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# Thinking Outside the Binary: Supporting Gender Identity in HCI

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**Abstract**

The design of technology often suffers from not considering the real-world identities of users, and HCI has largely overlooked the needs of people with non-conforming gender identities. Gender is a significant aspect of identity that is often threatened or not recognized for transgender/non-binary individuals, undermining their wellbeing. This paper raises questions to consider how a more nuanced approach to gender can be implemented when designing technology and during the research process.

**Author Keywords**

Gender Identity; Transgender; Non-binary; LGBTQ; Wellbeing; Identity; Sensitive Research

**ACM Classification Keywords**

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

**Introduction**

A large body of research in HCI explores technology designed to support the wellbeing of people belonging to marginalised groups or with stigmatised facets of their identity (e.g. chronic pain [17], old age, disability, mental health [20], and HIV [19]). Gender identity has become a focus in HCI, with researchers seeking to understand the digital experiences of transgender and

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## Box 1: Author Profiles

**Leya George** is a PhD student aiming to understand how technology may enhance the wellbeing of people with different gender identities, who has had some experience in a sensitive setting, working with people with Functional Neurological Disorders.

**Aneesha Singh** and **Nadia Berthouze** have worked with sensitive populations (chronic pain [17], sexual health and HIV [19]) in the area of HCI and computing addressing sensitive issues including identity and revisiting the everyday needs technology should support.

**Jo Gibbs** is a clinical academic working in the area of Sexual Health and HIV [19].

non-binary users in contexts ranging from sexual health to identity expression.

The results of our initial literature review have shown that this is a group in which digital technology plays a significant role in the development of their identity: popular online platforms and virtual worlds facilitate the low-stakes exploration of identity through performative expression and experimentation [8][2]; for education purposes such as seeking health information [11]; and connecting to communities to allow safe disclosure of identity and getting peer support [12], which is a predictor of wellbeing for this population.

However, the design of such platforms may create barriers to trans/non-conforming gender (TNCG) individuals by overtly or inadvertently challenging their identity or undermining their ability to safely explore themselves, thus causing harm. This is a group who utilize technology for gender affirming and other purposes, whilst facing the challenge of persistent discrimination and victimization in different online contexts. It is therefore important for HCI researchers and designers to actively reflect on their understanding and treatment of gender identity in technology, to minimise harm and breed respect and support both through the design of technology and during the actual research process. In this paper, we highlight the literature on technology-mediated exploration of identity including the challenges to safe identity development for TNCG people. We describe how technology developers and researchers broadly have excluded them and argue why this is a group that deserves more attention in HCI. We then consider issues raised within other sensitive contexts in which facets of identity are often threatened, and what

questions need to be discussed in the context of gender identity.

## Trans Exclusion in Technology

*Challenges in exploring and expressing identity 'safely'*  
Existing mainstream technology (e.g., social networking platforms, video games, virtual worlds) have many affordances (e.g. anonymity, avatar-creation) that allow people to construct and experiment with different possibilities regarding their identity; to safely seek information related to their identity such as advice on transition options; and to disclose their gender identity on their own terms and selectively (e.g., to supportive communities).

Whilst these platforms are being used positively for gender-affirming purposes, studies have reported barriers to safe identity development. Six types of technology-mediated harm encountered by transgender individuals have been identified [16], some describing incidents of direct attempts to harm transgender users, such as transphobic harassment. Anonymity, an affordance that could benefit individuals wanting to experiment with their gender expression without disclosing any identifying information, can also allow outsiders to incite abuse with little consequence. This intrusion on "safe spaces" for LGBTQ+ communities is distressing and highlights the need to consider how technology affordances may be enabling the occurrence of harm by 'bad actors', and how best to mitigate it.

Negative experiences permitted by the design of a platform relates to another type of harm, described as incidental; this is more common and equally impactful on transgender users' emotional wellbeing as more direct, targeted harm [16]. An example is the

automatic playing of a video clip on Facebook when the user pauses on it, which may expose them to potentially distressing content (e.g. episodes of transphobic violence) without a trigger warning.

Another significant example of incidental harm relates to how platforms do not design favourably for selective visibility in those navigating identity transitions [4], and who require greater control over their disclosure options and audiences for the content they share or are associated with. Managing different audiences within the same context (context collapse [14]) can comprise various strategies to ensure a user's gender identity is disclosed only to certain "accepting" networks (e.g., by creating separate friend lists or different accounts, or deleting friends), but this is often stressful [7]. Further, given the archival nature of social media platforms, another challenge concerns the resurfacing of digital footprints of a past identity, including pre-transition photographs and pronouns [9], which can be distressing and even harmful if viewed by the wrong audience.

