Preprints in the Social Sciences: Understanding, Acceptance, and Use

Cláudia Maria Pinho de Abreu Pecegueiro
Postdoc Fellow in Information Science.
Universidade Federal do Maranhão (UFMA), São Luís, Maranhão, Brazil.
http://lattes.cnpq.br/3794177501793182
claudia.pecegueiro@ufma.br

Joana Coeli Ribeiro Garcia
PhD in Information Science.
Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Rio de Janeiro, Brazil.
Full Professor in the Department of Information Science and faculty member of the Graduate Program in Information Science at Universidade Federal da Paraíba (UFPB), Brazil.
http://lattes.cnpq.br/0920934902479266
nacoeli@gmail.com

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ABSTRACT

The internet and the principles of Open Science have reshaped scientific communication by enabling the immediate dissemination of research outputs, such as preprints, which challenge traditional publication channels. This study investigates the acceptance and use of preprints among researchers in the Social Sciences. Although most participants are familiar with the format, opinions on its adoption are divided: 11 accept it, 8 reject it, and 11 remain undecided. Despite this division, 89% of respondents expressed a favorable view toward publishing preprints. The findings underscore the need to broaden discussions on the subject in order to strengthen researchers' confidence and advance the Open Science movement.

Keywords: scientific communication; preprints; open science.

INTRODUCTION

The question of what Science is – and what it represents – continues to stimulate reflection among researchers. Chalmers (1999) '*O que é Ciência, afinal?*' argues that no consensus exists on the matter. Ziman (1979), by contrast, defines Science as universally accepted public knowledge. From this perspective, scientific research and the dissemination of its results – even those still in progress – are inseparable and mutually reinforcing activities in the pursuit of legitimacy within the scientific community.

Thomas Kuhn (2007), in his seminal work '*A estrutura das revoluções científicas*', underscores the importance of scientists' conduct in shaping our understanding of Science. He writes:

> Se a ciência é a reunião de fatos, teorias e métodos reunidos nos textos atuais, então os cientistas são homens que, com ou sem sucesso, empenharam-se em contribuir com um ou outro elemento para essa constelação específica (Kuhn, 2007, p. 20)[1].

Even when following established standards of scholarly communication, Science must not remain confined to the academic community. Its results must be made available to society, its principal beneficiary.

Scientific communication typically unfolds through channels categorized within the academic sphere as informal, semi-formal, formal, and electronic. These channels play distinct yet complementary roles throughout the research process. On this topic, Le Coadic (1996) highlights the dual importance of written (formal) and oral (informal) communication, stressing that these modes are not mutually exclusive but instead reinforce one another. Among them, formal communication channels tend to be favored in Science, as they involve prior evaluation and reflect the consensus-based approval of peers.

The processes used to evaluate content for publication generally follow conventional or traditional models, including single-blind review, double-blind review, and open peer review (OPR) – the latter being a more democratic approach, facilitated by technological developments.

According to Mueller (2012), knowledge validation unfolds in two stages: first, during peer review prior to publication; and second, after publication, through critical reading and analysis by specialists. This view supports the idea that peer review – whether pre- or post-publication – remains the most coherent and reliable method for certifying scientific work.

This linear model of evaluation was disrupted by the advent of the World Wide Web and the internet in the 1980s and 1990s, which enabled the rapid dissemination and immediate access to scientific publications. These technologies also invited real-time or asynchronous participation from readers – whether experts or not – thereby reshaping the dynamics of scholarly communication.

1 Translation: "If science is the constellation of facts, theories, and methods collected in current texts, then scientists are men who, successfully or not, have strived to contribute one or another element to this particular constellation" (Kuhn, 2007, p. 20, editorial translation).

It is within this evolving landscape that the Open Access Movement emerged, marked by the launch of the Open Archives Initiative (OAI) in 1999. Leveraging open-source software and a standardized communication protocol, the OAI supported the development of interoperable systems for open-access communication and facilitated the retrieval of information dispersed across databases hosted on diverse servers and interfaces. These systems include digital repositories (DRs), which collect open-access documents – whether institutional or thematic in nature – such as preprints, and are central to this ongoing transformation.

Although preprints are not a recent development, there is still no clear consensus on how they should be defined. In his article *Preprints na Ciência brasileira: considerações sobre a ótica da enfermagem*, Jonathan Souza (2019) observes that while preprints may serve as a pathway toward Open Science, the quality of publications deposited in these repositories warrants scrutiny. It is important to recognize that preprints do not represent the final stage of validation that legitimizes research; rather, they redefine the concept of evaluation by making it open, transparent, and collaborative.

This debate also resonates within the Social Sciences, where Science is understood as "uma forma de saber e alcançar a verdade diferente do conhecimento sensível" (Morin; Gadoua; Potvin, 2007, p. 28)[2]. Ziman (1979, p. 29)[3] similarly describes it as "um sistema de ideias, uma compilação do conhecimento abstrato".

In the Social Sciences – the focus of this study – the emphasis falls on the reflective subject and their intellectual activity. It is a field characterized by fluidity, imprecision, and correlation. As Pinheiro (1999, p. 92)[4] notes, it "lida com fenômenos sociais subjetivos, dificultando as previsões [...] nela a ação humana é radicalmente subjetiva".

Understanding the current dynamics of scientific communication provides the foundation for this study, which examines the role of preprints in the Social Sciences through the following questions: How do researchers in the Social Sciences understand preprint repositories? What level of acceptance do preprints have among these researchers? And to what extent are preprint repositories used as a means of disseminating research?

Accordingly, the general objective of this study is to analyze researchers' understanding, acceptance, and use of preprints as a method for disseminating and submitting manuscripts. To that end, the study pursues the following specific objectives: (i) to identify how researchers in the Social Sciences understand preprint repositories; (ii) to categorize their level of acceptance of preprints; and (iii) to evaluate the extent to which they use and publish preprints.

2 Translation: "a way of knowing and attaining truth that differs from sensory knowledge" (Morin; Gadoua; Potvin, 2007, p. 28, editorial translation).

3 Translation: "a system of ideas, a compilation of abstract knowledge" (Ziman, 1979, p. 29, editorial translation).

4 Translation: "deals with subjective social phenomena, making predictions difficult [...] in it, human action is radically subjective". (Pinheiro, 1999, p. 92, editorial translation).

The new informational cycle of scientific communication and Preprints

The practice of sharing discoveries and disseminating research findings has not always been widespread among scholars. During the Middle Ages and up until the mid-17th century, censorship led researchers to conceal their results and theories using anagrams and ciphers. Despite such constraints, the human drive to discover, understand the world, and share knowledge has endured throughout history.

