



Whose Values Matter in Persuasive Writing Tools?

Houda Elmimouni

University of Manitoba
Winnipeg, Canada
University of Siegen
Siegen, Germany
houda.elmimouni@umanitoba.ca

Anasuya Sharma

Knowledge Lab, University College
London
London, United Kingdom
anasuya.venkateshwarlu.22@ucl.ac.uk

Vidushi Manarya

Knowledge Lab, University College
London
London, United Kingdom
vidushi.manarya.22@ucl.ac.uk

Man Iao Chan

Knowledge Lab, University College
London
London, United Kingdom
man.chan.22@ucl.ac.uk

Yifan Feng

Knowledge Lab, University College
London
London, United Kingdom
yifanfeng4@acm.org

Kata Kyrölä

Knowledge Lab, University College
London
London, United Kingdom
k.kyrola@ucl.ac.uk

Jennifer A. Rode

Knowledge Lab, University College
London
London, United Kingdom
jen@acm.org

ABSTRACT

We examine Microsoft’s Inclusivity Suggestions (MSIS) tool in promoting inclusive persuasive writing. In doing so, we tackle the question of how best to adapt to the plurality of humanness in technology design. Following the naturalistic use of the tool in an educational context, we conducted a qualitative investigation with nine diverse students to evaluate the tool’s capabilities and limitations. Our findings reveal that while MSIS effectively identifies explicit gender biases, it struggles with implicit biases, code-switching, and multilingual inclusivity. Participants perceived the tool as useful in raising awareness but highlighted notable differences between performative use and genuine engagement with inclusive language. Based on these insights, we argue the tool has strong biases towards an American-centered conception of diversity. Drawing on earlier work on value-sensitive design, we propose design recommendations, and more broadly we critique whether designing for universal values is entirely realistic. We call for a more international perspective on the value tensions regarding diversity embedded into technology. **Content warning:** racist and sexist data.

CCS CONCEPTS

• **Human-centered computing** → **Collaborative and social computing systems and tools; Empirical studies in interaction design;** • **Social and professional topics** → **Race and ethnicity; Gender; Sexual orientation.**



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KEYWORDS

Persuasive Technology, Gender, Race, Value Sensitive Design, Bias, Inclusivity, AI

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1 INTRODUCTION

Increasingly, grammar tools have started to include bias checking regarding gender, race, and other axes of inequality. Discrimination is culturally constructed differently around the world; what constitutes a minority in one country may be a majority in another. While striving for universal values can help mitigate value tensions, we must also address the effects of technological colonialism. Thus, the open question is how to represent this plurality of humanness. Several tools target this space, including Microsoft’s 2020 Inclusivity Suggestions tool (MSIS), Grammarly’s style guide, and Slack’s Allybot, and each of these tools aims to normalize inclusive language choices under the general umbrella of persuasive computing. The ethics of persuasive technologies [19, 24] are an open issue for computer science, with Fogg calling them ethical ‘red flags’ [24]. This prompted Berdichevsky and Neuenschwander [7] to develop ethical best practice guidelines for persuasive technology use. Patrick and Hagtvædt [56] call for persuasive tools that influence language as valuable to help us communicate more clearly and respectfully, and highlight they could promote reflection on how we see ourselves and others. In their 2017 paper, Twersky and Davis [68] called for filling the research gap around persuasive language tools, arguing that “*Despite the prevalence and significance of application designed to influence language use, we were unable to find any academic literature on the topic.*” This prompted their study of

32 such technologies using Schwartz’s Theory of Basic Values [61] and Persuasive Systems Design (PSD) [53] to explore what types of values were embedded into these writing tools. Despite this study and other significant literature in the HCI community on gender, race, and other biases in technology [8, 32, 50] and a great deal of literature on persuasive technologies [19, 24, 68], to date we are unaware of any studies of end users’ own opinions about the values embedded into language inclusivity tools.

