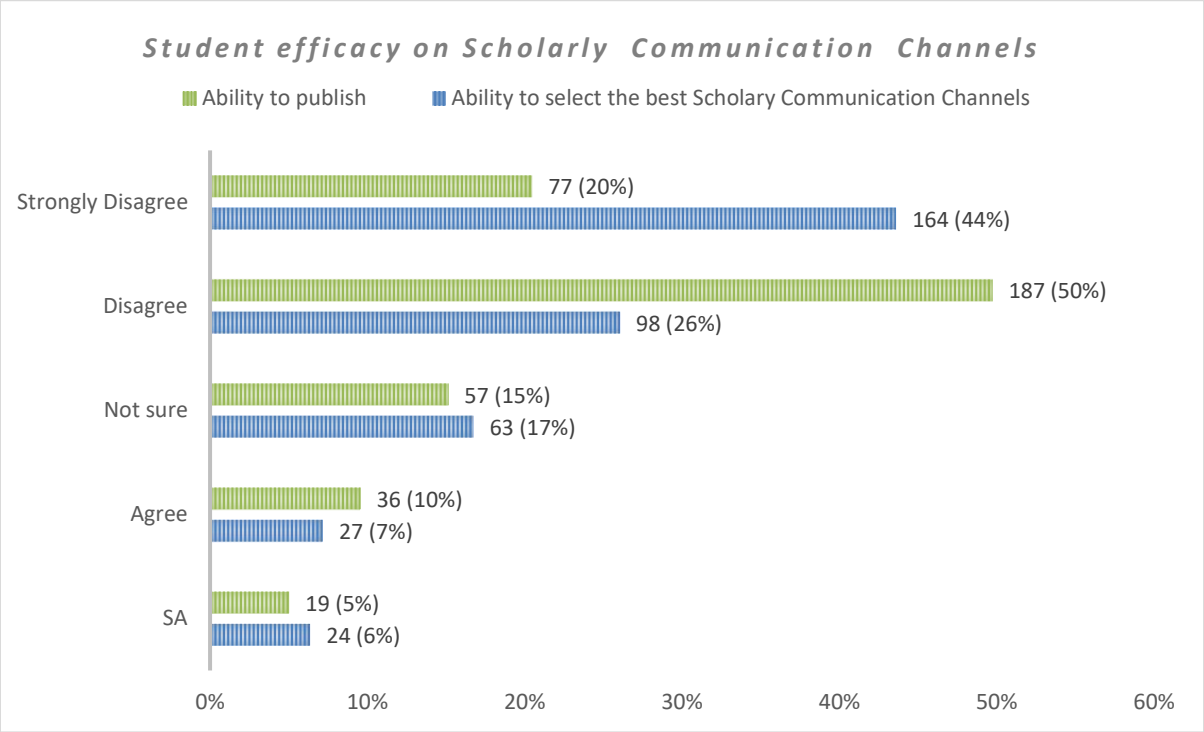
The findings depicted in Table 1 on librarian support of various scholarly communication channels indicated that librarians do not offer support for peer-reviewed journals and academic conferences. Wanja (2022) pointed out that librarians do not support users in using library resources.

These findings reveal the disempowerment of librarians and users. Librarian disempowerment entails circumstances in which librarians encounter obstacles, difficulties, or restrictions, such as a lack of skills in publishing. In this case, the librarians cannot support the students on Scholarly Communication channels. To address this challenge, librarians should attend training and conferences on Scholarly Communication Channels. A study Adeyemo & Jamogha (2021) pointed out that usage of institution repositories has tremendously increased due to librarian and faculty collaboration. Another study by Phillips et al. (2022) recommended that academic librarians must have relevant skills as well as other soft skills, such as leadership and managerial ones, which would help in supporting users.

Students' efficacy on Scholarly Communication Channels

The responses in this section sought to establish the Students' Efficacy in peer-reviewed journals, academic conferences, open access, and institutional repositories. The results are summarised in Figure 2 below.

Figure 2: Students Efficacy on peer reviewed journals



The student's views were captured in relation to students' efficacy on Scholarly Communication Channels. On the question about the ability to publish, the responses were: disagree 187 (50%), strongly disagree 77 (20%), not sure 57 (15%), agree 36 (10%), and strongly agree 19 (5%). On the question about the ability to select the best Scholarly Communication Channels, the responses were strongly disagreed 164 (44%), disagree 98 (26%), not sure 63 (17%), agree 27 (7%) and strongly agree 24 (6%).

The findings on students' efficacy on SCC (see Figure 2) indicate that students cannot publish and select the best scholarly communication channels. Tang (2022) noted that most students do not have self-efficacy in library resources. Banjo et al., (2021) attributed underutilization of library resources to a lack of self-efficacy. These findings indicate a gap in student capacity to use scholarly communication channels effectively. The gap is attributed to the following two reasons: First, students may need to be taught how to use scholarly communication channels., Second, librarians may need to

offer adequate support on SCC. To address these gaps, librarians can motivate the students who publish in scholarly communication channels through rewards such as branded stationary. Secondly, librarians can also collaborate with journals, publishers, and faculty to offer training on publishing. Thirdly, the librarians can also use students who have successfully published in peer-reviewed journals to teach the other students.

Studies by Cox et al. (2017) and Chawinga & Zinn (2020) share the same findings that there is a need to continually re-train librarians on the skills relevant to scholarly communication channels and also pointed out challenges related to infrastructure, policy, inaccessible data, and inadequate skills among librarians, respectively. Another study by Witteveen & Attewell (2021) observed that most students delay graduating because of their inability to publish. Sarfraz et al. (2020) also noted that most students publish in predatory journals because they cannot select the best journals to publish in. Thus, universities decline in webometrics ranking because students publish in low-impact journals.

IV. CONCLUSION

The study established that the selected university libraries offered a range of Scholarly Communication Channels such as Peer-Reviewed Journals, Academic Conferences, Open Access and Institutional. The study concluded that Scholarly Communication Channels were confronted by several challenges: underutilization, high publishing fees, delays in publication, lack of recognition and librarian support. The most utilized scholarly communication channels were institutional repositories and peer-reviewed journals, while the least utilized scholarly communication channels were academic conferences. Students preferred open access and institutional repositories because of the short publishing timeline and librarian support. Peer-reviewed journals and academic conferences were least preferred due to the high publishing fee and lack of librarian support. Most students lacked self-efficacy in publishing and selecting the best scholarly communication channels.

V. RECOMMENDATIONS

The study recommends that university librarians should aggressively promote and market SCC resources through training and sensitization. In addition, the study recommends improvement of SCC resources. For instance, an institution repository could be made simple and interactive. The study further suggests that librarians enhance students' ICT skills by working closely with ICT departments to offer basic computer skills training. The study also recommends collaboration between the teaching staff and library on advocating, designing, delivering and evaluating SCC. The study recommends undertaking a regular survey on SCC. Librarians can utilize social media tools such as WhatsApp and X (formerly known as Twitter) to provide feedback. This will enable the librarians to get feedback and improve library resources. Universities Librarians should support users by holding regular seminars, conferences, and workshops that bring together students and librarians. The librarians can also utilize ICT and social media applications to reach all students.

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