In this sense, the essence of Science lies in scientific communication, which involves the production, use, and dissemination of knowledge (Garvey, 1979). Scientific knowledge is fundamentally collaborative, and researchers build upon the work of those who came before them.

Keeping up with developments in a given field enables researchers to stay current and contribute more effectively to scientific progress. As Meadows (1999, p. VII)[5] asserts, "a comunicação eficiente e eficaz constitui parte essencial do processo de investigação científica". Accordingly, in the second half of the 17th century:

> A mudança da cultura científica, proporcionada pelo aparecimento das revistas acadêmicas, incluiu também a progressiva substituição do secretismo e atraso na publicação, pela publicação e divulgação de resultados tão rapidamente quanto possível, processo que decorreu ao longo de várias décadas (Rodrigues, 2020, p. 48)[6].

Journals initially served to catalog and summarize circulating books in the Old World. Over time, they evolved into original publication venues, shifting from print to electronic formats and disseminating research findings across a range of disciplines. While the format changed, their core function remained intact, continuing "auxiliando na elaboração de uma cultura científica no ciberespaço ou de uma cibercultura científica no país" (Crespo; Correa, 2007, p. 2)[7].

By the late 20th century, the so-called "serials crisis" had emerged, reaching its peak in the 1990s. This crisis was driven by the soaring costs of scientific journals, then the primary vehicle for scholarly communication. As a result, universities frequently lacked access to "[...] mais de 2,5 milhões de artigos publicados, perdendo-se tanto os avanços da pesquisa quanto

5 Translation: "efficient and effective communication is an essential part of the scientific research process" (Meadows, 1999, p. VII, editorial translation).

6 Translation: "The change in scientific culture brought about by the emergence of academic journals also included the gradual replacement of secrecy and publication delays by the prompt publication and dissemination of results – a process that unfolded over several decades." (Rodrigues, 2020, p. 48, editorial translation).

7 Translation: "contribute to the development of a scientific culture in cyberspace or a scientific cyberculture in the country " (Crespo; Correa, 2007, p. 2, editorial translation).

o impacto dos artigos" (Harnad *et al.*, 2004, p. 2, tradução nossa)[8]; Additional frustrations stemmed from delays, lack of transparency in peer review, and slow printing and distribution processes, as described by Masson (2008, p. 117)[9]:

> Com a expansão da quantidade de periódicos e do aumento da demanda em virtude do maior número de pesquisadores e de pesquisas, os editores de revistas científicas passaram a controlar o mercado editor, e as comunidades científicas passaram a ter dificuldade em adquirir as publicações e manter os acervos das bibliotecas atualizados, ainda que fossem os próprios cientistas e pesquisadores que fornecessem o material a ser editado.

In her article *Novas configurações do acesso aberto: desafios e propostas*, Weitzel (2014) outlines a timeline of the Open Access movement, drawing initially on Peter Suber, who traces its origins to the 1960s, when foundational ideas and infrastructure first emerged. She also highlights Stevan Harnad, who viewed Open Access as a response to the new possibilities offered by the internet. While Harnad envisioned the movement in 1990, the necessary technical conditions for networked communication and interoperability only came together in 1999 at the Santa Fe Convention.

> O Movimento Acesso Aberto propriamente dito teve início formalmente com a publicação da Declaração de Budapeste, em 14 de fevereiro de 2002, pela *Budapest Open Access Initiative* (BOAI), resultante de uma reunião na Hungria originalmente iniciada com 16 signatários em dezembro de 2001 (Weitzel, 2014, p. 4)[10].

The expansion of Science facilitated by the Open Access movement brought a paradigm shift to scientific communication:

> O pesquisador envolvido com a comunicação científica, seja como autor, seja como editor, tem a responsabilidade de absorver tais inovações, isto é, inserir sua produção científica no novo modelo [...] (Ferreira; Targino, 2008, p. 120)[11].

From this transformation emerged the Open Science (OS) movement, defined as "[...] um movimento colaborativo e aberto, com foco no uso da tecnologia para o compartilhamento e acesso à pesquisa." (Nascimento; Albagli, 2019, p. 15)[12].

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8 Original: "more than 2.5 million published articles, thereby losing both the advancements in research and the impact of the articles" (Harnad *et al.*, 2004, p. 2).

9 Translation: "With the increase in the number of journals and the growing demand due to the rise in the number of researchers and research projects, scientific journal publishers came to control the publishing market, and scientific communities began to face difficulties in acquiring publications and keeping library collections up to date, even though the very scientists and researchers were the ones supplying the content to be published. " (Masson, 2008, p. 117, editorial translation).

10 Translation: "The formal launch of the Open Access movement occurred with the publication of the Budapest Open Access Initiative (BOAI) on February 14, 2002, following a December 2001 meeting in Hungary attended by 16 original signatories" (Weitzel, 2014, p. 4, editorial translation).

11 Translation: "Researchers involved in scientific communication, whether as authors or editors, have a responsibility to absorb these innovations – in other words, to incorporate their scientific output into the new model [...], editorial translation).

12 Translation: "[…] a collaborative and open movement focused on the use of technology for the sharing and access of research."(Nascimento; Albagli, 2019, p. 15, editorial translation)

The goal is to make the products of scientific research available so they can be reproduced, reused, and effectively disseminated online. In this context, online publications offer favorable conditions for such dissemination, as “Uma tradição antiga e uma nova tecnologia convergiram para possibilitar um bem comum sem precedentes” (*Budapest Open Access Initiative*, 2002, p. 1, our translation)[13].

Open Access emerged from three landmark initiatives, often referred to as the “3 Bs”: (i) the *Budapest Open Access Initiative* (BOAI), published on February 14, 2002; (ii) the *Bethesda Statement on Open Access Publishing* (BSOAP), released on April 11, 2003; and (iii) the *Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities* (BDOAKSH), issued on October 20, 2003.

Developed from the proposal put forth by Stevan Harnad *et al.* (2010) as a way to accelerate scientific communication among stakeholders, Open Access has since become one of the key components under the broader umbrella of Open Science. Through the internet, it enables the global dissemination of scientific articles across disciplines and continents, reaching a broader community of researchers.