Persuasive writing tools are critical examples of Value Sensitive Design (VSD) at work [27, 28]. VSD is a framework that integrates ethical considerations into technology design, ensuring it aligns with human values, with its implementation shaped by the values of people and social systems, assessing the impact on direct and indirect stakeholders [10]. As the tool makes assumptions about the users, it may neglect their perspectives and values on the ‘biased language’ flagged by the system, which could be contrary to the purpose of VSD and cause ethical issues. We see other examples of this in the HCI literature. For example, Alsheikh et al. [4] argue that Judeo-Christian feminist design has marginalized Arabic women and Islamic values, and Hankerson et al. [32] demonstrate how designers inadvertently created racist technology through unconscious bias, stemming from a lack of understanding of the diversity of actual users and training algorithms on insufficiently diverse user population. This echoes work in post-colonial computing that has questioned technology unreflectively integrating largely American values [9, 21], and how this is an important area for design [18]. To address overclaims regarding various values in the VSD approach and to enhance its practical application across diverse technology designs, Borning and Muller [10] suggest that value-sensitive investigations should aim to develop a consistent understanding of universal values and recommend providing a comprehensive list of values that can serve as a heuristic for evaluation, emphasizing the voices and opinions of participants in VSD research, and clarifying the researchers’ standpoints. In this paper we explore what questioning “whose values” are embedded into this tool would tell us about whether we can accurately reflect the plurality and diversity of humanity, and whether universal values are possible.

Twersky and Davis [68] frame the central question in designing persuasive writing systems as being about how they are ‘morally ambiguous’, in that they have to balance what some perceive as ‘political correctness’ against foundational values of respect and decency for human society. Twersky and Davis [68] highlight that a central tension is the use of such persuasive technologies, or more generally AI, in shaping human speech without engaging in Orwell [54]’s ‘doublethink’. Similarly, scholars have discussed ‘dark patterns’, the conflict between users’ and designer’s values, and the fine line between manipulation and persuasion [15, 58]. Consider an example of this value tension from ACM SIGCHI, a community which many of the HttF organizers hail, which now provides, as part of our paid membership, access to Grammarly’s style guide which was initially branded as the SIGCHI style guide [64]. The last author as a proud disabled person often refers to herself as a ‘cripple’, as the Crip Power movement [71] advocates reclaiming that word from a slur to a source of pride in the disabled community. Yet, the Grammarly style guide tells the user “*Tip: The term a cripple may be considered disrespectful. Using descriptive, accurate, up-to-date*

language is the key to writing inclusively.” Grammarly’s programmers fail to consider that a disabled scholar might use reclaimed language. Reclaimed language [16] is when members of minority groups use disparaging words to take back the power associated with using them. This is common for Black, and queer communities too. When tools caution against reclaimed language, they make assumptions about the author’s able-bodiedness, whiteness, and straightness, demonstrating implicit biases [29].

Although bias detection has been a hot research topic within the NLP/AI community, to our knowledge, no study has been done to evaluate the effectiveness of these tools’ application in the writing context. Therefore, we wanted to conduct an exploratory investigation as the first step in this field by exploring whether or how the MSIS tool was perceived as helpful by students in an educational environment at the Institute of Education (IOE), University College London (UCL), in 2023.

We selected the MSIS tool since Microsoft 365 Suite was available across UCL with a site license, and it was the only supported suggestion tool available for free to all our users. Besides, the tool is designed to promote inclusive language by identifying biases in writing and suggesting alternative formulations, such as gender-neutral options instead of professional terms indicating gender (e.g. headteacher not headmaster). Several higher education institutes [51, 52] have formally published guidance and encouraged their students to use it for inclusive communication. Although this tool is not highlighted at UCL, encouraging inclusive language use has always been part of the university’s policy and emphasized across various free language training programs. Please note that at the time of our study, the MSIS tool features 9 categories of bias: age, culture, ethnicity, gender (bias, pronouns, gender-specific language), race, sexual orientation, and socioeconomic position (see Figure 1).

