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Six Elements in Promoting Open Science: Malaysian Academicians' Research Practices in Information Science

Wahidah Mohd Zain[1*], Paula Lackie [2], Zahril Shahida Ahmad[1], Norkamarizal Kamarudin[3], Siti Khairiyah Nordin[1],
**Corresponding Author*

[1] Information Science Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA Negeri Sembilan Branch, Rembau Campus, Malaysia.
[2] Information Technology Services, Carleton College, Northfield, MN, USA.
[3] Perpustakaan Jeneral Tun Ibrahim, Universiti Pertahanan Nasional Malaysia, Kuala Lumpur, Malaysia.

wahidahmohdzain@uitm.edu.my , plackie@carleton.edu , zahrilshahida@uitm.edu.my , norkamarizal@upnm.edu.my , khairiyah493@uitm.edu.my
Tel: 012-9160476

Abstract
The Malaysia Open Science Platform (MOSP) has been a challenging path for open science due to the ongoing planning and construction of the crucial organizational enablers. This study aims to understand the pre-MOSP research practices by exploring data management, identifying any existing Open Science Practices (OSPs), and assessing attitudes toward open science in information science. In-depth interviews with five researchers discovered six elements for promoting open science, namely 1) incentivization and recognition, 2) policy framework, 3) education, awareness, and Research Data Management (RDM) services, 4) collaboration and interdisciplinary platforms, 5) open access repositories, and 6) technological infrastructure.

Keywords: Open Science; Research Data Management; Attitude; Academician

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1.0 Introduction

The Malaysia Open Science Platform (MOSP), initiated by the Ministry of Science, Technology, and Innovation (MOSTI) in November 2019, was officially launched in May 2023 with the theme "Democratizing Science to Foster Public Trust Toward an Impactful Collaboration" (Academy of Sciences Malaysia, 2021). This initiative encourages Malaysian researchers to adopt an open and collaborative research culture. However, challenges persist, including the need for effective change management, stakeholder engagement, and strategic planning (Kim et al., 2023). Despite growing global and domestic open science movements, research on open science awareness among Malaysian scholars is limited (Hodonu-Wusu et al., 2020; Krishnan et al., 2022). Studies reveal that while Malaysian public universities are generally aware of open science, engagement remains limited, with only 10% to 30% of institutional repositories being globally accessible and terms like 'data' and 'reuse' often remaining unclear (Mahfooz & Roslina, 2021).

1.1 Study Background

1.1.1 Global Open Science Movements

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The global open science movement emphasizes transparency throughout research stages, promoting the sharing of research protocols, methods, data, and outcomes. This approach enhances scientific collaboration and outcomes by fostering better networking among researchers. Key practices include pre-registration, which involves publicly sharing research designs and plans; shared open data and codes, making research inputs and outputs accessible; and open access, disseminating research through freely available platforms (Hong & Moran, 2019). These practices are summarized into six principles: open access, open methods, open peer reviews, open sources, open resources, and open data. They aim to boost transparency, reproducibility, and collaboration (Gallagher et al., 2020; Pardo Martínez & Poveda, 2018; Patton & Patton, 2002; Smith & Seward, 2017). However, challenges persist in data sharing and Research Data Management (RDM), with issues noted in South Korean institutes (Kim et al., 2023). In developing countries like Zimbabwe, RDM is often limited by traditional methods and concerns over data misuse (Chigwada, 2022; Tenney et al., 2021; Thelwall et al., 2023).

1.1.2 Malaysian Open Science Movements

The World Bank Group (2017) highlighted gaps in administrative support for open data ecosystems. An ASM report (Academy of Sciences Malaysia, 2021) stressed the need for ministerial and agency commitments to open data systems. Malaysia has progressed in open data governance but needs stronger national leadership to improve implementation and impact (World Bank Group, 2017). In Malaysia, researchers partially engage in open science by publishing in institutional repositories (Ahmed & Othman, 2021). However, concerns about data privacy, misuse, and publication risks deter data sharing (Hodonu-Wusu et al., 2020). Thus, policies that offer incentives and support are needed to encourage positive data-sharing practices.

This study aims to explore researchers' data management practices and identify existing Open Science Practices (OSPs) prior to the implementation of the Malaysia Open Science Platform (MOSP). It also seeks to assess researchers' attitudes toward open science and uncover key enablers that can support its adoption within the field of information science.

