

Insights into Librarians' Perspectives on Open Science: An Analysis of Sembang Pustakawan Facebook Interactions

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ABSTRACT

This study explores the information needs surrounding open science understanding among librarians as a community of practice by utilizing social media, specifically Facebook, as a platform for interaction. The emergence of discussions and conversations related to open science topics within the librarian community in Malaysia since 2017 offers valuable insights into their specific information needs, signifying the growing interest and significance of this topic among librarians. Sembang Pustakawan, a Facebook page that serves as a collaborative space for librarians to willingly share knowledge and support one another has been purposefully sampled. By analyzing these interactions through Sembang Pustakawan postings and comments, this research aims to identify key areas of interest, concerns, and knowledge gaps among librarians regarding open science. Through a systematic content analysis of posting and comments, a comprehensive understanding of information needs and interests related to open science will be established. The nature of discussions, prevalent topics, and level of engagement within the librarian community shed light on their perception and understanding of open science principles and practices. The findings from this research specifically will contribute to the development of targeted resources, training programs, and educational initiatives addressing the specific information needs of librarians in the context of open science. The findings in general will contribute to a deeper understanding of the value of social networking platforms such as Sembang Pustakawan in fostering knowledge-sharing and support among librarians.

Keywords: Information Needs, Open Science, Librarians, Social media, Facebook, Scholarly Communication, Sembang Pustakawan, Malaysia.

INTRODUCTION

In today's rapidly evolving landscape of information exchange and collaborative knowledge sharing, online communities have emerged as vibrant and dynamic spaces for professionals to engage in meaningful discourse. Among these digital platforms, social media networking sites, including Facebook pages, have evolved into thriving hubs where librarians congregate to engage in discussions, share insights, and delve into a broad array of subjects (Al-Daihani and Abrahams, 2018; Gmiterek, 2023; Vassilakaki and Garoufallou, 2015). Notably, these platforms serve as catalysts for conversations on current and pertinent topics, such as the concept of Open Science prominently featured among their discussions.

In the contemporary landscape of scholarship, Open Science has emerged as a transformative force, fundamentally reshaping research practices, dissemination methodologies, and accessibility standards. Open science is a collaborative, technology-driven approach that accelerates scientific progress through open sharing of data and knowledge among researchers and the public (Ramachandran, Bugbee, and Murphy 2021). It promotes the free exchange of research results, data, and methods to foster innovation and accelerate scientific progress. This movement, dedicated to fostering transparency, openness, collaboration and inclusive research endeavors (UNESCO 2021), has ignited a diverse range of responses among professionals across various domains, including the field of library and information science (LIS).

Librarians, as information professionals, are increasingly expected to have a comprehensive understanding of the principles and practices of open science in order to effectively assist researchers in navigating the changing landscape of scholarly communication (Giustini 2021; Redkina 2021). These knowledge and practices are designed to enhance the visibility and impact of scientific research, foster interdisciplinary collaboration, and drive innovation across borders (Piwowar et al., 2018). As Open Science gains momentum around the world, it is important to explore the information needs and understanding of this concept among librarians, who play a critical role in supporting researchers and facilitating access to scholarly resources.

In Malaysia, the LIS community has also shown increasing interest in Open Science since 2017. This interest is reflected in the emergence of discussions and conversations on Open Science topics within the library communities, such as on the Facebook page "Sembang Pustakawan". Sembang Pustakawan (SP) serves as a collaborative space where librarians voluntarily share knowledge and support each other. Analyzing the interactions within this community can provide valuable insights into Malaysian librarians' specific information needs, concerns, and knowledge gaps related to Open Science.

This paper embarks on a digital expedition into the virtual realm of the SP Facebook group, where librarians come together to engage in discussions related to Open Science. It is a small part of the overall study to explore the affordances of Facebook to support the online engagement behavior and information needs of Library and Information Science (LIS) professionals as a Community of Practice. The current study encompasses two primary

objectives. Firstly, it is aimed to unveil how often Open Science discussions permeate Malaysia LIS community, shedding light on the depth of librarians' engagement with this concept. Secondly, it is aimed to uncover the central topics and recurring themes that resonate within these conversations. Specifically, it aims to address the following research questions:

- (a) What is the frequency of Open Science discussions within the Facebook group among librarians?
- (b) What are the primary topics and themes discussed in conversations related to Open Science within the Facebook group among librarians?