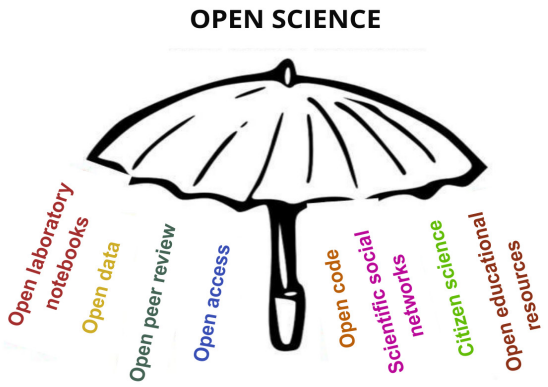
There are two main models of Open Access publishing: the green route and the gold route. The green route refers to self-archiving, where researchers deposit their manuscripts in institutional (IR) or thematic repositories (TR), which then make the texts publicly available following moderation or another form of preliminary review. The gold route refers to publishing directly in Open Access journals that are freely accessible to readers. Both strategies aim to ensure cost-free access to scientific publications.

The umbrella metaphor of Open Science (**Figure 1**) is apt, as it encompasses not only the publication of knowledge but also several related movements. It is important to note that the literature presents diverse views on what constitutes Open Science – both in terminology and in its component elements. In this text, we adopt the eight movements defined by the FOSTER project (2014): open lab notebooks, open data, open peer review, open access, open source, scientific social networks, citizen science, and open educational resources.

Despite the breadth of these movements, within the fields of Library and Information Science, the focus tends to rest on open access, open data, and open peer review – areas where researchers seek consensus and recognition among their peers and within the broader academic environment.

13 Original: “An old tradition and a new technology have converged to make possible an unprecedented public good” (*Budapest Open Access Initiative*, 2002, p. 1).

Figure 1 – The Open Science Umbrella



Fonte: Foster (2014).

One of the strategies employed by the Open Access (OA) movement and the Open Archives Initiative (OAI) is the use of digital repositories (DRs), which began to emerge in the mid-20th century. Supported by Information and Communication Technologies (ICT), DRs have played a fundamental role in shifting the informational cycle – encompassing the generation, dissemination, and use of information (Le Coadic, 1996) – by promoting greater interaction, collaboration, and the sharing of ideas. Aiming to develop a protocol for communication interoperability, the OAI proposes, in the words of Ferreira (2018, p. 116)[14]:

> [...] um protocolo de comunicação [...] fundamentado no conceito de *metadata harvesting*, qual seja, na operação periódica de coleta de metadados expostos por servidores que tenham também implementado esse protocolo. A aplicação que se faz na busca é denominada *harvester* (ou provedores de serviços), enquanto os servidores de metadados onde as buscas são efetivadas são denominados de *repositórios* (ou provedores de dados. [...].

Among the many definitions of DRs, the one presented by the Instituto Brasileiro de Informação em Ciência e Tecnologia (IBICT) stands out. It describes DRs as "[...] bases de dados *online* que reúnem de maneira organizada a produção científica de uma instituição ou área temática. Os RD armazenam arquivos de diversos formatos." (IBICT, 2012, *online*)[15].

14 Translation: "[...] a communication protocol [...] based on the concept of metadata harvesting, that is, the periodic operation of collecting metadata made available by servers that have also implemented this protocol. The application used for searching is called a harvester (or service provider), while the metadata servers where the searches are carried out are called repositories (or data providers). [...]" (Ferreira, 2018, p. 116, editorial translation).

15 Translation: "[...] online databases that systematically gather the scientific output of an institution or thematic area. DRs store files in various formats." (IBICT, 2012, *online*, editorial translation).

aking into account the types of sources and the length of storage, Furnival and Castro (2018, p. 560)[16] define DRs as: “sistema de informação que armazena, preserva e fornece acesso à distância e de longo prazo a objetos digitais, sejam eles arquivos textuais, imagéticos, audiovisuais ou de dados primários”.

Years earlier, Leite and Costa (2006, p. 346)[17], linked DRs to the internet, the Open Access movement, and the open archive model, defining them as:

> [...] uma consequência da aplicação da Internet e de tecnologias emergentes de informação e comunicação no contexto da comunicação científica, somada ao movimento mundial de acesso livre à informação científica, fundamentado no modelo de arquivos abertos, levando ao surgimento de modelos alternativos que provocaram mudanças paradigmáticas no processo de comunicação científica.

These definitions reveal that DRs are not only concerned with storage and preservation but are primarily committed to ensuring access to scientific output within a particular field of knowledge, whether through thematic or institutional repositories.

After surveying multiple definitions, Masson (2008) concludes that it is difficult to establish a single definition of DRs due to the diversity of their functions and characteristics. Nevertheless, he affirms that their central role lies in serving as agents of scientific communication – validated and legitimized by peers within an open access framework.

Scholars diverge somewhat in their classification of DRs. For example, Maria Eduarda Rodrigues and Antônio Moitinho Rodrigues (2014) identify several types: scientific, institutional, thematic or disciplinary, and those dedicated to theses and dissertations. Costa and Leite (2010, p. 165)[18], however, emphasize that:

> Cada um dos tipos de repositórios digitais possui funções específicas no sistema de comunicação científica e aplicações próprias voltadas para o ambiente no qual será utilizado.

In general, the literature highlights two primary categories: institutional repositories (IRs) and thematic repositories (TRs). Regarding IRs, Costa and Leite (2015) identify key characteristics: they are institutionally defined, focus on academic output, consist of full-text digital collections, are interoperable, and align with open access principles. TRs, as the name suggests, gather studies produced within a specific disciplinary field, regardless of the researcher’s institutional affiliation or country of origin. Targeting a particular scientific

16 Translation: “an information system that stores, preserves, and provides remote and long-term access to digital objects, whether textual, visual, audiovisual files or primary data. ” (Furnival; Castro, 2018, p. 560, editorial translation).

17 Translation: “[...] a result of the application of the internet and emerging information and communication technologies within the context of scientific communication, combined with the global movement for free access to scientific information, grounded in the open archive model, which led to the emergence of alternative models that brought about paradigmatic changes in the scientific communication process ” (Leite; Costa, 2006, p. 346, editorial translation).

18 Translation: “Each type of digital repository serves specific functions within the scientific communication system and has its own applications suited to the environment in which it will be used” (Costa; Leite, 2010, p. 165, editorial translation).

community, “Tratam, portanto, da produção intelectual de áreas do conhecimento em particular. Exemplo: *EPrints in Library and Information Science* (E-LIS) e arXiv.org” (Costa; Leite, 2015, p. 166)[19].

Open Science – understood as, “acesso aberto aos achados científicos [...] dá maior acessibilidade aos novos conhecimentos e maior colaboração entre as áreas” (Targino; Garcia, 2018, *online*)[20] – and preprints, in particular, allow researchers to share their lines of thought and invite interaction from peers (Sena, 2000), thereby fostering scientific communication and accelerating knowledge production. This calls for a deeper examination of preprints, their impacts, and the ways they are reshaping the current informational cycle.

