Pen Names in Scientific Writing

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1 Introduction and Background

Pseudonyms, or pen names, represent a long-standing practice that extends beyond literary works into scientific and academic writing. They are part of a broader category of "name-altering practices" common across creative fields, including "pen names in literature, stage names in the performing arts, and aliases in music" [10]. These alternative identities serve multiple purposes in scholarly contexts, most commonly to "maintain interviewee anonymity" in research involving human subjects [30].

From a linguistic perspective, pseudonyms belong to the broader category of anthroponyms—names given to humans—studied in the field of anthroponymy, a branch of onomastics. According to Anashkina et al., anthroponyms encompass "personal name, patronymic name, surname, nickname, pseudonym, cryptonym, anthroponyms formed from ethnicons" [3]. In academic contexts, pseudonyms function similarly to anonymity while maintaining a consistent identity. For instance, in peer review processes, designations like "Referee A" allow for "pseudonymous identification of the anonymous referee as the author of the report" without revealing their actual identity [39].

Historical examples illustrate how pseudonyms have addressed systemic biases in academic and literary publication. Female Victorian writers often adopted male pseudonyms "out of fear of being dismissed based on their gender," a practice that continues in modern times [19]. A contemporary example is J.K. Rowling, who used initials rather than her full first name Joanne because "boys tend not to read books written by female authors" [19]. These practices reflect how pseudonyms can serve as protective mechanisms against prejudice and discrimination in fields where gender bias persists [14].

> Pseudonyms in scientific writing are part of a broader tradition of name-altering practices seen across creative fields. They serve various functions from maintaining anonymity to addressing gender bias, with different types falling under the study of anthroponymy.

2 Historical and Cultural Context

The practice of using pseudonyms in scientific and academic contexts has evolved across different cultural and historical periods, often reflecting the social constraints of their times. In the Victorian era, female writers frequently adopted male pseudonyms "out of fear of being dismissed based on their gender," establishing an early precedent for using alternative identities to overcome systemic biases [19] [14]. This tradition continued into modern times, as exemplified by J.K. Rowling, who initially concealed her gender to appeal to male readers who "tend not to read books written by female authors," before later publishing under the entirely fictional male persona "Robert Galbraith" [19].

The history of scientific pseudonyms also includes remarkable collaborative pseudonyms, such as Nicolas Bourbaki in mathematics. This single authorial identity actually represented "a group of four and up to twelve members at a time, in a chain of generations originating in the period of WWII" [7]. Such collective pseudonyms demonstrate how alternative identities can serve intellectual or institutional purposes beyond individual anonymity.

The naming practices in science extend beyond protective pseudonyms to include creative expression. Scientific naming, particularly the coining of Latin binomials for newly discovered species, represents "a strong contender" for "the most creative act in science" [13] [12]. This creative dimension of scientific work challenges the "persistent trope... that creativity and the scientific enterprise are opposites" [13].

However, the historical context also reveals problematic naming practices. In scientific research involving human subjects, pseudonym selection can inadvertently perpetuate harmful stereotypes. One troubling example involves researchers who assigned the pseudonyms "Ike" and "Tina" to two adolescent participants with behavioral disorders, unconsciously invoking cultural references to domestic violence that was well-documented in popular media at the time [28] [26]. Such practices demonstrate that "the context in which we name and frame our participants matters as it is a demonstration of their position in society and creates a relational frame" [28] [23].

> Pseudonyms in scientific writing have deep historical roots, from Victorian female authors using male names to avoid gender bias to collaborative pseudonyms like Nicolas Bourbaki in mathematics, reflecting both social constraints and creative expression across different time periods.

3 Purposes and Functions of Pseudonyms in Scientific Writing

Pseudonyms serve crucial practical and ethical functions in scientific writing, with protection of research participants being the most commonly cited purpose. Researchers employ "carefully selected pseudonyms in writing" to maintain confidentiality while "preserving the richness of respondents' narratives" [33] [38].