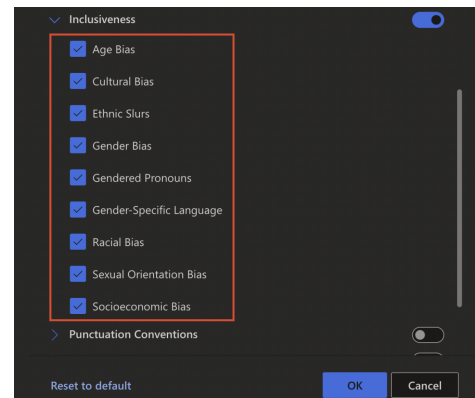


Figure 1: MSIS Inclusiveness Categories at the time of research

One key issue is whether inclusive language checkers such as the MSIS are just conforming to social norms (e.g. appearing ‘woke’), or if they are truly effective in influencing user behaviors and thereby impacting users’ values. Do they merely make writing sound inclusive or are they actually changing attitudes? To frame this, Oinas-Kukkonen and Harjumaa [53] differentiate between how users are motivated to use persuasive technology. They classify technologies as endogenous if the change is motivated by the technology

developer, exogenous if the motivation is provided by those who give access to technology, and autogenous if the motivation stems from the end user [53]. The open research question for persuasive writing tools is how to ensure motivation is autogenous and change long-term behavior, not just enforce short-term compliance.

HCI scholars have been investigating values embedded in persuasive technologies (PT). For example, Yetim [74] questioned the modernist approach as a critical framework for PT design, perceiving this view as a ‘narrowed vision’ because it emphasizes “certain limited aspects of a complex reality, involving the simplification of phenomena and making possible a high degree of schematic knowledge, control, and manipulation.” He advocated for adopting an affirmative view toward designing values for PT, shifting the focus from a critical discussion about ‘instrumental rationality’ to ‘communicative rationality’ [74, p. 3329]. In doing so, HCI researchers can emphasize the action guide by facilitating reflection, collaborating with users, and being sensitive to a diverse range of values. Davis [19] argues for the need for Participatory Design (PD) of persuasive technologies to understand the values embedded into them. PD aims to minimize ethical issues in VSD of persuasive technology [19]. The PD method directly involves users in the design process to understand their needs, both explicit and tacit, enhancing the technology’s suitability and effectiveness for the users. This rationale has prompted using interviews to uncover any value conflicts [19] between the users and the tool on ‘biased language’. As a first step to providing Participatory Design of persuasive writing tools, we thus conducted this user study and learned about their lived experience and opinions regarding one of the successfully commercialized tools - Microsoft’s Inclusivity Suggestions tool (MSIS) in an educational context.

We acknowledge Ackerman [1, p. 179]’s discussion on “social-technical gap” - “the divide between between what we know we must support socially and what we can support technically” and understand that it is challenging for computer systems to mechanize everyday human occurrence, in our context, the language use with cultural awareness and gender sensitivity. Biases embedded and amplified by MSIS are merely just a technical issue, it also reflects a social issue that result in the use of discriminatory language behaviors. Our work thus is not hoping to simply rely on technological solution to address these. Rather, we seek to engage with the discourse about values in persuasive technologies since they are intended to shape human behaviors in a positive way. We investigate MSIS as it is a commercially available, widely used tool developed by one of the largest technology companies in the world and has a worldwide influence. Criticality is crucial when using persuasive systems; however, the lack of attention to embedding stigmatized and marginalized communities’ voices and values can also be harmful for mass use. In light of this, we engage with design justice [17] and data feminism for AI [39] to highlight the need to “consider context and embrace pluralism” in AI design. We also address challenges of tackling bias in designing persuasive writing systems. The contribution of this study is the first examination of users’ views on the values programmed into technology and a critical examination as to whether ‘universalist values work for a multicultural user base.

2 RELATED WORK

Recently, efforts to scrutinize and address bias in natural language processing (NLP) systems have increased, examining bias in various NLP tasks, including language modeling, coreference resolution, machine translation, sentiment analysis, and hate speech detection [14, 45]. A major concern is the limited datasets used to design these systems, which often carry pre-existing biases [5]. This flawed training data further perpetuates algorithmic bias, creating a cycle that reinforces discriminatory outcomes in the form of biased digital language, disproportionately affecting already marginalized communities (e.g. [32, 50]).