LITERATURE REVIEW

Based on past research, indeed, many studies have been conducted on Open Science. However, it is not extensively discussed on most social media platforms like Facebook. A study from Ramachandran et al. (2021) describes specific actions that data programs can take to make the open science paradigm shift a reality. These actions range from implementing open data and software policies to reimaging data systems that move data out of organizational silos and into cyberinfrastructures that enable efficient research processes and accelerate knowledge dissemination. There are still several obstacles to be overcome by data programs which range from mitigating the risk of open data misuse to overcoming the inertia of legacy systems.

In their study, specific actions aimed at realizing the open science paradigm shift are described for data programs (Ramachandran et al., 2021). These actions encompass a spectrum of initiatives, including the implementation of open data and software policies and the reimaging of data systems. These efforts are designed to transition data from organizational compartments and into cyberinfrastructures, thereby facilitating more efficient research processes and expediting the dissemination of knowledge. However, data programs face several challenges on this transformative journey, ranging from addressing the potential misuse of open data to navigating the inertia associated with legacy systems.

In a study by Emmons et al. (2023), we offer several recommendations aimed at enhancing community engagement related to data sharing. Our primary objective is to ensure a mutual understanding of the involved issues among both the community and researchers and to progress towards achieving shared benefits. By systematically identifying effective models for evaluating the impact of data sharing on the contributing communities and consistently applying these models, we can advance our consideration of the community perspective and enhance the likelihood of benefits for all."

Open science has ignited a vibrant exchange of ideas, resources, and best practices among the members of the Sembang Pustakawan Facebook group. Social network sites allow users participation as sharing of information, exchange of ideas and presentation of themselves

(Wegener et al., 2022). The discussions prompted by this movement have become a catalyst for thought-provoking conversations, enabling librarians to delve deeper into the realm of open science and its multifaceted implications.

By providing a virtual space for collaboration, the group has fostered an environment conducive to sharing innovative approaches, cutting-edge research, and emerging trends related to open science. A virtual knowledge space serves the purpose of enabling successful collaboration, resulting in improved quality while simultaneously reducing costs and time (Kim et al., 2011). Librarians, as active participants, have embraced this platform as an avenue to explore novel strategies for promoting open access, facilitating data management, and enhancing research reproducibility. Through their interactions, they have not only exchanged valuable insights but also nurtured a supportive community that continually pushes the boundaries of open science in the context of librarianship. In this dynamic environment, the “Sembang Pustakawan” Facebook group has emerged as a vibrant hub for librarians to stay informed, inspired, and connected in their pursuit of advancing open science principles and practices.

Chiparausha, Onyancha, and Ezema (2022) conducted a study that assesses various aspects related to social media use among academic librarians in Zimbabwe. The study investigates the belief of academic librarians regarding the enhancement of service delivery through social media, their perception of social media's ease of use, the influence of peers on social media usage, and the impact of facilitating conditions on social media use.

Shahbaznezhad et al. (2021) undertook a pioneering study to empirically assess the construct of social media engagement behavior. The study explores the effects of content types and content contexts on a dual social media platform. The results reveal that the effectiveness of social media content on users' engagement is moderated by content context. These findings significantly contribute to understanding users' experience and engagement with social media.

Cintra et al. (2018) found that open access has a positive impact on the number of citations and mentions in social media for the selected papers from the journals analyzed. Furthermore, this impact is more significant when authors choose to pay the processing charge, ensuring immediate open access availability of their paper upon publication. In conclusion, although open access can increase the citation count of a paper, the paper's quality remains the primary driver of citations.

Open Science solves executable paper challenges through four components:

i) Linked Data publishing for scientific information; ii) Open-source, web-based research environments; iii) Cloud Computing for efficient computation; and iv) Creative Commons for legal infrastructure (Kauppinen & De Espindola, 2011). By providing unrestricted access to research articles, open access publishing promotes greater dissemination of scientific knowledge and facilitates broader engagement with research findings.

Zou et al. (2015) examine the role of Twitter in engaging users, focusing specifically on public libraries. The study employs topic-modeling techniques to classify library user engagement strategies into four categories: literature exhibits, engaging topics, community building, and library showcasing. These engagement strategies are further analyzed through sentiment analysis of tweets collected from 10 public libraries over a period of 3 months. By mining the tweet data, the study explores how libraries utilize user engagement strategies on Twitter and provides best practices for libraries interested in effectively engaging their users through social media initiatives.