This practice extends beyond merely changing individuals' names to include "place names, and company or organisation names" to remove identifying information while maintaining narrative integrity [38]. In digital contexts, researchers face additional privacy considerations, as "the traceability of digital information" means that online content "could be found by entering these quotations into a search engine," requiring researchers to balance anonymity with proper attribution [34] [15].

The practice of using pseudonyms reflects evolving perceptions about privacy and identity in research. While traditionally researchers have emphasized anonymity through pseudonyms, there is "a growing number of examples where research participants have expressed a wish to be referred to by their real names in research publications," indicating a cultural shift in "defining the boundaries between privacy and publicity" [20] [18]. This tension between anonymization and recognition highlights different disciplinary approaches, as "ethnographers speak of protecting the people they write about by changing their names" while "for journalists, accurate information about 'sources,' including their real names, is expected practice" [8].

Pseudonyms also play a significant role in academic identity construction and career advancement. In digital spaces like Twitter, authors can "enact many identities in one digital forum," allowing for a broader range of self-presentation than traditional research journals which "limit writers to performing a fairly narrow range of roles and identities" [36]. Individual bloggers may deliberately "avoid the neutral and objective language typically associated with the discourse of science, blurring their private and public identities" to establish credibility through either "an academic self" or "a private ('ordinary person') persona" [6].

The use of pseudonyms also intersects with broader issues of identity representation in scientific discourse. Researchers studying the use of first-person pronouns in academic writing have examined how linguistic forms indicate "the identity of the authors" and their socio-cultural implications [4]. Meanwhile, name-based identity assumptions can lead to methodological limitations, as when studies "inferred the gender of authors and inventors based on their names, which offers only a rough proxy" and "oversimplifies the true diversity of gender identities" [22].

For academics writing for broader audiences, pseudonyms may also serve strategic career functions. Authors of publicly acclaimed works can receive "book royalties and honoraria for guest lectures" and experience "a cascade effect as publicity about existing work generates interest in and funding for their next projects" [40]. Pseudonyms can therefore operate as professional management tools in navigating the complex interface between scientific authority and public engagement.

The use of pseudonyms also presents challenges for traditional academic processes like peer review. The "anonymous peer review process is often at least partially undermined" when an author's identity becomes evident through their expertise or citation patterns, a problem further complicated in autoethnographic work where "chances for identification despite the removal of their names are quite likely" [42].

Pseudonyms in scientific writing serve multiple functions including protecting participant privacy, navigating power dynamics in academia, and enabling different authorial identities. They reflect both ethical obligations to research subjects and strategic choices by researchers managing their public personas.

4 Types and Examples of Pseudonyms

4.1 Types of Pseudonyms in Scientific and Academic Writing

Academic Role Identifiers: Pseudonyms that indicate the author's position within academia, such as "Astroprof" (a professor of Astronomy) or "Psycgirl" (a female graduate student studying psychology) [9]. These often appear in academic blogs where authors balance professional identity with privacy.

Demographic Indicators: Pseudonyms that signal gender, disciplinary affiliation, or other demographic characteristics, such as "Prof Mama" who uses her pseudonym to represent her dual identity as both professor and mother [9]. In research reporting, authors may include limited demographic information with pseudonyms, such as "participants' gender (M/F) and educational affiliations" [11].

Expressive or Character-Based Pseudonyms: Names that convey personality or attitude, like "Dr. Brazen Hussy," a postdoc who chose her name based on one found in a bartending manual to express her sense of wit [9].

Case Study Pseudonyms: In developmental and language research, researchers use pseudonyms both to protect privacy and to convey meaning about participants. Classic examples include "Adam" and "Eve" in Brown's language acquisition studies, which were intended to represent "Everychild" or the typical case [37].

Particularized Pseudonyms: For studies involving individuals with unconventional profiles, researchers may "go beyond merely supplying a label, to implicitly define the dynamics of their work through their choice of pseudonym," creating more specialized or descriptive alternative identities [37].

Collective Pseudonyms: Cases where a single authorial identity represents multiple contributors, such as "Nicolas Bourbaki" in mathematics—a pseudonym representing a group that varied from four to twelve members across generations since World War II [7].

