

Gender in Binary Structures

The Role of Digital Communication for the Negotiation, Participation and Representation of Diversity

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1 Introduction

“On the Internet, nobody knows you’re a dog” was the caption of a 1993 cartoon showing two dogs at a computer. The drawing has since become emblematic of the early promise of the Internet: a space where social differences might become invisible. Behind every username, one could be anyone—or no one in particular. Online, people were able to slip into avatars, reinvent themselves in chatrooms, or experiment with alternative identities in digital games and virtual worlds (e.g., Turkle, 1997). For marginalized groups, this carried the hope of escaping social categories that had disadvantaged them or even led to discrimination against them in offline contexts.

Yet, the digital sphere has never been a neutral ground. From its early years, usage and access of digital technologies have differed strongly by many social categories such as age, gender, race, education, and class. Since the 1990s, the Internet was largely shaped by white, male, and IT professionals whose world views, ideals, and blind spots were coded into the early digital technologies (e.g., Abbate, 1999)—many of which still linger as defaults today. This dominance was mirrored on the user side, as Internet adoption in the 1990s was initially concentrated among young highly educated men, while a broader diversification of user groups and a gradual narrowing of disparities across gender and age

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only developed in the course of its diffusion (Röser & Peil, 2010). As a result, digital technologies continue to be marked by social differences. That they are inherently gendered is evident in a wide variety of areas, such as the programming of voice assistants (e.g., Dogruel & Joeckel, 2024), sexism and misogyny on digital platforms (e.g., Massanari, 2017), the development and training of AI (e.g., Wellner, 2021), as well as gendered self-presentation in social media (e.g., Butkowski et al., 2020). These examples highlight that gender is not only represented or negotiated in media content but also materially inscribed into the design, coding, and data practices of digital technologies themselves (Peil et al., 2020). What emerges from this body of work is the insight that research on the (de-)gendering of the internet and digital technologies in everyday life must go beyond analyzing stereotypical reproductions of masculinity and femininity online, acknowledging the more complex dynamics at play. A particularly striking example is the highly nuanced way in which couples negotiate understandings of capabilities and responsibilities related to the use of the domestic internet (Roth, 2025).

The development of a gender-sensitive approach, attentive to social backgrounds and mechanisms of construction, resulted from the integration of gender studies theories into communication studies. Since the early 1990s, gender has been understood not as a biological given but as a social category: enacted in everyday interaction, shaped by institutions, and reproduced in and through the appropriation of media (Ang & Hermes, 1994). Therefore, gender is not inherently binary (men vs. women); it is historically constructed as such (Butler, 1991) and must always be considered in relation to other social categories (Crenshaw, 1991). As a critique, scholars have argued for a more diverse understanding of different genders and their empirical analysis beyond a gender binary (e.g., Lindqvist et al., 2020) and have integrated such perspectives into the analysis of communication and media. This understanding is also supported by recent research on the interrelation between gender and digital media, which consistently demonstrates that gender remains a potent and multifaceted category, influencing and being influenced by digital media across various levels. Gender-related attributions, expectations, and evaluations are ascribed to technology and engineering and form a background framework for mediated communication (Peil et al., 2020).

This brief summary already shows that the idea of taking a closer look at the link between gender and digital technologies while overcoming purely binary gender categories is not a new endeavor. Research since the mid-to-late 2010s until recently, particularly in feminist communication studies, has increasingly advanced nuanced analyses of the contexts, processes, and implications of the gendering of digital media, their underlying structures, conditions, and consequences (e.g., Bivens, 2017; Duguay, 2016). Moreover, digital environments often amplify such dynamics: platform architectures and usage cultures mediate how gendered, generational, and socio-economic differences unfold in practice. This underscores the need to move beyond binary logics in order to capture the

complexity of diversity in digital communication and the conditions under which it unfolds. Against this backdrop, this special issue contributes to the field by a mapping and systematization of recent research in communication studies on the interplay of gender, digital technologies, and online environments. By spanning an overview on questions of gendering as well as on the deconstruction of gender, it sheds light on the relevance of gender for digital communication in the 2020s, highlighting how this dynamic category shapes digital environments and the use of digital media, often by reproducing binary but also by enabling non-binary media technologies, content, or practices.

Building on these developments, the special issue presents current research on non-binary and binary gender identities in digital media, organized around four thematic areas: (1) the consequences of (non-)binary representations on identity construction and development, (2) participation and discourse, (3) the role of platforms, outlets, and regulation in shaping (non-)binary power relations, and (4) methodological approaches. By addressing both non-binary and binary perspectives, the issue highlights existing research gaps and contributes to a more comprehensive understanding of gender in digital communication.