Algorithmic bias often relates to racism and gender issues, such as systems that do not recognize darker skin tones [13, 32]. Corporations justify these biases by claiming they reflect existing data biases [66], which often stem from historical reasons or flawed human labeling [5]. In addition, technology also serves as a platform for racist language and discourse. This is exemplified by racist metaphors in digital spaces [37, 70], which convey prejudiced and degrading ideas about particular racial or ethnic groups. They employ language to associate these groups with negative attributes, often drawing on stereotypes and biased beliefs [70]. Similarly, cognate research such as stylistics focused on gender and language has pinpointed consistent linguistic attributes linked to gender bias [48]. Gender-biased social values often intertwine with language, firmly embedded in the text that is used to train machine learning algorithms [41]. Such metaphors can perpetuate discriminatory attitudes and reinforce harmful perceptions.

Technology companies have fervently developed a cadre of language inclusivity tools which hold the promise of empowering users to communicate inclusively. So far, these tools have followed the principles of suggestion technology—a specific type of persuasive tool that aims to suggest behaviors at the most opportune moments [24]. It operates on the principle of prompting users to consider whether they should follow the suggested action or continue their current path [24]. Despite its prevalence, academic literature on this topic remains scarce [68]. Extensive searches in academic databases, including the ACM Digital Library and Web of Science, using keywords such as ‘persuasive technology’, ‘behavior change’, ‘word choice’, and ‘word change’, yielded no relevant results [68]. To our knowledge, as of this date, we are aware of only one paper that has explored addressing gender bias for Italian language writers through an ML-powered writing suggestion tool [40]. In this study, La Quatra et al. [40] developed a prototype that can identify inappropriate uses (non-inclusive, inclusive, and neutral) of masculine and feminine word declensions in the Italian language and provide inclusive alternative utterances. That said, reviewing proceedings from the Persuasive Technology Conference and citations of related articles, we did not identify specific commercialized applications related to influencing language use [68]. This shows that despite the proliferation of these digital solutions, there exists a conspicuous absence of rigorous academic inquiry into the efficacy of such tools. This study responds to this gap and explores the appropriateness of one of such tools, namely the MSIS tool, in identifying biases in the writing practices of users, based on experiences and perspectives of students who have used the tool in the UK.

The country where a tool is created is critical to understand as cultural values are embedded into technology designs [72]. One of the values is diversity, as the conception of “diversity” itself is culturally constructed. Schmidtke [60] in his discussion of how conceptions of diversity differs in the US, Canada, Germany, and France and discusses how diversity is framed in terms of “definitional boundaries distinguishing a state’s ‘native’ from its ‘foreign’ population”. He frames his discussion of diversity in these countries by discussing differences in indigenous populations, migration, racial and religious makeup of their populations. As such it is useful to consider the attitudes towards diversity in both the country of a technology’s use and its creation. The US given its treatment of its indigenous population, its history of slavery and its cultural expectation of assimilation, has a very different history than the UK with its colonialist heritage and notions of British national identity. Winner [72] tells us that artifacts have politics and as such we much consider these values. MSIS considers diverse writing in terms of age, culture, ethnicity, gender (bias, pronouns, gender-specific language), race, sexual orientation, and socioeconomic position. However, given our British context religion, caste and (dis)ability are also relevant and in line with UCL values framing diversity initiatives [43] which guide the role out of technologies such as MSIS on campus.

3 METHOD

We conducted semi-structured interviews to examine nine students’ perceptions of biased and inclusive language in a commercially available tool. The Institute of Education (IOE) was a standalone institute of the University of London (UoL) until 2014 (now is merged into UCL as a faculty), and has over 8000 students [65], and thus represents a sizable institution from which to sample. Approved by the Institution’s Research Ethics Committee, our study was privately funded by the faculty PIs without Microsoft’s support, avoiding any conflict of interest. Our participants received a gift voucher for their participation.