Cryptonyms: A specific type of anthroponym that conceals identity through encoding or encryption, distinct from standard pseudonyms [3].

Disciplinary-Specific Pseudonym Practices: Different academic disciplines have varying norms regarding self-reference and identity presentation. In hard sciences, authors tend to use "more self-mention boosters than self-mention hedges," reflecting the "disciplinary norm of producing or reporting knowledge" with confidence rather than tentativeness [41].

Pseudonyms in scientific writing range from carefully constructed academic identities to cryptonyms and collective pseudonyms, often conveying information about the author's identity or field while maintaining privacy.

5 Ethical Considerations

The ethical implications of pseudonym use in scientific writing center around several key tensions between competing principles and interests. While anonymization is traditionally viewed as protective, researchers increasingly recognize that participants may have different preferences about being identified in published work. There is "a growing number of examples where research participants have expressed a wish to be referred to by their real names in research publications," indicating a significant shift in "defining the boundaries between privacy and publicity" [20]. Some participants may view pseudonyms as erasing their identity or contributions, as seen in cases where family members of patients with brain injuries "wanted us to use their own names and that of the patient" because they felt "their relative had been stripped of their identity/voice first by the brain injury and then by a system which ignored their prior expressed values and beliefs" [31].

This tension extends to fundamental disciplinary differences in approaches to naming and anonymity. As Conover observes, "Ethnographers speak of protecting the people they write about by changing their names" while "for journalists, accurate information about 'sources,' including their real names, is expected practice" [8]. These conflicting standards reflect deeper epistemological differences about reliability, accountability, and harm prevention across scholarly traditions.

The power dynamics inherent in naming practices also raise ethical concerns. As Itzik et al. note, "the act of naming says a lot about the relationship between the person giving the name and the one who receives it" [16]. Researchers must consider whether they should select pseudonyms themselves or allow participants to choose their own names, with some arguing for the latter approach to restore agency to research subjects. This perspective emphasizes "the psychological importance of choosing pseudonyms that mean something to their participants" [16] [2]. This collaborative approach recognizes that "the common practice of allocating pseudonyms to confer anonymity is not merely a technical procedure, but renaming has psychological meaning" [16] [2].

For researchers themselves, particularly autoethnographers, pseudonym use creates another set of ethical dilemmas related to career advancement. While some suggest that autoethnographers "should publish under a nom de plume" to protect anonymity, this approach means "the author will not receive due credit for their article in the process of tenure review and promotion" [35]. This tension is particularly acute in "the neoliberal university infused by a metrics driven audit culture in which named publications in peer reviewed journals are deemed to be essential measurable outputs" [35].

The peer review process presents additional ethical challenges. When researchers write about their own experiences using pseudonyms, "the anonymous peer review process is often at least partially undermined" because their identity may become apparent through their expertise or citation patterns [42]. This is especially problematic in autoethnographic work where "the chances for identification despite the removal of their names are quite likely" [42].

These ethical considerations around pseudonym use have become more complex in digital contexts where the boundaries between public and private are increasingly blurred. The challenge of maintaining anonymity while preserving the richness and authenticity of research data requires careful, context-sensitive approaches that balance protection with recognition of participants' agency and dignity.

Pseudonym use in research involves complex ethical tensions around anonymity, participant agency, and academic recognition, with challenges arising from digital contexts and competing interests such as career advancement versus confidentiality.

6 Methodological Approaches to Using Pseudonyms

6.1 Common Approaches to Using Pseudonyms in Research

Standard Anonymization: The most basic approach involves assigning generic pseudonyms or numerical identifiers to preserve participant anonymity, such as "Key Informant 1, 2, and 3" [27] or simply using pseudonyms without additional context [25].

Participant-Selected Pseudonyms: An increasingly common approach involves allowing research participants to choose their own pseudonyms, recognizing the psychological importance of self-naming and giving participants greater agency in the research process [16] [2] [21].

Collaborative Pseudonym Selection: Some researchers actively engage participants in discussions about pseudonym selection, reaching agreements about what types of names would be appropriate within the study context [1] [24].