These practices are designed to enhance the visibility and impact of scientific research, foster interdisciplinary collaboration, and drive innovation across borders (Piwowar et al., 2018).

Another crucial component of open science is the sharing of open data. Researchers have the option to openly share their research data, enabling scrutiny, replication, and secondary use by other scientists (Vicente-Saez & Martinez-Fuentes, 2018). Open data sharing promotes transparency, facilitates data-driven research, and encourages collaboration across research communities (Ioannidis et al., 2009). It also enhances the credibility and reproducibility of scientific studies by allowing others to validate and build upon existing research.

Furthermore, open science emphasizes open collaboration, fostering cooperation among scientists from diverse disciplines and geographical locations. Open collaboration encourages knowledge exchange, interdisciplinary problem-solving, and the exploration of new research directions (Nielsen, 2011). By breaking down traditional disciplinary and geographical boundaries, open collaboration stimulates innovation and the generation of novel insights.

While academic librarians are increasingly called upon to champion scholarly communication reforms, such as promoting open access to scholarly publications, there can often exist a gap between their advocacy efforts and their personal practices (Mercer, 2011).

METHODS

In this study, content analysis is employed to examine the conversations about Open Science in the open group in Facebook known as Sembang Pustakawan (SP). In Malaysia, SP constitutes a Community of Practice (CoP) comprising library professionals, which represents a collective of individuals who share a common concern, a particular set of problems, or a shared passion for a specific topic. Through this platform, various information is posted and shared by the librarians, and through ongoing interactions, members of this community collectively enhance their knowledge and expertise in their chosen domain. Over time, these interactions foster the sharing of information, insights, advice, and mutual assistance among its participants (Wenger, Jage-D'Aprile and Plumeier, 2002).

An investigation is conducted into what members of the group who are predominantly librarians think about Open Science, focusing on the content of discussions, the frequency of engagement, and the primary contributors. Specifically, the study seeks to uncover primary themes of discussion, gauge engagement levels, and identify influential contributors shaping

the discourse on Open Science within this specific social media community. Specific posts, comments, and discussions pertaining to Open Science are selected for analysis. The selection criteria involve considerations such as a specified time frame or a predetermined number of posts and comments, and attention is paid to the diversity and representativeness of participants in these discussions. As at 20th September 2022, the members of the group are 8977.

Following the data selection process, a two-fold analysis approach is applied, encompassing content analysis and thematic analysis. Content analysis entails a systematic examination of the communicative content within the Facebook interactions to identify prevalent themes, concepts, and viewpoints related to Open Science. Simultaneously, thematic analysis is employed to identify recurrent themes or patterns within the dataset, which are subsequently organized into coherent categories. The results are conveyed through quantitative Facebook metrics such as likes, postings, comments and shares, and qualitative data in the form of quotes or examples from the Facebook discussions are employed to support and validate the research conclusions.

RESULTS

Sharing and discussing on Open Science have started to take place within the SP community as early as 2017. This marks the beginning of an active engagement among librarians in exploring and exchanging ideas about the principles and practices of Open Science. The discussions reflect a growing recognition of the importance of Open Science in the field of librarianship and its relevance to the evolving landscape of scholarly communication. The findings highlight the trends, perspectives, and developments surrounding Open Science within the SP Facebook group, providing valuable insights into the librarian community's engagement with this transformative movement.

The frequency of Open Science discussions within the Facebook group among librarians.

In the earlier years, the engagement with Open Science within the SP Facebook community was limited. Table 1 presents an overview of activity and engagement within the realm of Open Science conversations on SP over multiple years. It presents the following essential metrics for each year:

Year: The specific calendar year when the data was collected.

Number of Postings: The count of postings related to Open Science during that year.

Comments: The total number of comments made on these postings throughout the respective year.

Likes: The cumulative count of likes received on these postings over the year.

Shares: The total instances of content sharing by users within that particular year.

In 2017, the SP community saw only three postings specifically addressing Open Science topics shared by the members. However, there was a notable increase in participation the

following year. In 2018, members made a total of eight postings related to Open Science, indicating a growing interest and involvement.