3.1 Recruitment & Participants

We recruited participants using flyers and emails. Students completed a pre-screening to check their interest in the MSIS tool and views on inclusivity. 53 students completed the screener, and 20 committed to the study. Nine dropped out due to software activation issues. The remaining 11 participants agreed to use the tools for their individual classwork all term, and were encouraged to use it for groupwork whenever possible. Afterwards they were interviewed about their experiences and the tool’s impact on inclusivity in their writing.

We excluded two participants (P4 & P11) data as they did not have the tool properly installed. This required us to drop P4 (bisexual) and P11 (male) which decreased the gender diversity of our sample. The remaining nine participants included both STEM and non-STEM fields. All participants were female (8 identifying as heterosexual and 1 as bisexual). We had 6 Asian participants (including 1 Chinese, 1 Indian, and 4 “other Asian” people hailing from South Korea, Malaysia, and Indonesia), two “other white”, and one mixed-race participant. Race was coded according to national census categories [25]. Both gender and race demographics reflect

the composition of largely international students at UCL [65]. The ages and English proficiency of the participants varied, all meeting the high English language standards of our institution[69]. The participants’ knowledge about bias reflects the lived experiences of a typical international student body with ethnic minority backgrounds (see Table 1). Our research encourages HCI communities to deliberate on “whose values matter” in designing persuasive technologies with inclusive intentions, making the perspectives of these participants crucial for effective evaluation.

3.2 Procedure

Once screened, our data collection involved two stages.

- (1) Tool Usage: Over five weeks, participants exclusively used the MSIS tool for all of their individual schoolwork including their assignments and dissertations. It took two weeks for all participants to learn to activate and use the tool. Weekly reminders were sent during the final three weeks to ensure the tool remained active, as 4 participants reported it tended to turn off automatically, and consequently were uncertain if it was on when they did their schoolwork. Participants were encouraged to note if the tool identified biased language.
- (2) Semi-Structured Interviews: Interviews explored participants’ experiences with bias and the tool’s impact. Questions focused on their perceptions of whether the tool influenced their writing, and their attitudes towards inclusive language.

3.3 Data Analysis

We used Thematic Analysis as outlined by Braun and Clarke [11] for coding and categorizing themes. Inductive analysis of interview transcripts revealed 55 preliminary themes. These themes were iteratively refined by collapsing similar ones and discarding less relevant ones.

Ultimately, we distilled 7 major themes: limitations of the MSIS database, code-switching, recognizing gendered roles, user perceptions of tool impact, sounding vs. being inclusive, awareness vs. actual change. Following Braun and Clarke [11], we meticulously defined the ‘scope and content’ of each final theme to ensure that they were distinct, comprehensively described, and accurately represented the data.

3.4 Positionality Statement

Our diverse backgrounds intersect with various minority groups, enriching our analytical perspective. Among us are three non-binary authors who observed that MSIS failed to identify common LGBTQIA+ slurs. Similarly, our Jewish colleague found that it missed numerous Jewish slurs. Several of our authors were from the Global South — from countries and regions with a history of colonialism, and they noted the tool failed to flag terms around caste, and non-Western slurs. Additionally, at the time of our evaluation, our disabled colleague noted that the feature intended to assess language related to disabilities was not yet operational. Our insights critically inform our analysis of inclusivity in technological tools.

Table 1: Participants’ Detailed Demographics

Participant	Age Group	Degree	Race/Ethnicity	Gender Identity	Sexual Orientation
P1	20 - 25	Non-STEM	Asian, Asian British or Asian Welsh: Other Asian	Female	Straight/Heterosexual
P2	20 - 25	STEM	Asian, Asian British or Asian Welsh: Other Asian	Female	Straight/Heterosexual
P3	26 - 35	STEM	White: Other White	Female	Straight/Heterosexual
P5	26 - 35	STEM	White: Other White	Female	Straight/Heterosexual
P6	26 - 35	STEM	Asian, Asian British or Asian Welsh: Other Asian	Female	Straight/Heterosexual
P7	20 - 25	STEM	Asian, Asian British or Asian Welsh: Chinese	Female	Bisexual
P8	26 - 35	Non-STEM	Mixed: Other Mixed	Female	Straight/Heterosexual
P9	20 - 25	Non-STEM	Asian, Asian British or Asian Welsh: Other Asian	Female	Straight/Heterosexual
P10	36 - 45	Non-STEM	Asian, Asian British or Asian Welsh: Indian	Female	Straight/Heterosexual