2.0 Literature Review

Existing studies underscore the importance of open science awareness (Gownaris et al., 2022; Heck et al., 2020; Hodonu-Wusu et al., 2020). While the six open science principles provide a framework for effective practices, various factors influencing open science adoption also warrant examination. This includes open access, open methods, open peer reviews, open sources, open resources, and open data (Gallagher et al., 2020; Pardo Martínez & Poveda, 2018; Patton & Patton, 2002; Smith & Seward, 2017). Moreover, Gownaris et al. (2022) explored barriers to open science by surveying 32 Early Career Researchers (ECRs) from 14 countries, including Malaysia and other Southeast Asian nations. They mapped barriers across the open science life cycle: pre-registration, study design, data collection, publication, and outreach. The study discovered that ECRs were more familiar with open publication (75.00%) and open software (68.75%), while pre-registration (18.75%) and open hardware (15.63%) faced higher ambiguity. This fragmentation and low awareness during research design and tracking stages led Gownaris et al. (2022) to recommend targeted regulations, such as graduate-level training and promotion incentives, to improve ECRs' engagement with open science.

2.1 Relevant Studies on Current Researchers' Open Data Practices

Thelwall et al. (2023) investigated data generation, sharing, and reutilization across disciplines, highlighting inconsistencies in data-sharing processes and the increasing use of institutional and journal-supported repositories. Despite this, personal websites remain popular among researchers. Scholars with prior data reutilization experience are more likely to share data publicly. Proper documentation, openness, and information on data usability are crucial for effective data reutilization. Hodonu-Wusu et al. (2020) examined Open Science Practices (OSPs) at five Malaysian research universities, revealing that over a third (39.3%) of academicians did not engage in data-sharing practices. Approximately 16% of researchers frequently performed OSPs, while 45% did so occasionally or rarely. Key barriers included concerns about data ownership, the risk of losing publication opportunities (73.4%), and legal and ethical issues related to data abuse and privacy (85.2%). Open research data was notably more practiced among ECRs.

Steinhardt et al. (2023) reported that researchers faced challenges with data-sharing, including issues with data anonymization, licensing rights, and long-term archiving. The study, which included 13 interviews with researchers from the Weizenbaum Institute in Germany, highlighted concerns about data quality, production costs, and vulnerabilities. Additional issues included data protection, uncertainties, and knowledge gaps, as well as reluctance to share data through social media due to legal concerns. Similarly, Ikeuchi et al. (2022) identified eight barriers to open data through a web-based survey, ranking them as follows: inappropriate citations, losing priority, responsibility for reutilization, plagiarism, ownership issues, sensitive information concerns, commercial usage, and potential data errors.

2.2 Researchers' Attitudes Toward Open Science and Open Data

Previous studies (Abele-Brehm et al., 2019; Hodonu-Wusu et al., 2020; Strauss, 1987; Yusoff, 2001) highlighted the long-term benefits of open science while addressing obstacles in understanding scholars' attitudes toward open data. Hodonu-Wusu et al. (2020) highlighted that Malaysian researchers generally supported open data, recognizing its benefits for global scientific advancement despite significant barriers. These included difficulties in developing nations (51.9%), large data volumes (50.4%), insufficient technical standards (44.4%), and concerns about disclosing sensitive or copyrighted information (41.5%). In addition, Skelly and Chiware (2022) compared African researchers' attitudes toward data sharing with non-African counterparts using a three-layered framework: attitudes toward data sharing, employing shared data, and the broader sharing ecosystem. Most respondents valued shared data for its

contribution to research credibility yet reported issues with receiving credit for shared data. They noted that data quality was influenced by the data source's reputation, associated peer-reviewed articles, and available visualizations.

Turcan et al. (2022) studied the Moldovan research community, highlighting that most respondents (64.8%) saw improved citation opportunities (63.53%) from increased exposure and accessibility of research. They valued knowledge dissemination, implementation of past research findings, and adherence to open science principles. However, some researchers (below 40%) felt that science should not be publicly accessible, citing a need for more education before implementing OSPs. Abele-Brehm et al. (2019) assessed attitudes among members of the German Psychological Society, finding generally optimistic views on open science and data sharing. Accordingly, young researchers proved more interest in open science benefits, while professors took a more cautious approach, weighing the costs and benefits of data sharing.