Culturally-Sensitive Naming: Researchers may select pseudonyms that resonate with participants' backgrounds while still protecting their identities, being careful to "avoid revealing too much about the ethnic/cultural backgrounds of participants" while selecting "names that would at least in some way resonate with them" [31].

Composite Accounts: Creating a single pseudonym to represent a composite of multiple participants' experiences, which can further protect individual identities in sensitive research contexts [17] [31].

Data Disaggregation: Allocating multiple pseudonyms to data from a single participant to further protect identity, especially when discussing sensitive or potentially identifying information [17] [31].

Decontextualization: Separating pieces of data from their context to enhance anonymity, although this approach may "reduce capacity to find meaning in the data" [17] [5].

Detail Modification: Changing non-essential details while preserving the core meaning of participant accounts to maintain anonymity while preserving authenticity [17] [31].

Multi-Level Anonymization: In complex cases like family studies, researchers may avoid letting participants choose pseudonyms to prevent inadvertent disclosure of relationships, instead carefully allocating appropriate names that don't risk revealing family connections [43] [29].

Smokescreen Techniques: In particularly sensitive cases, researchers might employ strategies like avoiding consistent pseudonym use or deliberately using different pseudonyms for the same participant across different data extracts to prevent readers from connecting separate but identifying information [31].

Researchers employ various methodological approaches when using pseudonyms in scientific writing, from traditional researcher-assigned identifiers to participant-selected names, with each approach addressing different ethical and practical considerations.

7 Current Debates and Perspectives

The contemporary discourse around pseudonyms in scientific writing is increasingly focused on participant agency and the changing cultural perceptions of privacy. A significant shift is occurring as "research participants have expressed a wish to be referred to by their real names in research publications," challenging traditional assumptions that anonymity is always preferable [20] [18]. This reflects evolving attitudes toward privacy in research contexts and raises fundamental questions about whose interests anonymization practices primarily serve.

This debate extends into profound disciplinary differences regarding ethical approaches to naming practices. Ethnographers typically prioritize protecting participants by changing names and often creating composite characters, while journalists operate under different standards where "accurate information about 'sources,' including their real names, is expected practice" [8]. These contrasting approaches reflect deeper epistemological differences about reliability and harm prevention across scholarly traditions.

Another active area of debate concerns the emotional and representational impact of pseudonym use. Some research participants, particularly family members of patients with conditions like brain injuries, have objected to pseudonym use because they felt "their relative had been stripped of their identity/voice first by the brain injury and then by a system which ignored their prior expressed values and beliefs" [31]. This perspective frames pseudonym use not as protection but as a potential form of erasure that compounds existing vulnerabilities.

For researchers themselves, particularly autoethnographers, contemporary debates center on balancing privacy with career advancement. While some suggest that autoethnographers "should publish under a nom de plume" to protect anonymity, this approach means "the author will not receive due credit for their article in the process of tenure review and promotion" [35]. This tension is especially problematic in "the neoliberal university infused by a metrics driven audit culture" where named publications are essential for career advancement [35].

Legal and definitional debates also persist regarding what constitutes authorship in collaborative contexts. Some legal frameworks explicitly address pseudonym use, stipulating that "co-authorship of a work is attributed to those in whose name, pseudoname, or conventional sign is used" while excluding those who merely assist with production, revision, or supervision [32]. These legal distinctions highlight ongoing questions about how pseudonyms relate to academic credit attribution and intellectual property rights.

The methodological debate has expanded beyond simple binary choices about whether to use pseudonyms to include more nuanced discussions about their selection and implementation. Researchers are increasingly attentive to cultural sensitivity in pseudonym assignment, seeking to "avoid revealing too much about the ethnic/cultural backgrounds of participants" while still selecting "names that would at least in some way resonate with them" [31]. This approach recognizes that pseudonyms carry implicit meanings that can affect how research participants are perceived and represented.

> Modern debates on pseudonym use center on tensions between participant privacy rights and their desire for recognition, while also addressing academic career implications and cross-disciplinary disagreements about anonymity practices.

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