4 FINDINGS & DISCUSSION

We explored the effectiveness, limitations, and user experiences of the MSIS tool, specifically focusing on its capabilities to handle code-switching and language mixing and to recognize gender biases. Our investigation encouraged participants to share their lived experiences, improving the understanding of the values embedded in this system. While the tool demonstrated the potential to address explicit biases, significant challenges persist due to its limited database comprehensiveness. These challenges primarily manifested in its inability to identify subtly biased phrases and colloquial expressions specific to different cultures or languages, suggesting the need for a more nuanced approach to linguistic diversity in tool design.

4.1 Code Switching or Language Mixing

Borning and Muller [10] suggested that value-sensitive investigation should emphasize giving voice to the lived experience of participants and researchers. Our participants’ experiences implied that users of English beyond Anglo-American context should be considered. For example, India has the second largest English-speaking population in the world [73], and Indonesia, which is also the largest bilingual country, the use of code-switching is very common. Code-switching, or language mixing, occurs when a word or phrase in one language substitutes a word or phrase in a second language [42]. It also refers to the common practice within marginalized groups to switch between dominant language use or tone and intra-group ways of talking. An example is when Black individuals adopt a ‘white voice’ in professional environments [46]. Bi- or multilingual people use and encounter code-switching in a variety of everyday interactions and situations [30], including discrimination and hate speech. Identifying discriminatory content in such a language form is challenging for a digital tool [36]. P2, drawing from her lived everyday experiences with multi-language use, highlighted the inability of the MSIS tool to detect and handle code-switching.

... I tried to put slurs from another language or slurs that are a bit more like slang. I feel like it’s a bit outdated in the sense that some of these slurs are just marked as unidentified words. (P2, F, Asian, 20-25)

Her comment reflected the need for the tool to improve its multilingual capabilities and stay up-to-date with evolving language

trends and slurs across different cultural contexts. To our knowledge, Microsoft has not published information on the tool design or the database on which it was trained. Our empirical investigation implies that the current MSIS did not succeed in keeping up with English as a globally evolving language with diverse users. Similarly, P10 highlighted another instance of its inability to recognize the term *Bihari*, which refers to individuals from the Bihar region in India and is often used derogatorily to signify classism among people.

Yeah, I would say that anybody who’s not really behaving in a manner which is socially acceptable, so-called in tier one cities I’ve seen, I’ve heard this phrase many times that ‘are you a Bihari that you can’t understand this?’ (P10, F, Asian, 36-45)

Considering that India has a large English-speaking population, and its specific forms of classism and casteism concretize in many derogatory terms such as *Bihari*, it is important for language inclusivity tools to expand their vocabulary in relation to and in collaboration with local users who are familiar with the commonly used terms in different contexts and understand how code-switching works in them.

An automated model trained in a monolingual and predominantly white Western context to detect offensive language may not produce the same result or serve diverse users in bi- or multilingual or code-mixing contexts [31, 59]. In its current form, our participants underscored the tool’s failure to identify and address language that can perpetuate social biases and discrimination within rich linguistic contexts. The MSIS tool risks overlooking significant instances of language discrimination and bias unless it broadens its analytical framework to encompass a wider range of linguistic and cultural contexts, emphasizing the need for its algorithm design to be more inclusive and aware of regional and cultural nuances that influence language use.