2 Consequences of (Non-)Binary Representations on Identity Development and Construction

Digital environments provide a unique space for individuals to explore, express, and negotiate their gender identities. In particular, social media serve as platforms where both binary and queer gender identities are articulated, validated, and at times challenged. Understanding the processes of identity construction in digital spaces reveals how individuals negotiate gender (re)configurations in ways that transcend offline limitations. This exploration is essential for recognizing the fluidity and diversity of gender experiences in an increasingly digitally connected society.

At the same time, digital media representations shape understandings of gender (Bussey & Bandura, 1999)—including individual self-conceptions, socially shared meanings, and their multilayered interactions. Regardless of stereotypical, binary portrayals or counter-stereotypical and non-binary alternatives, research shows that representation matters: it influences attitudes, norms, and the sense of what people perceive as possible gender expressions. The challenge for communication research lies in tracing whether these portrayals enable visibility, reinforce biases, or provide models for inclusion.

This tension becomes especially clear when viewed across generations. As *Fatemeh Asadi Pour* (2025) shows in her contribution in this special issue, queer people who grew up in the pre-digital era faced multiple difficulties in finding suitable identity models in media entertainment, while younger generations perceive a diverse range of options while still encountering stereotypical representations. Her qualitative interviews highlight how

much media representations matter for identity development and how digital platforms both expand and limit possibilities for diverse self-conceptions.

3 Non-Binaries and Binaries in Participation and Discourse

Digital media are not only arenas where gender identities are represented, but also spaces where gender is negotiated and articulated through participation and discourse. Online interactions can empower marginalized voices and provide visibility for non-binary identities—but they can just as easily reproduce exclusionary dynamics and inequalities in gender representation, e.g., in academia (Peng et al., 2025). Understanding these ambivalences is crucial for assessing the inclusivity of digital publics and the barriers that different gender identities continue to face. Amongst others, this becomes particularly evident in academic contexts. This special issue features a study by *Laura Heintz, Jonas Büttner, and Michael Scharkow (2025)*, who examine gender differences in the visibility, communication styles, and content of communication scholars on Twitter/X. Their automated content analysis reveals a persistent visibility gap: male scholars tend to attract more followers and attention than female or non-binary colleagues. Such findings underscore how even within professional digital communities, gendered power asymmetries shape discourse and recognition. They also point to a broader challenge for digital platforms: whether they can serve as equitable spaces for participation or whether they reinforce long-standing hierarchies under new digital conditions.

4 Platforms, Outlets, and Regulation—(Non-)Binary Power Relations

Beyond individual representation and participation, the very architecture of digital platforms profoundly shapes how gender is enacted and contested online. Here, design decisions, affordances, and governance models regulate who can speak, be visible, and be recognized. From algorithmic recommendation systems (Edizel et al., 2020) to content moderation policies (Mayworm et al., 2024), these infrastructures are infused with assumptions that often reproduce binary understandings of gender and sustain patriarchal power relations and thereby reinforce existing social structures. Examples include “real name” policies that invalidate fluid or anonymous identities, default avatar designs that naturalize gender stereotypes, or algorithms that amplify harassment and misogyny more readily than counter-speech.

At the same time, inclusive design choices—such as allowing users to self-define their gender identity beyond binary categories, introducing safety tools for reporting harassment, or developing moderation guidelines sensitive to intersectional discrimination—can open up spaces for recognition and protection. Moreover, niche platforms and community-driven outlets demonstrate how digital infrastructures can be

built differently, prioritizing diversity and enabling alternative publics that would be marginalized in mainstream spaces. These examples remind us that platform architectures are not fixed: they can reproduce binary logics, but they also hold potential for more equitable and inclusive forms of digital communication (Drüeke, 2023).

The special issue contribution by *Monika Pater* and *Julia Niemann-Lenz* (2025) vividly illustrates this ambivalence. Their study of German #politiktok creators shows that TikTok's affordances enable new opportunities for political visibility and outreach. At the same time, this visibility often comes at the cost of increased exposure to hostility and hate speech. Their interviews reveal how such abuse not only harms individual creators but also reinforces binary structures by policing who is seen and heard in political discourse. Their findings exemplify how platform affordances simultaneously expand possibilities for participation while reproducing inequalities. Consequently, the authors highlight the need to critically examine the interplay of visibility, abuse, and regulation.