One such avenue for making scientific content available is through preprints – scientific manuscripts published in repositories or servers, blogs, homepages, and other digital platforms before undergoing peer review.

The idea introduced by Harnad (2000) of a “preprint culture,” as cited by Alvarez and Caregnato (2018, p. 25)[21], “além de acelerar o processo de comunicação científica, valoriza a rápida disseminação da informação, promove a participação ativa dos membros dos colégios invisíveis e as colaborações em grande escala”. In other words, preprints facilitate and expand the circulation of scientific knowledge.

Evidence suggests that the exchange of preprints predates the advent of the web and occurred in print form. As Matthew Cobb (2017) reports, the field of Biology had already begun using preprints through a process coordinated by the National Institutes of Health (NIH) via the Information Exchange Groups (IEGs), dating back at least half a century:

> Consistia no intercâmbio de pré-impressões impressas de forma semi-pública entre sete comunidades temáticas por correio convencional, sendo as pré-impressões sujeitas ao que se considerava ser uma ‘revisão informal (Cobb *apud* Rodrigues, 2019, p. 6, our translation)[22].

The practice of preprinting gradually expanded to other disciplines, such as Physics. “O termo está em uso há décadas. Nos dias que antecederam a Internet, os físicos trocavam por correio versões fotocopiadas dos rascunhos para discutir com os colegas [...]” (Lopes, 2021, *online*)[23].

19 Translation: “They deal with the intellectual output of particular fields of knowledge. Examples: EPrints in Library and Information Science (E-LIS) and arXiv.org ” (Costa; Leite, 2015, p. 166, editorial translation).

20 Translation: “open access to scientific findings [...] granting greater accessibility to new knowledge and increased collaboration across fields” (Targino; Garcia, 2018, online, editorial translation).

21 Translation: “in addition to accelerating the process of scientific communication, it values the rapid dissemination of information, promotes the active participation of members of invisible colleges and large-scale collaborations” (Alvarez; Caregnato, 2018, p. 25, editorial translation).

22 Original: “consisted on the exchange of printed preprints in a semi-public fashion among seven subject-specific communities by conventional mail, the preprints getting subjected to what was regarded as ‘informal review” (Cobb apud Rodrigues, 2019, p. 5).

23 Translation: “The term has been in use for decades. In the days before the Internet, physicists would exchange photocopied drafts by mail to discuss with colleagues [...]” (Lopes, 2021, online, editorial translation).

Alvarez and Caregnato (2017, p. 107)[24] observe that by as early as 1960,

> [...] os físicos já submetiam seus relatórios impressos a *Clearing Houses*, instituições envolvidas com a obtenção, armazenamento e disseminação de documentos não publicados de uma área [...].

From a historical perspective, Urbano *et al.* (2021) question the possibility of identifying a singular origin for preprints. Instead, they argue that:

> Considerando a origem histórica dessa tipologia documental, é importante lembrar que a circulação de manuscritos inéditos é anterior à própria existência de periódicos científicos, como evidencia o estudo da correspondência manuscrita entre cientistas, especialmente intensa após o Iluminismo. (Urbano *et al.*, 2021, p. 5, our translation)[25].

This difficulty in tracing the "birth" of preprints reflects a lack of consensus among scholars about whether early manuscripts fulfill the definitional criteria found in more recent frameworks. According to Nassi-Calò, "**Preprints** são manuscritos depositados em servidores **web que comunicam resultados de pesquisa** em acesso aberto **antes de avaliação por pares** de um periódico [...]" (Nassi-Calò, 2020, p. 72, emphasis in original)[26].

Gaarvey and Griffith (1972), in their article *Communication and Information Processing within Scientific Disciplines: Empirical Findings for Psychology*, reported that by the mid-20th century, researchers were already using preprints to disseminate their studies and findings:

> [...] a distribuição de *preprints* é, para muitos autores, um meio efetivo de obter opiniões independentemente do valor científico de seu trabalho [...] (Garvey; Griffith, 1972, p. 131, our translation)[27].

This feedback, they note, was not limited to grammar or style but also included critiques of data analysis and conceptual framing, thereby enhancing the quality of the manuscript and constituting a meaningful form of scientific evaluation.

The history of preprints gained momentum in the 1980s and 1990s, especially among theoretical physicists and researchers in High Energy Physics (HEP), who circulated their work both by mail and, increasingly, via email.

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24 Translation: "[…] physicists were already submitting their printed reports to Clearing Houses – institutions involved in the acquisition, storage, and dissemination of unpublished documents in a given field [...] " (Alvarez; Caregnato, 2017, p. 107, editorial translation).

25 Original: "Atendiendo al origen histórico de esta tipología documental, es importante recordar que la circulación de manuscritos no publicados es anterior a la misma existencia de las revistas científicas, como prueba el estudio de la correspondencia manuscrita entre científicos, especialmente intensa a partir de la Ilustración" (Urbano et al., 2021, p. 5). Translation: "Considering the historical origin of this documentary typology, it is important to remember that the circulation of unpublished manuscripts predates the very existence of scientific journals, as evidenced by the study of handwritten correspondence between scientists, which was especially intense after the Enlightenment" (Urbano et al., 2021, p. 5, our translation).

26 Translation: "Preprints are manuscripts deposited on web servers that communicate research results in open access before undergoing peer review by a journal [...]" (Nassi-Calò, 2020, p. 72, our emphasis, editorial translation).

27 Original: "[…] preprint distribution is, for many authors, an effective means of obtaining independent evaluation of the scientific worth of their work" (Garvey; Griffith, 1972, p. 131).

In August 1991, the launch of *arXiv* – the first preprint repository – marked a pivotal moment. Initially developed for Physics and created by Paul Ginsparg, it became the prototype for future platforms. From 2013 onward, however, there has been an "[...] explosão de plataformas e serviços de *preprints* [...]" (Vasconcellos; De-Lorenzi, 2020, p. 1095)[28].

In a forward-looking overview of scientific communication in the age of preprints, Lilian Nassi-Calò (2020) presents a timeline of preprint repositories in **Table 1**, highlighting their growing adoption across a broad range of disciplines worldwide.

