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Research Integrity and Security: Stakeholder analysis on discourse relations and shared responsibilities in international research collaborations

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1. Introduction

To maintain trust in the public research infrastructure, all stakeholders need to clarify their collective responsibilities to be aware of the complications of international research collaborations from the perspectives of nationals, disciplines, and academic rank-specific focuses and ensure research integrity and security. It will also be crucial to understand which guidelines, rules, and regulations should be applied to ongoing or upcoming collaborative research when national or institutional requirements conflict.

National governments are the primary stakeholders responsible for maintaining the public science foundations and securing continued investment in research and reliance on scientific discoveries and inventions. In addition to the continuous efforts by national governments, other stakeholders must manage emerging challenges relating to research guidelines, research infrastructure, research facilities, research operations, research ethics, research data, and other relevant assets that need to be secured in international research collaborations.

Engagement among stakeholders is considered important to share different levels of knowledge, experience, and concerns. To promote engaged communication among stakeholders, it will be necessary to conduct a stakeholder analysis to outline all potential stakeholders, such as individuals, groups, communities, or organizations with an interest or a role to play during the decision-making process, before the development of the stakeholder engagement plans. From the regulatory or statutory perspectives on stakeholder engagement, international organizations also recognize the significance of identifying stakeholders and encourage government policymakers to conduct effective and efficient stakeholder engagements during the regulatory or statutory policy development procedures [1, 2].

2. Literature Review

Scholars have described collaboration processes and the effectiveness of collaborations as being influenced by internal efforts—such as shared commitments and leadership, mutual trust based on agreements, and engaged communications—and external environments, including government mandates, government policies, and established norms [3]. Understanding these efforts and environments is useful to analyze the structure and functions of international research collaborations. The following section outlines the review of the literature on research integrity, research integrity and security, research integrity at the national and international levels, and stakeholder analysis on research integrity.

2.1 Research Integrity

Since the year 2000, researchers across academic disciplines have discussed and analyzed various topics such as fostering responsible conduct of research, analyzing international and national structures for responding to misconduct, promoting integrity in research through various practices, encouraging cooperation between journals and research institutions, and discussing other integrity challenges through the World Conferences on Research Integrity [4, 5]. The development of research integrity concepts and practices has advanced differently in academic and professional disciplines.

Each academic or professional discipline has differently influenced and shaped expected research integrity norms and practices of individual researchers. Goddiksen et al. (2023) described that scholars in the medial, natural, and technical sciences are likely to grant guest authorships to their peers in comparison to those of scholars in the fields of humanities, law, and social sciences [6]. Scholars and professionals have argued that although guidance documents have been developed

mainly in the field of medical sciences, it will be necessary to have more research integrity guidance documents in the fields of humanities, natural sciences, and social sciences [7].

2.2 Research Integrity and Security

Policymakers at the national level discussed and integrated the concept of research security in promoting research integrity in the international arena. In a policy paper by Organisation for Economic Co-operation and Development, the authors have defined research security as preventing foreign nation, state or nonstate interference in research or research infrastructure [8]. Research integrity practices are also introduced as increasing transparency, disclosing potential conflicts of interests and conflicts of commitments and managing risks [8]. The policymakers emphasized the significance of promoting open international collaboration, research integrity, and research security simultaneously in international research collaborations.

The rapid advancement of new technologies and technological devices could create additional security concerns for all stakeholders. They need to be aware of physical security challenges that individuals cause when it comes to research data matters in addition to cybersecurity. For example, there is a lack of awareness regarding device protection (e.g., stolen and lost laptops, mobile phones, and USB drives), inadequate security standard operating procedures, and incomplete background checks [9].

Knight (2018) has highlighted the significance of interconnected two concepts (i.e., international higher education and research, and international relations) describing upcoming challenges and unintended consequences in knowledge diplomacy [10]. Policymakers are also concerned that higher education institutions and research-performing organizations that lead to societal knowledge and innovation-creation processes could become targets of foreign interference. Their relationships with public, private, and third sectors are invaluable assets within a nation, and foreign interference to launch cyberattacks would disrupt the economic, social, and other related development of all targeted nations [11].