2.3 Researchers' Awareness and Access to Open Science Infrastructure

Open access, defined as publicly available resources, is a key component of open science principles and promotes the use of existing repository systems. Adequate open science infrastructure is crucial for effective data-sharing practices. Current challenges include low awareness, unclear terminology, and concerns about research integrity, which complicate investment in technologies that support open science principles. Researchers need secure environments to adopt OSPs, and infrastructure investment may be wasted if adoption rates remain low. Furthermore, previous research (Ahmed & Othman, 2021a; Creswell & Creswell, 2007; Hassan & Chindamo, 2017; Jasmi, 2010) indicated that awareness of open-access resources among researchers in higher education remains inadequate. In Malaysia, academic repositories are often used only for internal purposes, with 10% to 30% of resources publicly available and primarily utilized for article deposition (Ahmed & Othman, 2021b). The limited adoption of OSPs and terminology reflects the nascent state of data repositories in Malaysia, contributing to low overall adoption rates among researchers.

3.0 Methodology

This study was conducted from December 2022 to March 2023, involving five UiTM researchers in information science (the five researchers are represented by R1, R2, R3, R4, and R5 in the findings section) who consented to Zoom-based interviews. Screen recording was utilized to visualize references and file names, aid transcription, ensure safety during the COVID-19 pandemic, and streamline the process compared to physical setups. Before data collection, ethical approval was obtained from the UiTM ethical board (REC/11/2022 (ST/MR/241)). Researchers were selected through snowball sampling, focusing on those with experience in open repositories or journals. Semi-structured interviews explored 1) data and information management styles, 2) overlaps with OSPs, and 3) attitudes toward OSPs. Interviews, transcribed and translated into English, were anonymized with numbers and analyzed for emerging themes.

4.0 Findings

4.1 Researchers' Information Management Strategies

4.1.1 Data Management Tools

Researchers predominantly use Google Drive for managing and collaborating on documents, both for individual and shared work:

"The team and I agreed to use a single Google Drive." (R2)

Google Drive is also used for personal storage:

"I use Google Drive entirely for personal storage." (R4)

WhatsApp is employed for communication and file transfer:

"We transferred and saved the file via a WhatsApp group." (R5)

When storage limits on Google Drive are reached, older folders are transferred to external hard drives:

"I recently cleaned my Google Drive and moved older folders to an external drive." (R4)

4.1.2 Reference Management

Reference management varies among researchers. Some use traditional manual methods:

"I use a traditional method for literature. I read, catalog, and create tables and lists manually." (R4)

Others use tools like Mendeley or EndNote:

"Yes, I use EndNote for its convenience." (R5)

High volumes of literature sometimes lead to the creation of literature maps without proprietary software:

"We handle hundreds of thousands of literature reviews manually." (R2)

4.1.3 Filing System

Both manual and digital filing systems are used. Data is organized by folder or project name:

"Yes, I use physical folders and have a softcopy version." (R1)

Folders are labeled by semester or project status:

"I create new folders each semester, naming them by project accomplishments like 'Settled' for published articles." (R5)

Digital tools are used for project management and grant applications:
"For each research project, there are multiple subfolders. Grant-related documents are kept together, and published papers have separate folders." (R4)

4.1.4 Data Analysis Tools

Researchers use various data analysis tools, including Trint, SPSS, SEM-PLS, Nvivo, and ATLAS.ti:
"I use Trint for transcription and VOSviewer for bibliometric analysis." (R2)
"We use SPSS and Smart PLS for data analysis." (R5)
"I utilize SEM-AMOS, NVivo, and ATLAS.ti." (R1)

Challenges in managing large datasets are noted, with some analyzing only subsets using R programming:
"We analyzed data from two years due to volume, using R programming for spatial analysis." (R1)

4.1.5 Data Collection

Quantitative data collection typically uses Google Forms:
"We use Google Forms for collecting data." (R5)

Respondents are generally positive about sharing screens for file management.