Table 1 - Preprint history

ArXiv	1992	Cornell University Library – Physics, Astronomy, Mathematics, Computer Science 1,6 million preprints.
Figshare	2011	Multidisciplinary University Consortium > 2 million preprints.
bioRxiv	2013	Cold Spring Harbor Laboratory, Biology and Life Sciences , 55 thousand preprints.
PeerJ Preprints	2013	Biology, Medicine, Computer Science (also PeerJ journal).
ChemRxiv	2016	American Chemical Society, Chemistry
PsyArXiv	2016	Cornell University, Psychology, Life Sciences
SocArXiv	2016	Open Science Framework, Arts and Humanities, Law, Education, Behavioral and Social Sciences
EngrXiv	2018	Cornell University
Scielo	2019-2020	Multidisciplinary SciELO Platform

Source: Nassi-Calò (2020).

For several scholars in the field of scientific communication, the preprint format is understood as a model of *open review*, in which the manuscript is evaluated through a process that is both transparent and participatory: "[...] avaliadores e autores tornam-se conhecidos uns dos outros no momento da análise e permitem por meio do contato entre eles discussão que pode redundar em ganho científico [...]" (Targino; Garcia, 2017, p. 2)[29]. In a similar vein, Meadows (1999, p. vii)[30] contends that "Qualquer que seja o ângulo pelo qual a examinemos, a comunicação eficiente e eficaz constitui parte essencial do processo de investigação científica". This communicative function is validated through peer review, which includes approval, suggestions for revision, reassessment, or rejection.

In *A emergência dos preprints para a Ciência brasileira*, Souza (2019) examines the benefits and limitations of preprints from the perspective of Nursing. Among the benefits, he highlights speed, open access, originality, cost-efficiency, increased publication volume, the possibility of simultaneous submissions, the reduction of redundant studies, the publication

28 Translation: "[...] explosion of preprint platforms and services [...]" (Vasconcellos; De-Lorenzi, 2020, p. 1095, editorial translation).
29 Translation: "[...] reviewers and authors become known to one another during the review process, and their interaction allows for a dialogue that can result in scientific gains [...]" (Targino; Garcia, 2017, p. 2, editorial translation).
30 Translation: "From whatever angle we examine it, efficient and effective communication is an essential part of the scientific research process" (Meadows, 1999, p. vii, editorial translation).

of negative results, publication assurance, error identification, and citation potential. On the other hand, he raises concerns about quality, the absence of prior review, errors, the lack of double-blind evaluation, limited interactivity, retrieval challenges, competitiveness, specificity, the absence of institutional policies, potential loss of originality, and the risk of plagiarism.

Research suggests that publishing a preprint can increase the likelihood of acceptance in peer-reviewed journals. For example, Packer, Santos, and Meneghini (2017) found that 80% of manuscripts first published as preprints on arXiv were subsequently reviewed and published in academic journals.

In a recent article titled *Repositórios de preprints nas Ciências Sociais* (2023), researchers Cláudia Pecegueiro and Joana Coeli Garcia point out that, while no formal regulatory framework currently governs the ethical issues surrounding preprint publication, specific recommendations do exist for both authors and repositories.

> Para os autores, enfatizam a responsabilidade sobre o conteúdo e a estrutura do manuscrito, destacando que para os repositórios a exigência maior reside na orientação aos autores quanto ao arquivamento e divulgação das alterações ou substituição dos manuscritos após a publicação em periódicos científicos. (Pecegueiro; Garcia, 2023, p. 9)[31].

METHODOLOGY

The methodology refers to the investigative techniques used to systematize the results obtained from an identified problem. It includes the recording of observations, description of the research setting and participants, research type, data collection procedures and instruments, and an explanation of the analytical techniques employed. This study adopts a descriptive research approach, aiming to observe, classify, explain, and interpret the data collected through an analysis that takes "[...] como objeto de estudo uma situação específica, um grupo ou um indivíduo" (Richardson, 1999, p. 71)[32].

Given its object of study, the research is considered web-based because data collection took place in a digital environment. The internet was used both as a research locus – serving as a platform for bibliographic and documentary research – and host for the setting of data collection tools, such as preprint repositories and Google Forms.

The study follows a qualitative research methodology, drawing on Minayo's perspective that qualitative research in the social sciences "Ela se ocupa, dentro das Ciências Sociais,

31 Translation: "For authors, the primary responsibility lies in ensuring the integrity of the manuscript's content and structure. For repositories, the emphasis is on guiding authors in how to archive and disclose any revisions or replacements made to manuscripts following publication in scientific journals" (Pecegueiro; Garcia, 2023, p. 9, editorial translation).

32 Translation: "[...] a specific situation, a group, or an individual as the object of study" (Richardson, 1999, p. 71, editorial translation).

com o universo dos significados, dos motivos, das aspirações, das crenças, dos valores e das atitudes" (Minayo, 2016, p. 20)[33]. It involves the selection and abstraction of original data collected during the study, followed by its analysis and dissemination.

In addition, the study employs bibliographic research, understood as a technique to "[...] identificar, selecionar, localizar e obter documentos de interesse para realização de trabalhos acadêmicos e de pesquisa [...]" (Stumpf, 2006, p. 54)[34] as well as documentary research, which draws on primary sources whose information is restricted to documents.

Data were collected through an electronic questionnaire composed of open-ended questions – typically used "O pesquisador não está interessado em antecipar as respostas, deseja uma maior elaboração das opiniões do entrevistado [...]" (Richardson, 1999, p. 193)[35] – and closed-ended questions which "[...] apresentam categorias ou alternativas de respostas fixas e preestabelecidas" (Richardson, 1999, p. 191)[36]. The online survey was designed to analyze the level of understanding, acceptance, and use of preprints among the respondents, in line with the study's objectives. It was made available via Google Forms, a free online survey tool that can be accessed by any user with a Google account.

The identification of research subjects was based on the population of productivity research grant holders (PQ) from the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) in the field of Social Sciences, encompassing 13 areas of knowledge.

PQ grants are awarded according to specific categories or levels and are "Destinadas a pesquisadores que se destaquem entre seus pares, valorizando sua produção científica segundo critérios normativos [...]" (CNPQ, 2021, *online*)[37].

These levels, ranked in order of seniority and prestige, are as follows: PQ-SR (7 grantees); PQ-1A (59 grantees); PQ-1B (64 grantees); PQ-1C (78 grantees); PQ-1D (130 grantees); and PQ-2 (807 grantees), for a total of 1,145 grantees.

The sample – a subgroup of the population used to establish generalized parameters (Sampieri; Collado; Lucio, 2013; Richardson, 1999; Gil, 2021) – was determined using the approximate square root of the number of researchers in each area, resulting in a total of 103 grantees. This calculation followed the Law of Elitism, proposed by Derek Solla Price (1976), which states that "[...] a raiz quadrada do total de autores representaria a elite da área estudada, sendo creditada a ela a metade de todas as contribuições" (Price, 1976 *apud* Silva; Maroldi; Lima, 2014, p. 45)[38].