Identity is commonly constructed and performed in virtual worlds, often within the context of gaming (e.g. Second Life, World of Warcraft). Game designers tend to design with a particular identity in mind (i.e. typically cisgender, white males). Thus, many aspects of games may not be respectfully representative of other identities [15]. As with social media, anonymity, avatar-creation and performative features for roleplaying can contribute to one's ability to experiment and come to terms with their gender expression. Users appropriate the digital tools at their disposal for identity exploration – e.g., customising their avatar to reflect a

transgender or non-binary identity, subverting developers' expectations [6].

#### *Trans exclusion in broader contexts of technology*

In addition to the everyday technology people use to explicitly explore their identities, the design of technology more broadly suffers from a lack of a nuanced approach to gender, in ways that disproportionately affects TNCG users. Platforms often ask users to declare their gender identity when signing up to their services, frequently only providing binary options. Even with improvements in including a variety of gender identities, as with Facebook's custom gender options, the conception of binary gender is propagated at a latent level as these options are still classified as part of the binary in the database, or as an 'alternative' category [3]. Newer interfaces that use sensory inputs are also problematic. Automatic Gender Recognition (AGR) technologies aim to algorithmically identify the gender of individuals based on visual or audio inputs (e.g., using face, body, or voice recognition). These tend to be trans-exclusive [13] [10] as they operationalise gender as binary and immutable, which risks misgendering individuals, impacting their mental wellbeing. Gender is multifaceted and subjective, but current technology design reflects latent biases that, in the case of AGR, emphasise external features over one's internal understanding of their identity. To truly embrace diversity in gender identity, HCI researchers and practitioners should actively follow practices to understand and mitigate the harms caused by such ill-thought out designs and research methods.

#### **Doing Research with Trans Populations**

There is a growing recognition that HCI researchers do not receive enough training for sensitive settings,

leading to distressing encounters for both researchers and participants. Whilst some issues can be found across different sensitive areas (e.g. interviewing about a sensitive topic), some are more specific to working with TNCG populations especially on identity. We want to discuss whether issues raised in other settings can be extrapolated to the context of gender identity, and what further questions emerge for consideration for addressing gender-diversity, such as:

- Addressing participant anxiety: how can distress caused by discussion of uncomfortable issues be addressed? What protocols might researchers need to put in place to minimise emotional harm when someone reflects on their identity?
- Managing group dynamics - how might other users' disclosing sensitive information in a group setting, for example, individual instances of cyberbullying or mis-gendering, affect emotional wellbeing of other participants? Should researchers receive training to be able to address such dynamics and deal with the emotionally charged events?
- Balancing the needs of different stakeholders: how can diverse experiences and needs of different gender subgroups be incorporated into technology design. E.g. transgender men and women have very different concerns regarding transitioning and willingness to disclose identity; non-binary people encounter different experiences to their binary transgender counterparts [5]. Researchers in other sensitive contexts have described addressing conflicting views e.g. views of parents, teachers and healthcare providers in technology design for socially connecting hospitalised children and their peers [20]; or physiotherapists' and patients' needs from technology for physical activity in

chronic pain [18]. What can we learn from these contexts?

- Recruiting hard-to-reach populations: How do we deal with the reality that the characteristics of TNCG people who engage with such research may not be representative of the variety of identities that it may benefit? What are the best methods to use? In-person focus groups may be a barrier to engagement due to participant anxiety or fear of stigma. How might we overcome this limitation by building trust (e.g. reflecting on the use of language to ensure it is not cis-centric?)
- Researcher safety and wellbeing: what support do researchers exploring gender identity need? How can they recruit for studies and disseminate findings without attracting unwanted attention from anti-trans groups? How can they manage emotional wellbeing despite sensitive issues that may arise during data collection, e.g. if individuals disclose distressing experiences, or react negatively to the researcher?

## **Conclusion**

Currently, the design of many technologies does not consider TNCG users' needs. HCI research needs to reflect on its practices and design to be more inclusive and flexible and not perpetuate the oppression that already exists in the lives of people with non-conforming gender identities; some frameworks have been developed within the context of HCI to emphasise this empathetic mindset (e.g. [1]). More discussions should be held within the community so that researchers and developers change their practices to be sensitive to gender; then we can truly support the wellbeing of people navigating a complex, nuanced and significant facet of their identity through technology.

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