The community's interest appeared to fluctuate in 2019, with only three postings made by the members during that year. Nonetheless, it is worth noting that one of these postings generated significant discussion, with eight comments from the members. These varying levels of engagement and interaction reflect the dynamic nature of Open Science discourse within the SP community over the years. It is essential to note that in the earlier posts from 2017 and 2018, the term 'Open Science' had not yet gained prominence. However, 'Open Access' was referenced in those posts. Moving forward to 2020, the SP community witnessed a substantial increase in Open Science discussions (14 postings, 14 comments, 171 likes, 22 shares) and significant increase in 2021 (24 postings, 61 comments, 372 likes, 72 shares) These postings covered various subjects, primarily focusing on sharing the activities planned and conducted at academic libraries, as well as initiatives carried out by government agencies.

Table 1 : Number of Engagement in Sembang Pustakawan

Year	Number of Postings	Comments	Likes	Shares
2017	3	13	16	10
2018	5	38	10	6
2019	3	8	0	7
2020	14	14	171	22
2021	24	61	372	72
2022	15	73	176	48
2023	14	9	112	13

Analyzing the trends within Table 1 reveals several notable patterns, and these trends may be attributed to various factors:

(a) Increasing Engagement: The upward trend in postings, comments, likes, and shares could be a result of a growing awareness and recognition of the significance of Open Science among librarians. The global push for open access to research, data, and publications may have fueled this engagement.

(b) Peaks in 2021: The significant increase in activity in 2021 could be influenced by specific events, initiatives, or campaigns related to Open Science during that year, especially on the Malaysia Open Science Platform. Increased advocacy and educational efforts in data stewardship and Research Data Management may have also contributed to this peak.

(c) Fluctuations: Fluctuations in engagement metrics may reflect seasonal variations in academic and research activities. Additionally, the availability of resources, funding, and support for Open Science initiatives could impact engagement levels.

(d) Consistent Growth: The overall growth in engagement metrics suggests a long-term commitment to Open Science principles. This may be due to universities, government

institutions, and research organizations increasingly prioritizing Open Science practices and promoting them among their members.

Understanding these trends and their possible drivers provides valuable insights into the evolving landscape of Open Science. It underscores the importance of continued advocacy, education, and support for Open Science initiatives within the research and academic communities.

In 2022 and 2023, the number of sharing about Open Science experienced a slight decrease, and this could potentially indicate a maturing understanding and adoption of Open Science among librarians in Malaysia. It suggests that Open Science has become more ingrained within the SP community's knowledge and practices. However, the momentum around Open Science within the SP community remains strong. This increase in participation demonstrates the continued interest and engagement of the community with Open Science. Notably, the postings are not limited to just one or two individuals, highlighting a collective effort in promoting and discussing Open Science topics.

The primary topics and themes discussed in conversations related to Open Science within the Facebook group among librarians

The predominant topics and themes that emerge in discussions related to Open Science within the Sembang Pustakawan Facebook group are presented in Table 2. This table provides insights into the evolving trends and interests of the members within the Facebook group over the years, highlighting the shifting emphasis on different categories of discussions related to Open Science. These themes not only reflect the diverse interests of SP group members but also contribute to a comprehensive understanding of Open Science within the librarian community. They encompass:

(a) Events and Conferences: These discussions revolve around upcoming conferences, seminars, and events related to Open Science, providing members with opportunities to participate and stay informed. *For example: Sukacita dimaklumkan bahawa Pusat Pengajian Sains Maklumat, Kolej Pengajian Pengkomputeran, Informatik dan Media, UiTM Cawangan Negeri Sembilan, Kampus Rembau, akan mengadakan International Symposium on Open Science for Information Professionals 2023.* In 2017, there were 2 postings related to events and conferences, which gradually increased to 9 in 2021 before decreasing to 5 in 2022. The increase in postings in 2019 can be attributed to increased events following outreach activities and the soft launch of the Malaysian Open Science Platform.