With the sample defined, researchers selected the 'random number and name drawing' method, which they carried out on September 15, 2021, using Microsoft's WGP Apps. This

33 Translation: "deals with the universe of meanings, motives, aspirations, beliefs, values, and attitudes" (Minayo, 2016, p. 20, editorial translation).
34 Translation: "[...] identify, select, locate, and obtain documents of interest for academic and research work [...]" (Stumpf, 2006, p. 54, editorial translation).
35 Translation: "When the researcher does not intend to anticipate answers but seeks a more elaborated response from the participant [...]" (Richardson, 1999, p. 193, editorial translation).
36 Translation: "[...] present fixed and pre-established categories or response options" (Richardson, 1999, p. 191, editorial translation).
37 Translation: "intended for researchers who stand out among their peers, valuing their scientific output according to normative criteria [...]" (CNPQ, 2021, online, editorial translation).
38 Translation: "[...] the square root of the total number of authors would represent the elite of the studied area, being credited with half of all contributions" (Price, 1976 apud Silva; Maroldi; Lima, 2014, p. 45, editorial translation).

procedure identified the individuals invited to participate in the study. This process classifies the sample as probabilistic, given that all population elements had an equal chance of selection (Gil, 2021; Sampieri; Collado; Lucio, 2013; Marconi; Lakatos, 2021; Richardson, 1999).

Between October 2021 and February 2022, the 103 researchers selected for the sample received invitations via email to participate in the research. The message included the necessary instructions for form completion.

> As taxas de resposta variam amplamente, dependendo de uma série de fatores, como o relacionamento com seu público-alvo, o tamanho e a complexidade da pesquisa, os incentivos oferecidos e até o tema das perguntas. Para questionários online, em que não há qualquer relacionamento prévio com os destinatários, uma taxa de resposta de 20% a 30% é considerada excelente. Uma taxa de resposta de 10% a 15% é um palpite mais conservador e seguro, caso ainda não tenha aplicado questionários à sua população (SurveyMonkey, 2021, online)[39].

Of the invited researchers, 30 responded – representing 29% of the sample. This percentage is therefore considered excellent and enhances the study's reliability.

Impressions of CNPq Social Sciences Productivity Grant Holders on Preprints

Before presenting the researchers' impressions, it is important to first outline their profiles as respondents in relation to preprints. This contextualization not only supports the interpretation of their responses but also provides a portrait of preprint users within the Social Sciences during the research period. The evolving nature of Open Science continually reshapes both its conceptual boundaries and the profiles of those engaging with it.

a) Age range

With regard to age, the majority of respondents (54%) fall within the 56 to 75 age group. When combined with the 10% aged over 75, this total rises to 64%, placing most respondents within the "baby boomer" generation – a cohort often associated with discipline, structure, and adherence to norms.

> Esses jovens desenvolveram uma forte expectativa por gratificação e crescimento pessoal que pudessem ser alcançados como fruto de suas conquistas e de seu trabalho. (Oliveira, 2010, p. 50)[40].

b) Area of doctoral degree

Okay, let's work on this section about the researchers' impressions and profiles:

39 Translation: "Response rates vary considerably, influenced by factors such as the relationship with the target audience, the study's scope and complexity, offered incentives, and the subject matter of the questions. For online questionnaires administered without prior contact with recipients, a response rate of 20% to 30% is considered excellent. A more conservative and reliable estimate for questionnaires not previously administered to the population is 10% to 15%" (SurveyMonkey, 2021, online, editorial translation).

40 Translation: "These young people developed a strong expectation for gratification and personal growth, achievable as the result of their achievements and work" (Oliveira, 2010, p. 50, editorial translation).

Impressions of CNPq Social Sciences Productivity Grant Holders on Preprints

To contextualize the researchers' impressions, it is first necessary to outline their profiles as respondents concerning preprints. This provides a portrait of preprint users within the Social Sciences during the research period. Given the dynamic nature of Open Science, its conceptualization and, consequently, the profiles of researchers, are subject to ongoing adjustments to reflect its evolution.

c) Age Range

Regarding the researchers' age distribution, the predominant group comprises individuals aged 56 to 75 years, representing 54% of respondents. When combined with the 10% of respondents older than 75, this constitutes 64% of the sample, classifying them as "baby boomers" – a generation often characterized by discipline, order, and obedience. As Oliveira (2010, p. 50) notes, this generation "developed a strong expectation for gratification and personal growth, achievable as a result of their achievements and work."

d) Area of Doctoral Degree

In terms of the doctoral degree area, the respondents represent diverse research lines. Communication and Social Work are the most prominent, each accounting for 20% of the respondents, followed by Demography at 12%. The remaining 48% are distributed across several areas, including Tourism, Museology, Information Science, Regional and Urban Planning, Architecture and Urbanism, Economics, and Administration. Notably, 6% of respondents reported doctoral degrees in more than one thematic category.

e) Institutional affiliation

In terms of institutional affiliation, four respondents are affiliated with the Universidade Federal de Minas Gerais (UFMG). However, participants are otherwise distributed across a range of higher education institutions from different regions of Brazil. This diversity is a noteworthy feature of the sample, given that previous studies – such as Pecegueiro (2011) – have pointed to a concentration of researchers in the Southeast region, where the majority of graduate programs are located. This regional concentration presents challenges for researcher development and academic equity in other parts of the country.

f) Productivity research grant

CNPq distributes training and research productivity grants to universities, research centers, technological institutes, and professional development institutions across Brazil. The PQ grant is awarded to researchers in various fields and is classified into six categories. Among respondents in this study, the majority (58%) hold a PQ-2 grant, followed by 27% in the PQ-1C category. This distribution reflects the overall trend at CNPq, where PQ-2 is the most frequently awarded category, totaling 807 grantees. Leite and Rocha Neto (2017, p. 2)[41], in their analysis of PQ grant holders in the field of Education, observe that: "[...] avaliação,

41 Translation: "[...] the evaluation, classification, and progression (or demotion) within the PQ grant categories and levels is recommended by the Committee and occurs upon the submission of a new proposal by the grant holder [...]" (Leite; Rocha Neto, 2017, p. 2, editorial translation).

classificação e progressão (ou rebaixamento) dentro das categorias e níveis da bolsa PQ é recomendada pelo Comitê e se dá por ocasião da apresentação de nova proposta pelo bolsista [...]".

g) Length of Teaching Experience

As anticipated, given their predominantly higher education affiliations confirmed by this study, most researchers' productivity is closely linked to their academic activities, explaining their engagement in teaching. The shortest reported length of teaching experience was 15 years, indicated by one respondent. Eleven researchers reported between 19 and 29 years dedicated to teaching. The remaining 18 respondents reported between 30 and 55 years of teaching experience. This outcome aligns with the researchers' age group – the "baby boomer" generation – suggesting a significant level of professional maturity among the CNPq Social Sciences PQ researchers.