4.2 Application of Open Science Practices (OSPs) in the Research Process

4.2.1 Data Sharing

Data sharing is perceived as beneficial, with Gmail, WhatsApp, and Google Drive used for collaboration:
"We share Google Drive links during meetings and use research-specific Gmail for validation." (R2)
"Files are often shared through WhatsApp groups." (R1)

Online platforms are also used:
"ResearchGate is used for uploading articles with controlled access." (R5)
"Figshare allows broad accessibility." (R5)

4.2.2 File Management

One respondent highlighted the importance of file labeling but lacked a standardized system:
"I label files with interviewee's name, date, and department for easy retrieval." (R3)

4.2.3 Data Documentation

Inadequate data documentation is often due to time constraints and lack of support:
"Data sharing issues arise from limited time and lack of administrative support." (R4)

Concerns about citation and data ownership are also noted:
"Researchers are concerned about proper acknowledgment and data ownership when sharing." (R4)

4.2.4 Policy

Policies affecting data sharing include restrictions on publishing in certain journals:
"High index journal requirements are seen as restrictive." (R4)

Contractual obligations sometimes limit data sharing:
"I had to sign a contract restricting the disclosure of negative data about a rural library." (R4)

Issues with authorship and copyright enforcement are noted:
"Concerns about data ownership and the need for permission before discussing others' data were significant." (R5)

Institutional policies occasionally prohibit data sharing:
"Research data is kept private, except when shared with students for class analysis." (R5)

Publishing requirements sometimes mandate data sharing:
"Publishers require data to verify accuracy and prevent fabrication." (R5)

4.3 Researchers' Attitudes Toward Open Science Practices (OSPs)

4.3.1 Attitudes Toward Data Sharing

Researchers are generally cautious about data sharing unless required by publishers or if the data is non-sensitive:
"I would share data if publishers requested it but prefer not to otherwise." (R2)

Cultural attitudes towards significant results influence sharing practices:
"In our culture, significant results are valued, making researchers less inclined to share." (R2)

Sharing research notes with peers for educational purposes is viewed positively:
"I share notes on reputable databases and journals with peers." (R1)

Concerns about plagiarism and data security impact willingness to share:
"Trust and proper citation are crucial when sharing data. There is a fear of misuse and unauthorized publication." (R3)

4.3.2 Advantages of OSPs

The benefits of open science are recognized:
"Data sharing fosters networking and interdisciplinary collaboration." (R3)
"Open science enhances transparency and knowledge growth." (R5)

4.3.3 Research Data Types and Openness
Openness varies with the type of research data:
"Public, paid, and confidential data require different levels of openness. Confidential data should remain undisclosed." (R1)
Concerns about data loss and integrity are significant barriers:
"Fears of data loss and misuse are substantial barriers to sharing." (R4)
Data from funded research is shared as required, with caution around sensitive data:
"Data from funded research is shared per funder requirements." (R4)

5.0 Discussion

This study explored data management practices (RDM) and attitudes toward OSPs among information science researchers. The findings reveal significant insights into how researchers store, manage, and share data, as well as their attitudes toward OSPs.

5.1 Data Management Practices
Google Drive was predominantly used for both personal and research data storage, indicating its user-friendly nature and accessibility. Researchers frequently utilized Google Drive for collaboration and backup, though practices varied, with some also relying on external hard drives for additional security. However, the use of other platforms like WhatsApp for data transfer points to fragmented data management practices might compromise data integrity. Thus, manual methods for reference management and filing systems also raise concerns about scalability and efficiency.

5.2 The OSPs
Attitudes toward OSPs were mixed. While data sharing was generally supported, it was mostly confined to internal circles. Tools like Gmail and Google Drive were commonly used for sharing; however, they are not ideal for maintaining data integrity and reproducibility. Platforms such as ResearchGate and Figshare were employed to share articles. Nevertheless, inconsistent file labeling and documentation practices hindered effective data management. As such, these findings highlight a need for more structured RDM practices.

5.3 Attitudinal Factors
Varied attitudes towards data sharing and OSPs were observed. Skepticism about data ownership and acknowledgment, rooted in a research culture that values individual achievements, was prevalent. The perceived lack of incentives for data sharing suggests that the research ecosystem needs to evolve to recognize and reward OSPs.

5.4 Policy and Institutional Factors
Institutional policies significantly impacted RDM and OSPs. Policies that restrict data sharing, such as those prohibiting the dissemination of negative results and requirements for private storage of research data, impede open science. These policies raise ethical concerns, particularly when research is publicly funded. The study underscores the need for institutional guidelines and educational programs to promote effective data management and foster a culture of openness and collaboration in research. Therefore, future work should focus on developing these aspects to improve RDM and encourage the adoption of OSPs.

6.0 Recommendations and Conclusion

The findings suggest the need for a structured framework to enhance OSPs as displayed in Figure 1, by addressing six key elements:

Element 1: Incentivization and Recognition
Offer career advancements, financial rewards, and public recognition to motivate researchers towards open-access publishing and data sharing.