2.3 Research Integrity at the National and International Levels

In 2021, the Japanese government introduced the Policy Directions for Ensuring Research Integrity in Response to New Risks Associated with Increasing Internationalization and Openness of Research Activities [12]. The Secretariat of Science, Technology, and Innovation Policy in the Cabinet Office defined the new research integrity areas within this document, addressing new issues and risks through internationalization and openness of research, in addition to the established research integrity areas focusing on conflicts of interest, legal compliance matters, responses to misconduct (i.e., fabrication, falsification, plagiarism) as well as responses to other questionable research practices and other related issues in 2021 [13]. Tamura et al. (2023) explained the historical background of the development of research integrity policies in Japan, introduced the direction of upcoming research integrity policies based on collective efforts of research communities, analyzed initiatives on research integrity overseas, and emphasized the significance of collaborations between research communities and governments [14].

National leaders and policymakers have analyzed emerging challenges and understood potential threats to research communities around the world. In May 2023, the G7 Science and Technology Ministers' Communique discussed the significance of upcoming international initiatives and leadership to promote safe, secure, and open international research collaborations and innovations. The national and international leaders acknowledged current global challenges and emphasized the significance of research integrity and security in accordance with foreign interference, unauthorized knowledge transfer, and unauthorized technology transfer as emerging risks to research communities across the world [15].

2.4 Stakeholder Analysis on Research Integrity

Some scholars have conducted stakeholder analyses on research integrity. In a study on research integrity training practices, researchers utilized a stakeholder analysis to compare five focus groups (i.e., publishers and peer-reviewers, researchers, trainers, doctoral and postdoctoral researchers, and research administrators) to understand how to refine research integrity training [16]. In this study, the researchers analyzed the perspectives of the stakeholders, compared the perspectives of each

stakeholder group, and suggested eight prioritized training-related topics to increase the awareness of research integrity across scientific communities.

In another study, the researchers identified governance and institutional implementation; roles and structures; education and supervision; and infrastructure, technology, and tools supporting daily practices as the four key themes to analyze research integrity support experiences of the seven stakeholder groups (i.e., researchers, journal editors, members in research ethics or research integrity committees, research managers, policymakers, industry representatives, and research funding agencies) [17]. The researchers concluded that research integrity support at the institutional level is critical, particularly in areas of external influences and interventions.

3. Methods

Scholars and professionals utilized the two different conceptual components (i.e., participants and stakeholders, and system and process) to analyze the complexities of the research enterprise in promoting research integrity and stated that the research enterprise operations could be analyzed at a local (e.g., research institutions), a national (e.g., research funding systems), and a global level (e.g., publication and dissemination of knowledge) [18]. In this study, I will outline all stakeholders through the stakeholder analysis and classify them into the national level, the sector level, the institutional level, and the individual level.

In this study, a stakeholder is defined as an individual or an organization that would be impacted by activities, actions, projects, or decisions physically or emotionally. The characteristics of the stakeholders are heterogeneous, and it is necessary to analyze current or potential concerns of the stakeholders in terms of the seven concerning criteria such as economic, ecological or environmental, ethical, legal, political, societal, and technological in a stakeholder analysis [19].

I will utilize a stakeholder analysis to understand the particular positions of the stakeholders in relation to common issues and various influences (internal and external) during the decision-making and implementation processes. A review of secondary sources (e.g., literature and reports) focusing on the national or supra-national level contributes to creating an initial list of stakeholders such as individuals, organizations, and networks of individuals or organizations [20].

To conduct a stakeholder analysis, I will utilize the content analysis principles as a systematic method to examine qualitative data and identify the perspectives and interests of individuals, groups, and organizations [21, 22]. I will examine and analyze the secondary data (i.e., websites, documents, policy reports, government reports, articles, and literature in academic and professional journals) to describe narrative meanings based on interpretative contexts.