Impressions on Preprints

To ascertain researchers' perceptions regarding the understanding, acceptance, and potential use of preprints, we developed six questions, the responses to which are analyzed below using Content Analysis (CA). At this stage, the analysis involves inference, a crucial step in CA, considering that:

> Se a descrição (a enumeração das características do texto, resumida após o tratamento) é a primeira etapa necessária e se a interpretação (a significação concedida a estas características) é a última fase, a inferência é o procedimento intermédio, que vem permitir a passagem, explícita e controlada, de uma à outra (Bardin, 2009, p. 41)[42].

To ensure respondent anonymity, researchers' identities are represented by the initials PQ – denoting productivity research grant holders – followed by numbers from 1 to 30, corresponding to the order in which their responses were submitted via the Google Forms platform.

a) Understanding of Preprints

The questionnaire did not include a direct question defining preprints. Nevertheless, it was possible to establish certain parameters based on the referential-interpretive axis of Content Analysis (CA), which identifies both manifest and latent content.

Eleven of the thirty respondents indicated a lack of familiarity with the characteristics of a preprint repository beyond submission guidelines, help guides, and terms of use (question no. 7). Responses mentioning submission date, broader dissemination, ease and speed of access, feedback for self-correction, warnings of non-peer review, reader contributions

42 Translation: "If description (the listing of text characteristics, summarized after processing) is the first necessary step, and interpretation (the meaning assigned to these characteristics) is the final stage, inference is the intermediate procedure that allows for an explicit and controlled transition from one to the other" (Bardin, 2009, p. 41, editorial translation).

of perspectives, and the presence of an editorial board suggest a potential difficulty in distinguishing between a preprint, a preprint repository, and the functionalities of traditional journals. It is important to note that:

> *Preprints* são relatos de pesquisa que ainda não passaram por avaliação por pares nem aceitos para publicação em um periódico científico. Estes relatos de pesquisa, compartilhados por meio de servidores de *preprints*, permitem que os pesquisadores compartilhem rapidamente seus resultados. [...]. A publicação de relatos de pesquisa em servidores de *preprint* também significa que *feedback* útil pode ser obtido mais rapidamente e pode promover colaborações entre pesquisadores (Tijdink *et al.,* 2020, *online*)[43].

Several respondents also raised concerns regarding ethical issues, data deposition and statistical analyses, plagiarism protection, and the operational mechanisms of repositories. In this context, Alvarez and Caregnato point out that "Como parte integrante do processo de avaliação, repositórios de *preprints*, como *arXiv*, contam com robôs que verificam se o texto do manuscrito enviado contém [...] evidências de plágio ou autoplágio [...]" (Alvarez; Caregnato, 2018, p. 5)[44].

In this regard, respondents emphasized several attributes they considered essential. For example: "Research ethics and scientific review. This private, individual initiative of an author to make their study publicly available without ethical and scientific review does not seem appropriate to me." (PQ 14);"Some type of protection against plagiarism." (PQ 15), and "I believe a very clear disclaimer on the review status and publication process is necessary." (PQ 24).

Furthermore, this study sought to understand researchers' perceptions regarding open and public peer review (questions no. 9 and no. 10), a process intrinsic to preprints that facilitates the "[...] antecipação da revisão por pares [e demais membros da comunidade] em acesso aberto" (Damásio, 2018, p. 9)[45].

In question no. 9, respondents were asked to select one of three options: *comfortable*, *indifferent*, or *uncomfortable*. Fifteen researchers reported feeling comfortable with open and public peer review, seven indicated indifference, five expressed discomfort, and three did not respond.

Question no. 10 addressed whether open and public peer review contributes to the quality of scientific articles. Echoing the pattern in the previous question, the majority regarded this model positively: ten respondents expressed full support, while twelve offered conditional approval – together representing 75% of participants.

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43 Translation: "Preprints are research reports that have not yet undergone peer review or been accepted for publication in a scientific journal. Shared via preprint servers, these reports enable researchers to rapidly disseminate their findings. [...] Publishing research reports on preprint servers also facilitates quicker feedback and can foster collaborations among researchers" (Tijdink *et al*., 2020, online, editorial translation).

44 Translation: "As part of the review process, preprint repositories such as arXiv employ bots that check whether the submitted manuscript contains [...] evidence of plagiarism or self-plagiarism [...]" (Alvarez; Caregnato, 2018, p. 5, editorial translation).

45 Translation: "[...] anticipation of peer review [and input from other members of the community] in open access" (Damásio, 2018, p. 9, editorial translation).

Among those who perceived it positively for enhancing text quality, the following viewpoints were prominent: “They would be important because there could be a more consistent reading analysis for a wider audience. Science must be inclusive and democratic.” (PQ 9); “I am totally in favor of open review as it can contribute to the refinement of ideas. Constructive critique is always valuable.” (PQ 20); and “Yes. I once participated in such an experience where my comments as a reviewer were incorporated into the final version of the text. It proved to be an interesting process.” (PQ 29).

Among the twelve respondents who expressed conditional support, some articulated specific concerns regarding the potential tone and quality of reviewer feedback: “Some contributions may be valuable, but not all – especially from individuals lacking adherence to or expertise in the subject matter.” (PQ 8); “Provided that comments are moderated to prevent inappropriate remarks and ensure a commitment to improving the text and advancing science, I believe they can contribute.” (PQ 30).

Only two respondents explicitly opposed public open review. Of these, one elaborated on their reasoning: “Given the current climate of widespread polarization across virtually all aspects of life, I would be hesitant to solicit opinions from the general public.” (PQ 16).

The subsequent six respondents indicated indifference or a lack of a defined opinion, which aligns with the seven who had previously expressed indifference toward receiving open and public reviews (question no. 9).

Scientific evaluation, in its various forms and formats, has a long history. Garcia (2021), in her paper Incursões sobre a avaliação aberta, notes its origins in public debates where arguments were contested in public squares – sometimes leading to the imprisonment or even execution of the authors.

Therefore, public open review is not a novel concept in Science. In the words of the aforementioned author: “Assim é que contexto e história admitem que desde os primórdios da comunicação científica a avaliação se realizava de formas variadas e em formato aberto, quando o autor conhecia o avaliador e vice-versa” (Garcia, 2021, p. 85)[46].

