Scoping the Diversity of Responsible Research Systems and Cultures:

A Scoping Review Study Protocol

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**Introduction**

Responsible conduct of research (RR) is essential to the trustworthiness of research in general, and the public’s trust in scientific conclusions. The practice of RR involves promoting rigorous research, fostering a positive research environment, and promotes confidence in the research we support. There is little doubt that embedding RR in research institutions and, more broadly, within disciplines, has great potential to boost the quality of future research, engender integrity in research practice, and to enhance the culture of academic research.

Currently, though, we know little about whether RR should be the same across disciplines. Currently, quantitative academic traditions tend to dominate research reform initiatives and norms. Take, for instance, the concept of reproducibility. It is a concept that applies readily to quantitative disciplines, but less so to qualitative disciplines, and the social sciences and humanities (Penders, de Rijcke & Holbrook, 2020).

In their review on the research integrity and responsible research practices literature, Bonn and Pinxten (2020) show that most concerns are articulated at the level of systems, while most interventions and actions target individual researchers. This misalignment is recognised widely (e.g., Zwart and Ter Meulen 2019), and future endeavors to stimulate responsible research practices should focus on the level of the research system and research culture. However, these structural levels are elusive, and difficult to map and intervene at, while interventions that do target them are at risk of inadvertently still being operationalised at the individual level (Valkenburg et al, 2021) – for instance, when responsible research culture is operationalised as simply mentoring and teaching.

Research in pursuit of diverse perspectives on what constitutes responsible research across such research practices and cultures is only slowly maturing and needs further support. A crucial part of supporting the maturation process is recognizing that different epistemic communities assess the quality and moral status of research acts and preferences differently. Until the extent and character of these differences is better understood, the appropriateness and feasibility of proposals to reform research (e.g., open science, reproducibility) are unclear. This study protocol sets out to describe the methods we will use to chart the existing scholarship on the diversity of RR systems and cultures, which will inform further research from our group on establishing understanding of RR and embedding those practices in institutional ecosystems.

**Methods and Analysis**

We will undertake a scoping review of the concept of responsible research. Mays, Roberts and Popay (2001) recommend using the scoping review to rapidly map out the key concepts of a given research topic, using the main sources and types of evidence available. Arksey and O’Malley (2005) have identified four common reasons to undertake a scoping review, including to examine the extent and range of a literature body, to motivate a systematic review, to summarize and share a body of literature, and to identify gaps in existing scholarship. Our purpose largely aligns with the last in this list.

Although the target literature body of our scoping review is different in terms of its content compared with typical scoping reviews (which tend to focus on topics in clinical and health research), we still aim to engage with existing frameworks and guidance available for scoping literature reviews and apply them as appropriate. We will apply Arksey and O’Malley’s (2001) framework, which recommends undertaking the scoping review process in six stages: 1. specify the research question, 2. identify relevant literature, 3. select studies, 4. map out the data, 5. summarize, synthesize, and report the results, and 6. include expert consultation. Additionally, we will adhere as much as possible to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis – Extensions for Scoping Reviews (PRISMA-ScR) for reporting guidelines (Tricco et al., 2018). We will also follow the PRISMA Protocols, to the extent that it is appropriate for our research topic and target literature. We will register this protocol in the Open Science Framework, given that other, preferred databases do not yet allow the submission of reviews of this nature.

**Research Questions**

Defining the research question is an important first step in scoping reviews. This is because it provides the authors’ motivation for their decision-making process in designing, conducting, and reporting the scoping review. Our scoping review encompasses the following research questions:

1. What constitutes ‘responsible research’?
2. How might this conceptualization differ across disciplines and institutions?

**Search Strategy – Identifying relevant literature**

Five scientific literature databases will be systematically searched – Web of Science (WoS), PsycINFO, SAGE Research Methods Online (SRMO), Social Science Research Network (SSRN), and the Wiley Online Library using keywords (primarily ‘responsible research’ and adjacent concepts like ‘research quality’ and ‘research integrity’). These databases store multidisciplinary literature, with an emphasis on the social and behavioral sciences and humanities.

The Peer Review of Electronic Search Strategies (PRESS) guidelines (McGowan et al., 2016) will be consulted during the establishment (and, if necessary, calibration) of our search strategy.

We will consult various other databases for relevant gray literature. The importance of including gray literature in scoping review searches varies depending on the research questions and scope. In our case, given our interest in diversifying and broadening our understanding of RR, inclusion of the gray literature, including policy documents and unpublished dissertations, is relevant.

We will search the gray literature using the same keywords as in the systematic searches described above. We will search large university dissertation databases, focusing on EU and UK-based institutes (such as the University of Amsterdam Scriptie database), as well as other databases for gray literature such as ProQuest, EBSCO Open Dissertations, and the Grijze Literatuur in Nederland (GLIN) databases.

Additionally, we will use snowballing search strategies to identify other relevant literature that the systematic searches miss. For instance, we will search included articles’ reference lists, and explicitly search for the work of key authors (such as Aubert Bonn) and organizations (such as the Netherlands Research Integrity Network; NRIN) to add to our database.

**Study Selection**

We will search texts discussing the RR framework or practices; all sources that are peer-reviewed will be eligible. We will include original research that involves primary data collection (qualitative or quantitative) or secondary data analysis (on an existing dataset), reviews of all natures, editorials, letters to the editor. We will include perspectives, narrative, and historical pieces (though it is doubtful that historical pieces will be relevant). We will also include doctoral dissertations, preprints, policy documents, and other relevant documentation such as organizational codes of conduct (which tend to reify the values and norms of groups).