In the process of identifying relevant stakeholders, classifying stakeholders into three broad categories (i.e., core decision-makers, directly affected groups and individuals, and others with interest or influence) will lead to the drafting of the list of relevant stakeholders, and I will conduct it through the analysis of secondary data [23]. Other scholars have also recommended that the identification, verification, and categorization of stakeholders will be necessary to conduct a comprehensive stakeholder analysis to avoid relying on individual interpretation [24].

Bryson (2004) has examined and refined various significant theoretical frameworks (i.e., power versus interest grid, participation planning matrix, bases of power-directions of interest diagram, stakeholder-issue interrelationship diagram, problem-frame stakeholder map, ethical analysis grid, policy attractiveness versus stakeholder capability grid, policy implementation strategy development grid) and other related techniques in a stakeholder analysis [25, 26].

I addressed three research questions in this study: (a) Who are the stakeholders in promoting research integrity and security in international research collaborations? (b) What are the common and different discourses among the stakeholders in promoting research integrity and security? (c) What kind of discourse relations do the stakeholders have? I have answered these questions by examining, analyzing, and comparing the perspectives of the stakeholders.

Although there are several challenges to conducting the stakeholder analysis, such as the changing environments' continuous influence on stakeholders and limited perspectives of stakeholders, it will be helpful to assess the roles of stakeholders [27]. In this stakeholder analysis, I utilized the content analysis principles to examine qualitative data and discern the viewpoints and interests of individuals, groups, and organizations.

4. Research Findings and Data Analysis

One of the new fundings on collaborative projects among stakeholders was the Transforming Evidence Funders Network (TEFN). The funding organizations in TEFN shared their efforts to yield impactful research effectively by clarifying evidence-based research in practice and policy [28]. The following section outlines the general responsibilities of the stakeholders at the national, sector, institutional, and individual levels.

4.1 Stakeholders at the National Level

Stakeholders (i.e., national governments, federal governments, government ministries, government agencies, foundations*, and regulatory agencies**) are responsible for updating a definition of research integrity and security commonly utilized among government agencies based on national interests. They also need to identify overlapping responsibilities and appoint one oversight authority (jurisdiction) among government agencies to ensure research integrity and security.

4.2 Stakeholders at the Sector Level

Stakeholders (i.e., foundations*, funding agencies, public funding organizations, private funding organizations, philanthropic organizations, industries, prefecture governments, state governments, city governments, private corporations, nonprofit organization, individual donors, and regulatory agencies**) are responsible for analyzing emerging challenges and sharing leadership mindsets with overseas counterpart agencies to ensure complementary efforts across nations. They also work on analyzing disparities in research integrity and security efforts across institutions and arrange a learning network for individual stakeholders through its programs, policies, and funding.

4.3 Stakeholders at the Institutional Level

Stakeholders (i.e., higher education institutions, research institutes, research institutions, and nonprofit organizations, and regulatory agencies**) are responsible for understanding the latest research integrity and security policies, refining research support infrastructure, and distributing financial and intellectual resources to individuals based on the national and the institutional guidelines. They also need to identify overlapping responsibilities among units and individuals at the institutional level.

4.4 Stakeholders at the Individual Level

Stakeholders (i.e., researchers, scientists, professionals, students, staff members, administrators, policymakers, policyimplementers, and regulatory agencies**) are responsible for understanding individual commitments and following the mandated guidelines to ensure research integrity and security at the individual and organizational levels (i.e., at the departmental, institutional, national, and international levels across academic and professional societies).

5. Discussion and Conclusion

Compromises in research integrity and security would increase public distrust of public research, weaken political and social support from the public, and threaten the autonomy of the academic profession. In addition to government policies and communication, organizational commitments at the sector level, organizational support at the institutional level, and personal efforts at the individual level will be necessary to ensure research integrity and security in international research collaborations. Individual knowledge and efforts on research integrity should neither be defined by a researcher's institution nor by their access level to research knowledge and other resources. All stakeholders in research must ensure they will commit to the collective and relevant responsibilities throughout the affiliated research infrastructure, assure research integrity and security, and maintain research quality on the foundation of trust and accuracy.

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