The 75% of respondents expressing openness to public peer review suggests a positive reception of this evolving informational paradigm. In their comprehensive study, ‘Open peer review sob a ótica de editores das revistas brasileiras da ciência da informação’, Targino and Garcia (2017) state: “O sistema aberto é útil para que os próprios avaliadores efetivem autoavaliação de seus veredictos, permitindo incrementar o diálogo entre eles e os avaliados em busca de intercâmbio de ideias” (Targino; Garcia, 2017, p. 13)[47]. In the same study, the authors also acknowledge that some individuals feel more comfortable with closed review (single- or double-blind), a preference reflected in this research by 27% of respondents

46 Translation: “Thus, context and history demonstrate that since the inception of scientific communication, evaluation has occurred in diverse ways and in an open format, where the author knew the reviewer and vice versa” (Garcia, 2021, p. 85, editorial translation).

47 Translation: “The open system proves useful in enabling reviewers to self-assess their judgments, fostering dialogue between reviewers and authors in the pursuit of exchanging ideas” (Targino; Garcia, 2017, p. 13, editorial translation).

b) Acceptance of Preprints

To assess the level of acceptance, two questions were posed to the researchers. The first (question no. 6) asked how preprint repositories are being received within the Social Sciences. Respondents were given three response options: *insufficient acceptance*, *moderate acceptance*, and *good acceptance*. Of the thirty researchers surveyed, only PQ11 did not respond.

Nine respondents classified acceptance as insufficient, thirteen as moderate, and seven as good. This distribution suggests that CNPq productivity grant holders are, in general, receptive to preprints – a trend that aligns with the goals of Open Science, which seeks to:

> [...] transparência em todo o processo de fazer e comunicar pesquisa, expandir a cooperação entre pesquisadores, facilitar a replicabilidade da pesquisa e fortalecer a função social da ciência e do conhecimento científico [...] (Packer, 2021, online)[48].

The second question (question no. 11) addressed the broader acceptance of preprint repositories by the Social Sciences as a whole. This was an open-ended question. Eleven respondents clearly expressed affirmative views, offering comments such as: *"Yes. Knowing the authors or their institutional affiliations already provides a degree of reassurance" (*PQ 28); and *"Yes, despite a widespread lack of familiarity with their importance and functioning"* (PQ 30).

Eight respondents stated unequivocally that preprint repositories are not accepted. The remaining eleven indicated uncertainty regarding their acceptance or felt that any existing acceptance remained very limited. Some of these responses include: *"I lack the necessary information to provide a definitive positive or negative answer."* (PQ 8); *"I do not have sufficient information to respond to this question."* (PQ 12); *"I am unable to assess."* (PQ 15); *"Partially yes [...] However, I believe there is a fear of public criticism and discouragement when revising one's work. Generosity in academic evaluations is not always the norm."* (PQ 19); and *"Partially, but I anticipate it will become a reality soon."* (PQ 21).

Although preprints originated in the Exact Sciences, their adoption is increasingly expanding to other fields. Currently, preprint servers exist across nearly all areas of knowledge, representing a developing mode of scientific communication. The preprint landscape is evolving rapidly and in a discipline-specific manner; however, different academic communities are at varying stages in the diffusion of this innovation (Chiarelli *et al.*, 2019).

c) Motivation to Submit Preprints

Finally, this study sought to understand the factors that would motivate researchers to submit their work to a preprint repository (question no. 8). While two researchers did not respond and another two indicated a lack of motivation to submit, the remaining 26 responses

48 Translation: "[...] ensure transparency throughout the research and communication process, expand cooperation among researchers, facilitate the reproducibility of research, and strengthen the social role of science and scientific knowledge [...]" (Packer, 2021, online, editorial translation).

(89%) demonstrated openness to utilizing preprints. This positive inclination among CNPq Productivity Research Grant (PQ) holders towards preprint submission is consistent with the previously observed 75% acceptance of open public review.

Speed, dissemination, accessibility, and originality emerged as key motivational factors for submitting to preprints, as illustrated in the following responses: *"To disseminate the material within a shorter timeframe and to present the text for discussion."* (PQ 5)*; "The originality or pioneering nature of issues or dimensions that warrant rapid circulation."* (PQ 19)*; "The speed with which developing ideas can be shared, coupled with the possibility of receiving critiques and suggestions."* (PQ 20)*.*

These explanations corroborate Souza (2019, p. 2)[49] who notes "[...] alguns benefícios advindos da adoção do modelo de publicação em *preprints*, ressaltados na literatura sobre o tema [...]". Scholarly work examining the advantages and disadvantages of employing preprints continues to proliferate, attracting the attention of both authors and editors and encouraging the academic community to engage in discussions aimed at optimizing and broadening their application.

FINAL CONSIDERATIONS

This study aimed to identify policy initiatives for optimizing preprint repositories within the Social Sciences by interpreting the understanding, acceptance, and use of preprints for disseminating original research. Regarding the understanding of preprints among CNPq Productivity Grant (PQ) holders in the Social Sciences, the findings revealed a need for greater engagement with the topic, as 36% of respondents indicated a lack of awareness concerning preprint repository attributes beyond those presented in the questionnaire.

A majority of researchers reported comfort with and support for open and public peer review, a process integral to the preprint model. However, it is important to note that 27% of respondents expressed a preference for closed, blind, or double-blind review. This reflects the exercise of academic autonomy, understood as the capacity for independent decision-making, suggesting that even when utilizing preprints, authors should retain the ability to select the type of review – open, blind, or other – upon journal submission.

The acceptance of preprints among PQ researchers in the Social Sciences emerges as a nascent trend in this study, with 63% perceiving moderate to strong acceptance of open review within the field. Nevertheless, nine respondents indicated a need for further development in this regard, a factor that warrants consideration.

Furthermore, a significant level of motivation (75%) exists among Social Sciences PQ researchers to submit manuscripts to preprint repositories. This motivation is primarily driven by the speed, dissemination, and accessibility of publication, as well as the assurance of authorship primacy.

49 Translation: "[...] several benefits arising from the adoption of the preprint publication model, as highlighted in the relevant literature [...]" (Souza, 2019, p. 2, editorial translation).

Another salient aspect highlighted by this research pertains to the profile of the respondents, largely characterized as belonging to the baby boomer generation, a cohort significantly influenced by the era of restricted print publication. While these researchers demonstrate openness to change, their specific generational characteristics should not be overlooked or disregarded.

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