We will explicitly exclude texts such as pre-registration documents, study protocols and blog posts which have not been endorsed or reviewed formally in any fashion, or that have not been submitted for publication (or will be soon). This restriction is in place to ensure that only documents that have at least a rudimentary endorsement within the scientific community are included in the database. The gray literature will only be eligible for inclusion if it is published in some form by a recognized group or institution and available in a formal repository (for instance, on a university or other institution’s website).

We will also exclude conference abstracts and posters that are not accompanied by a full text. As our search covers the titles and abstracts of texts, those without either of these elements will necessarily be excluded.

It is worth noting that RR is tightly linked to the Responsible Research and Innovation framework (RRI). Although we do not intend to detangle RR from RRI (Burget et al., 2017 would not recommend that and it is unlikely that we would succeed) and will include articles which discuss the whole RRI framework, we will attempt to exclude articles which clearly focus *only* on the innovation (i.e., ‘I’) aspect of RRI.

The remit for our search is relatively inclusive, though we are largely limited to sources that are written in English, Dutch, and German (as these are the languages that our team collectively has sufficient command of). If we come across important and relevant sources which are in a language we cannot read, we will take reasonable measures to translate the text.

We largely limit our search to material we can access online. It is unlikely that we will have the time to easily obtain all print-only copies of all potentially relevant resources, however if we come across an especially relevant text which is only available in print, we will attempt to find a copy of it to include it in the scoping review.

**Charting the Data**

Following the first two searches, the details of all articles identified will be uploaded into Zotero and will be checked to ensure that the search results are appropriate for our purposes. Providing this is the case, we will continue with the remaining searches. If not, we will revisit our search terms.

During the audit, all duplicate articles will be removed. Two of us (JT and SMF) will each audit half of the records to check that all inclusion and exclusion criteria were met during the abstract and title screening.

The full texts of sources deemed suitable for the scoping review will be retrieved. These records will then be checked against the inclusion and exclusion criteria in a process similar to that of the aforementioned audit, and reasons for exclusion of full-text resources will be documented in a log (which will be registered as a supplemental file when the scoping review is disseminated). Any disagreements over in- or exclusion will be resolved by discussion, or with the intervention of a third member of the team. The process of the search and inclusion/exclusion stages will be transparently reported on in the scoping review and will be depicted using a PRISMA-style flow diagram, as is standard for scoping reviews in other fields.

**Collecting and Analyzing the Data**

We will create a ‘form’ to capture all data of the extraction process in Microsoft Excel. This will be adjusted during the process if need be. As Pollock and colleagues (2022) explain, data extraction for scoping reviews is iterative, and data extraction methods tend to become further refined as the data extraction process unfolds. It is for this reason that the data extractors (JT and SMF) will meet regularly during data extraction to keep track of the evolution of our process, and to attempt to standardize our methods and to see if changes need to be made. Any changes and shifts in the process will be reported (to the degree that that is possible) in the log.

It is possible to know in advance, however, that certain details will be extracted from each article. We will extract:

·      Title

·      Year of publication

·      Authors

·      Author affiliations

·      Discipline of the article as listed in the repository/database (when this is available)

·      Abstract

·      Study type (e.g., review, empirical study, reanalysis, etc.)

·      Study design (if applicable)

·      Key findings

·      Key conceptualizations/definitions of RR concepts

·      Data on the discipline the study is aimed at (to the extent that this is possible)

We will conduct a thematic analysis, with the goal being to identify important patterns in the definitions and conceptualizations presented in the articles such that we may construct meaningful themes from the interpretation of these patterns. This links back to our overarching aim, which is to map the current literature on RR across disciplines. In describing the themes we observe in the data, we can get a sense of what aspects of RR are cross- or interdisciplinary, and which might be discipline-specific. We may also get a sense of what might be missing.

Of the team on this project, JT and SMF will be analyzing the data. SMF will go through the data and develop an initial ‘codebook’ and then her and JT will go through the data again using the codebook, refining it in the process. This codebook will be included as a supplemental file along with the disseminated findings. It will also be uploaded to the OSF alongside the aforementioned log, and along with this protocol when it is registered.

**Results**

**Summarizing/Reporting**

In the scoping review report, we will present the themes we identify in the data, offering each in order of dominance (that is, the most dominant themes will be discussed first). These will be discussed with accompanying illustrative text excerpts where necessary.

If it is possible, we will also discuss evidence which focused on disciplinary differences and will attempt to categorize some of our findings by discipline if our data allow for that. Indeed, if we are unable to retrieve enough information about discipline/field across the sample, then this will not be possible. If any of our findings lend themselves to a tabular or visual format, we will also include these in the presentation of the results.

Any supplemental information and materials we use during the course of conducting the scoping review will be posted on the OSF page for this project, along with this protocol. Furthermore, we plan to publish our scoping review in a relevant peer-reviewed journal. Our findings are likely to be relevant for others who, for instance, are seeking to use RR concepts in their own research and community-building.

**Dissemination**

This review will also be used as a springboard for the next stages in our own project, in which we will use a modified reactive dissensus Delphi method, to refine, supplement and diversify the key concepts and definitions (‘items’) that this scoping review will help us identify. Ultimately, this list of items will form the basis of the development of an RR community of practice, the end goal of our project.

**Conclusion**

Until now, what we know about RR has been developed largely in disciplinary silos. This limits the spread and ultimate uptake of important RR concepts that can be embedded in local research cultures, which indirectly, but certainly, limits the benefits of RR. We aim to break down some of those disciplinary walls; to get an understanding of common language and concepts, and to broaden and diversify how we see RR such that it can become an integral part of academic research culture. This scoping review is a first step on that journey and will provide the foundation for the rest of this endeavor.

**References**

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