Element 2: Policy Framework
Develop clear policies outlining the roles of academic institutions, funding agencies, and researchers. Address ethical considerations, data management, and the use of open-access repositories.

Element 3: Education, Awareness, and RDM Services
Implement educational programs and workshops to improve researchers' skills in data management and ethical practices. Libraries should provide training and support for effective RDM.

Element 4: Collaboration and Interdisciplinary Platforms

Foster interdisciplinary collaboration through platforms facilitating data and methodology sharing across diverse research fields.

Element 5: Open Access Repositories
Enhance the availability and usability of open-access repositories, especially in underrepresented regions, to ensure broad dissemination of research.

Element 6: Technological Infrastructure
Invest in advanced data analytics tools, cloud storage, and secure data-sharing platforms to support seamless and collaborative research efforts.

Fig. 1: The Six Elements in Promoting Researchers' OSPs

This study is limited by its small sample size of five researchers from a single institution, which may not fully represent the broader academic landscape in Malaysia. The findings are also primarily drawn from qualitative interviews, which may introduce subjective bias. Future research should include a larger and more diverse pool of participants across various disciplines and institutions to strengthen generalizability. Additionally, quantitative methods such as surveys could complement qualitative findings. There is also a need to evaluate the effectiveness of proposed enablers through longitudinal studies and pilot interventions to support open science adoption more comprehensively.

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Paper Contribution to Related Field of Study

This study contributes significantly to the field of open science by providing a detailed examination of current researchers' practices and attitudes toward open data within a specific context. The research identifies critical gaps in current practice and understanding by highlighting the fragmented awareness and adoption of open science principles, particularly among ECRs and regions with developing infrastructure. It also underscores the need for targeted educational interventions and policy reforms to enhance engagement with OSPs. Additionally, the study elucidates the barriers researchers face, including concerns about data ownership and ethical considerations, thereby informing the development of more robust and supportive open science frameworks. Accordingly, the insights gained from this research are crucial for advancing the implementation of open science principles, improving data-sharing practices, and fostering a more transparent and collaborative research environment globally.

References

Abele-Brehm, A. E., Gollwitzer, M., Steinberg, U., & Schönbrodt, F. D. (2019). Attitudes Toward Open Science and Public Data Sharing. *Social Psychology, 50(4),* 252–260. https://doi.org/10.1027/1864-9335/a000384

Academy of Sciences Malaysia. (2021). The landscape of Open Science in Malaysia.

Ahmed, M., & Othman, R. (2021a). Promoting Open Science with Institutional Repositories In The Malaysian Comprehensive Public Universities. *Journal of Information Systems and Digital Technologies 3*(2). https://doi.org/10.31436/jisdt.v3i2.209

Ahmed, M., & Othman, R. (2021b). Readiness towards the implementation of Open Science initiatives in the Malaysian Comprehensive Public Universities. *The Journal of Academic Librarianship, 47(5),* 102368. https://doi.org/10.1016/J.ACALIB.2021.102368

Chigwada, J. P. (2022). Management and Maintenance Of Research Data By Researchers in Zimbabwe. *Global Knowledge, Memory and Communication, 71(4/5),* 193–207. https://doi.org/10.1108/GKMC-06-2020-0079

Creswell, J. W., & Creswell, J. W. (2007). *Qualitative Inquiry & Research Design: Choosing Among Five Approaches* (2nd ed.). Sage Publications. http://www.loc.gov/catdir/enhancements/fy0701/2006031956-t.html

Gallagher, R. V., Falster, D. S., Maitner, B. S., Salguero-Gómez, R., Vandvik, V., Pearse, W. D., Schneider, F. D., Kattge, J., Poelen, J. H., Madin, J. S., Ankenbrand, M. J., Penone, C., Feng, X., Adams, V. M., Alroy, J., Andrew, S. C., Balk, M. A., Bland, L. M., Boyle, B. L., … Enquist, B. J. (2020). Open Science Principles For Accelerating Trait-Based Science Across the Tree of Life. *Nature Ecology and Evolution 4(3),* (294–303). https://doi.org/10.1038/s41559-020-1109-6

Gownaris, N. J., Vermeir, K., Bittner, M.-I., Gunawardena, L., Kaur-Ghumaan, S., Lepenies, R., Ntsefong, G. N., & Zakari, I. S. (2022). Barriers to Full Participation in the Open Science Life Cycle among Early Career Researchers. *Data Science Journal, 21.* https://doi.org/10.5334/dsj-2022-002