5 Digital Methodologies Researching (Non-)Binaries

How we study gender in digital media crucially determines what we perceive—and what remains unrecognized. Thus, the methodologies used to study gender in digital media are foundational to the validity and depth of research findings (Lindqvist et al., 2020) as well as the basis for a critique of blank spaces and misrepresentations. Traditional methodological designs in communication research have often relied on binary categories (“male/female” or “man/woman”), thereby obscuring the diversity of gender identities and experiences. Revisiting traditional gender measures and categorizations is therefore not just a methodological concern but a theoretical and ethical one: The tools and measures we use directly shape what we are able to discover about gender in digital contexts. This includes decisions about how gender is operationalized in surveys, how online communities are accessed, whom researchers are interested in, and how digital traces are interpreted. A gender-sensitive approach to empirical methods therefore means that researchers must be aware of how they themselves are involved in gendering processes. Such reflection offers the opportunity to productively use gender-related perspectives in the sense of advocating for the subjects being researched.

In this special issue, *Azadeh Shamsi* (2025) reflects on her qualitative fieldwork as an ethnographer studying digital activism among feminist activists in Iran. Her research essay shows how digital methods can provide valuable access to otherwise hard-to-reach groups, while also highlighting the challenges of conducting research in non-Western as well as non-democratic and anti-feminist contexts that remain underrepresented in our field. It also reflects on how female researchers can bring their subjectivity into the research process and still maintain an observer position that allows for both a deep understanding of the research subjects and analytical distance. Methodological innovations like these

remind us that researching (non-)binaries requires approaches sensitive to context, culture, and intersectionality. They also underscore the importance of continually adapting our methodological toolkit so that communication research can adequately capture the fluid, multifaceted, and evolving nature of gender identities in digital environments and address intersectional questions such as the interrelation between gender, nationality, or religion.

6 Conclusion and Outlook

The idea for this special issue arose following a conference held by the divisions Digital Communication as well as Media, Public Spheres and Gender of the German Communication Association (DGPuK). The studies conducted by the authors in this special issue make substantial contributions to both areas.

The articles highlight how platforms such as Twitter/X and TikTok play a central role in gendering digital publics, revealing barriers and boundaries of visibility as well as participation across different gender identities (see Heintz et al., 2025; Niemann-Lenz & Pater, 2025). They also exemplify how digital media content shapes identity (see Asadi Pour, 2025) and how it provides a structure that continues to shape power relations (see Niemann-Lenz & Pater, 2025). The contributions extend debates on digital media and identity formation (see Asadi Pour, 2025) and advance our knowledge on feminist methodology in digital media (see Shamsi, 2025). They also showcase how gender is operationalized in current communication research (e.g., Asadi Pour, 2025; Heintz et al., 2025). Communication studies gender research and research on digital communication benefit from the interconnection of these approaches in terms of theory building and future empirical research.

At the same time, the thematic structure of this issue—representation and identity, participation and discourse, platforms and regulation, methodologies—should be understood not as four distinct fields, but as intersecting areas. The boundaries between them are fluid: questions of methodology, for instance, shape how identities and participation can be captured empirically; analyses of participation often cannot be separated from the regulatory and infrastructural conditions that enable or constrain it. A case in point is the contribution by Niemann-Lenz and Pater (2025), which demonstrates how TikTok's platform design both affords political visibility and structures the forms of hostility creators encounter. Such overlaps illustrate that our four areas are not meant as rigid categories, but as a heuristic to map a diverse and evolving field of research. However, they open up broader theoretical questions about how digital publics are structured, how inequalities are reproduced across intersecting categories, and how communication research can contribute to reimagining more inclusive media environments.

Taken together, we understand the contributions as a demonstration that the study of (non-)binaries in digital communication is not a niche within communication studies but a central concern for understanding how diversity is negotiated online and thus may unfold in society. Even though the studies show that binary structures remain deeply embedded in digital technologies and practices, digital communication also provides the tools to unsettle and reconfigure them. Future research will need to address this ambivalence more systematically: How can platforms be designed and governed in ways that enable inclusion—for gender as well as other categories of social inequalities? How can methodologies capture the full spectrum of gendered experiences without reproducing binary logics? And how can communication scholarship contribute to wider societal debates about gender, diversity, and digital publics?

By raising these questions, this special issue aims to not only take stock of current research but to also set an agenda for the years ahead. It calls for communication research that consistently interrogates binaries while recognizing the multiplicity of gendered experiences in digital communication.

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