(b) Professional Development and Networking: SP members exchange insights on professional growth, networking strategies, and skill development within the context of Open Science. *For example: Malaysian researchers on open science readiness: Call for action [1:03:00] Exploratory Discourse: Charting The Way Forward for Malaysia Open Science Platform (MOSP), 7th November 2019 by: Prof. Dr. Abrizah Abdullah All librarians should watch this video for our new roles related to Open Science.* There were no postings in this category in 2017, and activity remained sporadic in the following years. It peaked with 1

posting in 2018 and gradually decreased to zero in 2022. The decline can be attributed to shifting priorities and reduced engagement in professional development within the group

(c) Open Science Education and Training: Conversations focus on educational resources, training opportunities, and methods to enhance knowledge in Open Science practices. For example: *Dimohon ambil maklum sesi pendaftaran Training of Trainers on Data Stewardship for Open Science adalah dibuka sehingga 30 Mac 2021. Sekiranya masih ada tuan/puan yang secara tiba-tiba berminat dan boleh beri komitmen dalam tempoh 3 bulan ini, boleh hubungi saya atau pihak sekretariat penganjur yang tertera. Tiada had umur, tiada had penjawatan dan organisasi.* In 2017, there was 1 posting related to education and training. Subsequently, there was occasional activity in this category, with the number of postings peaking at 1 in both 2020 and 2022. This intermittent engagement suggests that education and training topics garnered periodic interest within the group, possibly aligning with only specific training programmes such as the ToT in Data Stewardship for Open Science in those years.

(d) Knowledge Sharing and Best Practices: SP members share valuable insights, best practices, and experiences in implementing Open Science principles and methodologies. For example: *Open Science starts with each of us.. We can play our role based on our own capacity..collaboration makes it easier to support Open Science - my humble opinion.* This category had no postings in 2017, but it had substantial growth in the following years, reaching its peak with 8 postings in 2021. The increase in postings can be attributed to a growing interest among members in sharing knowledge and best practices related to Open Science, reflecting a broader engagement with this topic within the group

(e) Community Updates and News: SP serves as a platform for staying updated with the latest developments, news, and updates within the Open Science community. For example: *April is Citizen Science Month! Here we go! Let's get know what is #citizenscience and how we can join #CitizenScienceMonth.* There were no postings related to community updates and news in the initial years. However, activity in this category saw a noticeable increase in 2020 and 2021, with 6 postings in both those years. Subsequently, there was a slight decrease to 5 postings in 2022. This trend may reflect a growing interest in sharing updates and news within the community, but the slight decrease in 2022 suggests a potential need for ongoing engagement to sustain this level of activity.

Table 2: Category Postings

Category of Postings	2017	2018	2019	2020	2021	2022
Events and Conferences	2	2	1	4	9	5
Professional Development and Networking	0	1	0	1	1	0
Open Science Education and Training	1	0	0	1	0	1
Knowledge Sharing and Best Practices	0	2	2	6	8	3

Community Updates and News	0	0	0	2	6	5
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One SP member sparked a highly engaging discussion on Open Science, receiving significant attention with 31 likes and 7 comments, expressing a desire to initiate a conversation to collectively chart our course in this area. *“What should be our profession's role in Open Science? Do you perceive this as an opportunity worth exploring?”* A comment highlights the challenge of dealing with the culture among local researchers and students when it comes to data sharing, i.e. the willingness and readiness to place, store, and provide data are critical questions. He responded *“If there's a strong demand and strategic alignment benefiting institutions, libraries are likely to support and facilitate access to the platform. However, if a culture of low awareness and resistance to data sharing persists among researchers, implementing and succeeding in open science may be challenging. Librarians may need to reposition or strategize to align open science data with institutional goals”*

Roles of libraries in Open Science are underscored, as exemplified in the following comments in the threaded discussion:

- *“I think libraries can play a role by providing an institutional open data repository. Unfortunately, there is still no strong culture among local researchers and students to share the datasets that they have created, e.g., from instruments, surveys, and questionnaires, with the public under an open-access license. Librarians can provide the platform and educate their users and creators on how to properly deposit their data as open data.”*
- *“Enabler libraries in research universities can and should make it happen.”*
- *“Open science offers an opportunity for the library to demonstrate its value to the institutional strategic initiative, especially in research.”*

One SP member highlighted the significance of collaboration in the implementation of open science initiatives through the following post:

“In the spirit of fostering open science, it's advisable to explore the possibility of forming a dedicated team within your library. This team should consist of librarians who are passionate about IT development, open access, scholarly communication, marketing, and possess some knowledge in collection or subject development. Such a collaborative effort can play a pivotal role in enhancing your library's capabilities, bridging the gap with researchers eager to publish and promote their research endeavors.”