Hassan, S., & Chindamo, P. (2017). Governance in practice: Effective data governance: From strategy through to implementation. *Governance Directions, 69(4),* 207–210. https://search.informit.org/doi/10.3316/informit.797284650927055

Heck, T., Peters, I., Mazarakis, A., Scherp, A., & Blümel, I. (2020). Open Science Practices in Higher Education: Discussion of Survey Results From Research and Teaching Staff in Germany. *Education for Information 36(3),* https://doi.org/10.3233/EFI-190272

Hodonu-Wusu, J. O., Noorhidawati, A., & Abrizah, A. (2020). Malaysian Researchers on Open Data: The First National Survey on Awareness, *Practices and Attitudes. Malaysian Journal of Library and Information Science, 25(2),* 1–20. https://doi.org/10.22452/mjlis.vol25no2.1.

Hong, M., & Moran, A. (2019). An introduction to Open Science. How To Incorporate Best Practices into Your Research. *Psychological Science Agenda*. https://www.apa.org/science/about/psa/2019/02/open-science

Ikeuchi, U., Omori, Y., & Hayashi, K. (2022). State of Open Research Data in Japan: Behaviour towards Data Stewardship. 17th International Digital Curation Conference (IDCC2022). https://doi.org/10.5281/zenodo.6592094

Jasmi, K. A. (2010*). Guru Cemerlang Pendidikan Islam Sekolah Menengah Di Malaysia: Satu Kajian Kes*. Universiti Kebangsaan Malaysia.

Kim, J., Hwang, H., Jung, Y., Cho, S.-N., & Seo, T.-S. (2023). Data sharing attitudes and practices of researchers in Korean Government Research Institutes: A Survey-Based Descriptive Study. *Science Editing, 10(1),* 71–77. https://doi.org/10.6087/kcse.299

Krishnan, U., Rahim, N. A., Mohamed, Z. Bin, & Salim, F. B. (2022). Strategic Framework Towards Open Science Adoption in Malaysia. *2022 IEEE Technology and Engineering Management Society Conference - Asia Pacific, TEMSCON-ASPAC 2022,* 36–40. https://doi.org/10.1109/TEMSCON-ASPAC52831.2022.9916546

Pardo Martínez, C., & Poveda, A. (2018). Knowledge and Perceptions of Open Science among Researchers—A Case Study for Colombia. *Information, 9(11),* 292. https://doi.org/10.3390/info9110292

Patton, M. Q., & Patton, M. Q. (2002). *Qualitative Research and Evaluation Methods*. Sage Publications.

Skelly, L., & Chiware, E. R. T. (2022). African researchers do not think differently about Open Data. *Frontiers in Research Metrics and Analytics, 7.* https://doi.org/10.3389/frma.2022.950212

Smith, M. L., & Seward, R. (2017). Openness as Social Praxis. *First Monday, 22(4).* https://doi.org/10.5210/fm.v22i4.7073

Steinhardt, I., Bauer, M., Wünsche, H., & Schimmler, S. (2023). The connection of Open Science Practices and the Methodological Approach of Researchers. *Quality & Quantity, 57(4),* 3621–3636. https://doi.org/10.1007/s11135-022-01524-4

Strauss, A. L. (1987). *Qualitative Analysis for Social Scientists.* Cambridge University Press. https://doi.org/10.1017/CBO9780511557842

Tenney, E. R., Costa, E., Allard, A., & Vazire, S. (2021). Open Science and Reform Practices in Organizational Behavior Research Over Time (2011 to 2019). *Organizational Behavior and Human Decision Processes, 162*, 218–223. https://doi.org/10.1016/J.OBHDP.2020.10.015

Thelwall, M., Khan, N., & Kousha, K. (2023). Data Sharing and Reuse Practices: Disciplinary Differences And Improvements Needed. *Online Information Review.* https://doi.org/10.1108/OIR-08-2021-0423

Turcan, N., Cuciureanu, G., Cujba, R., Lupu, V., Cheradi, N., & Cojocaru, I. (2022). Perception of Open Science in the Scientific Community of the Republic of Moldova. *Postmodern Openings, 13(4),* 294–334. https://doi.org/10.18662/po/13.4/519

Yusoff, M. (2001). *Penyelidikan kualitatif : Pengalaman Kerja Lapangan Kajian.* Penerbit Universiti Malaya.