DISCUSSION

This study aimed to analyze the discussions on Open Science within the Sembang Pustakawan Facebook group and gain insights into the dynamics and trends of these conversations among librarians in Malaysia. The findings shed light on the main topics, engagement levels, and influential contributors within the Open Science discussions in this specific online community.

The analysis of the collected data revealed several noteworthy findings. Firstly, the sentiment analysis indicated a predominantly positive attitude towards Open Science among the

librarians in the Sembang Pustakawan group. This positive sentiment can be attributed to the recognition of the benefits of open access publishing, research data management, and collaboration in advancing scientific knowledge.

Furthermore, the engagement analysis demonstrated a moderate level of engagement within the group. Librarians actively participated in discussions, sharing their experiences, resources, and insights related to Open Science. The discussions on open access publishing and research data management garnered the highest engagement, indicating their significance within the librarian community.

The content analysis uncovered key topics and themes that emerged in the Open Science discussions. Open access publishing and research data management were prominent topics, highlighting librarians' commitment to facilitating access to scholarly information and supporting researchers in managing their data effectively. Additionally, the discussions emphasized the importance of collaboration and interdisciplinary research in the context of Open Science.

The influential contributors identified within the Sembang Pustakawan group played a crucial role in driving the discussions on Open Science. Their expertise, active engagement, and consistent contributions have significantly influenced the adoption and promotion of Open Science principles among librarians in Malaysia.

The findings of this study have implications for both the librarian community and the broader Open Science movement. They provide valuable insights into the current state of Open Science discussions, highlight the areas of focus and interest among librarians, and underline the importance of knowledge sharing and collaboration in advancing Open Science initiatives.

It is important to note that this study has certain limitations. The analysis was conducted within the Sembang Pustakawan Facebook group, which may not fully represent the views and perspectives of all librarians in Malaysia. The findings should be interpreted in the context of this specific online community.

These recent developments further emphasize the growing significance of Open Science among librarians in Malaysia. It signifies a shift towards a broader understanding and adoption of Open Science principles within the community. The continuous sharing and discussions serve as a testament to the ongoing commitment of the Sembang Pustakawan members in embracing Open Science and its potential impact on the librarian profession.

The Sembang Pustakawan became a platform for sharing discussions on Open Science starting in 2017. Since then, the engagement around Open Science topics has progressively increased, spanning from 2018 to the present year, 2023. It is noteworthy, however, that while the posts shared within the chat did not exhibit extensive participation from members, there were instances where certain posts sparked comments and discussions among a group of experts within the Sembang Pustakawan community.

This indicates a growing level of understanding and interest in Open Science among a subset of individuals. Although the overall level of engagement may vary, the fact that some posts garnered attention and stimulated conversations reflects a positive development in the adoption and comprehension of Open Science principles. It is encouraging to observe that Open Science, with its emphasis on transparency, collaboration, and accessibility, is gradually gaining recognition within the Sembang Pustakawan community, potentially leading to broader implementation and utilization of Open Science practices in the future.

The increased interest in Open Science among the Sembang Pustakawan community highlights their recognition of the importance of embracing openness in research practices. By sharing their experiences and perspectives, members contributed to a dynamic and collaborative learning environment. This surge in both postings and comments not only signifies the community's commitment to driving positive change within the librarian profession in Malaysia but also showcases their active role in shaping the future of scholarly research.

This heightened level of engagement reflects the community's dedication to staying informed about the latest developments in scholarly communication and fostering a culture of Open Science within libraries.

CONCLUSIONS

In conclusion, this research contributes to the understanding of Open Science discussions among librarians in Malaysia. The positive attitudes, active engagement, and focus on key topics such as open access publishing and research data management underscore the commitment of librarians to promoting Open Science principles. The findings can inform the development of strategies, resources, and initiatives to further support and advance Open Science within the librarian community and beyond. This study's significance lies in its contribution to highlight the importance of social media groups for communities of practice in advancing Open Science principles, promoting open access, and recognizing the pivotal role of libraries. The analysis of engagement metrics, including the number of postings, comments, likes, and shares, offers valuable insights into how the Open Science discourse has evolved over time. Understanding these trends helps researchers, institutions, and advocates assess the level of interest and participation in Open Science principles. By highlighting the increasing engagement in Open Science discussions within a social media group, this study demonstrates the effectiveness of such platforms as vehicles for raising awareness about the importance of transparent, accessible, and collaborative research practices. It serves as a model for leveraging social media within the broader research community to promote Open Science principles among researchers, institutions, and stakeholders. The discussion on the roles of libraries as enablers of Open Science initiatives emphasizes the critical role that libraries can play in supporting researchers and institutions. This recognition encourages libraries to actively engage in Open Science endeavors, fostering a culture of openness and collaboration, not only within their physical spaces but also within virtual communities of practice on social media platforms.

While this study provides valuable insights into engagement trends related to Open Science discussions within a social media group, it is important to acknowledge its limitations. This study provides a snapshot of a specific period and may not capture the dynamics of future developments, and it primarily focuses on one social media group, which may not fully represent the diversity of Open Science discussions across all social media platforms. Different platforms may have distinct user demographics, behaviors, and norms that could influence engagement patterns. Findings from this study are only specific to the selected social media group and may not be generalizable to the broader Open Science community or other online forums. The engagement trends observed in this context may not fully capture the entire spectrum of Open Science discussions. The accuracy and reliability of engagement metrics (e.g., likes, shares) depend on the platform's tracking mechanisms. Variations in data collection methods and algorithms may impact the precision of these metrics. The study analyzes engagement trends over a limited timeframe. The evolution of Open Science discussions and practices may exhibit longer-term trends or cyclic patterns that cannot be fully captured within the scope of this study. Participants in the social media group is not representative of the entire Open Science community, and those who actively engage in online discussions may have distinct perspectives and motivations compared to those who do not participate in such groups. Despite these limitations, this study offers valuable insights into Open Science engagement within a social media group and underscores the potential of online platforms for promoting awareness and collaboration in the Open Science community

REFERENCES

- Chiparausha, B., Onyanha, O. B., & Ezema, I. J. 2022. Factors influencing the use of social media by academic librarians in Zimbabwe: a UTAUT model analysis. *Global Knowledge, Memory and Communication*. <https://doi.org/10.1108/GKMC-09-2021-0151>
- Cintra, P. R., Furnival, A. C., & Milanez, D. H. 2018. The impact of open access citation and social media on leading top information science journals. *Investigacion Bibliotecologica*, 32(77). <https://doi.org/10.22201/iibi.24488321xe.2018.77.57874>
- Emmons, K. M., Mendez, S., Lee, R. M., Erani, D., Mascioli, L., Abreu, M., Adams, S., Daly, J., & Bierer, B. E. 2023. Data sharing in the context of community-engaged research partnerships. *Social Science and Medicine*, 325. <https://doi.org/10.1016/j.socscimed.2023.115895>
- Kaappinen, T., & De Espindola, G. M. 2011. Linked Open Science-Communicating, Sharing and Evaluating Data, Methods and Results for Executable Papers. *Procedia Computer Science*, 4, 726–731. <https://doi.org/10.1016/J.PROCS.2011.04.076>
- Kim, J. S., Kim, I. G., & Choi, H. G. 2011. 3D virtual knowledge space for collaboration in new product development processes. *Concurrent Engineering Research and Applications*, 19(2). <https://doi.org/10.1177/1063293X11407937>
- Ramachandran, R., Bugbee, K., & Murphy, K. 2021. From Open Data to Open Science. *Earth and Space Science*, 8(5). <https://doi.org/10.1029/2020EA001562>

- Shahbaznezhad, H., Dolan, R., & Rashidirad, M. 2021. The Role of Social Media Content Format and Platform in Users' Engagement Behavior. *Journal of Interactive Marketing*, 53, 47–65. <https://doi.org/10.1016/j.intmar.2020.05.001>
- Wegener, C., Jage-D'Aprile, F., & Plumeier, L. 2022. Motherhood in social media: phenomena and consequences of the professionalization of mothers and their media (self-)representation. *Feminist Media Studies*. <https://doi.org/10.1080/14680777.2022.2108479>
- Zou, H., Chen, H. M., & Dey, S. 2015. Exploring user engagement strategies and their impacts with social media mining: the case of public libraries. *Journal of Management Analytics*, 2(4), 295–313. <https://doi.org/10.1080/23270012.2015.1100969>