4.2 Recognizing Gender Bias

While facing serious limitations and challenges in the multilingual context, the MSIS tool’s ability to identify and suggest corrections for explicitly gendered terms highlighted a step forward in promoting gender-neutral language, a critical component of fostering inclusivity in persuasive writing. Participants (P10, P8) noted that explicitly gendered words that referred to occupations, such as ‘headmaster’ and ‘policeman’, were picked up most often by the

tool. Multiple studies have shown that gender-fair or gender-neutral terms instead of stereotypically masculine or feminine forms can foster a more equal and reflexive environment for all, but a transition to gender neutrality can also provoke resistance [34, 44]. In our study, some participants, already cognizant of the tool’s potential to identify occupational terms and propose gender-neutral alternatives upon activating the MSIS feature, deliberately tested the tool for this capability. For instance, P8 provided an example of ‘businessman’ that was ‘flagged’, just as they expected, and the tool suggests.

‘this term may not be inclusive for all genders’. (P8, F, Caucasian, 26-35)

P10 offered another example, highlighting a suggestion for gender neutrality beyond occupational terms.

So, if there was a word that ‘mankind is ruining the whole system’, it was immediately suggested to me to change it to humankind, which was more inclusive. (P10, F, Asian, 36-45)

In these examples, we see that MSIS was promising in promoting inclusivity in gender-related language use. However, these also raised important questions about the tool’s performance in cases where the bias may be more subtle or rather expressed through context instead of single words or phrases, or when gender stereotypes may relate to non-Western contexts and terminology. To date, our team has not discovered a comprehensive model performance report published by Microsoft or third parties. As Shrestha and Das [63] point out, gender bias is most harmful when the bias is not as readily noticeable. While addressing explicit gender bias is important, the journey towards broader inclusivity entails going beyond these explicit, ‘easily fixed’ biases and addressing more subtle, implicit or context-specific biases that are considerably harder for technological tools to identify and change. Given we had no transgender or non-binary participants, we were unable to collect data on whether the tool was effective in detecting cis- and hetero-normative biases.

4.3 User Perceptions of Tool Impact: Sounding vs. Being Inclusive, Awareness vs. Actual change

Previous studies shed light on how user perspectives have provided important insights into barriers to inclusivity [2] and ways to accomplish change towards greater inclusivity [3, 35]. Although the scope of our study is limited, the participants represented some of the groups of English language users that were clearly not considered in the design of the MSIS tool. Thus their experiences with the tool reveal some challenges. However, we also wished to explore if, and to what extent, they felt that the tool influenced their writing and thinking.

Studies have shown that the successful impact of interactive technologies depends on the underlying motivations behind the usage of these tools [33]. Although the MSIS tool advertises as “*make sure your writing is free of bias*” [47], we wanted to further explore ‘why use’ from a participant’s perspective. We uncovered two major themes among user perceptions. First, we found a distinction between using the tool as a means to merely check writing for more performative purposes— to ‘sound inclusive’ (e.g. P9 felt

the MSIS tool was a safety net that removed the risk of biased writing.)—and to foster conversations and reflections on language and behaviors—to ‘be inclusive’ (e.g. P7 expressed a genuine interest in delving deeper into issues of gender, race, and other aspects of inclusivity through the help of the tool: “*It can help me know more knowledge about gender, race, something like that.*”). While the former is an example of a surface-level engagement with the tool for cosmetic adjustments [6], the latter presents a deeper intention that reflects the participants’ values and beliefs [49]. Interestingly, participants also foresaw a gap between the tool’s impact on enhanced awareness of bias versus an actual change in attitudes and outlooks of inclusion, this is supported by academic literature [26, 38, 55]. While all nine participants perceived the MSIS tool as a valuable aid in raising awareness of biases in their language and assisting them in becoming more inclusive writers, many also questioned if it could fundamentally alter a person’s beliefs. Previous work has shown that increased awareness about bias might not always translate into changes in attitudes and behavior toward members of disadvantaged groups [22, 57, 62]. Furthermore, Dovidio et al. [23] have found that attitudes towards bias are difficult to change due to the wide range of forces that shape them. Many participants such as P6 echoed this sentiment that mindset shifts depend on an individual’s underlying values, belief system and propensity for change.

So maybe that would lead to some kind of a change in their thinking. But again, I don’t think it’s necessarily going to cause someone to really change their beliefs or anything like that, but maybe just [become] more aware. (P6, F, Asian, 26-35)

Similarly, participants highlighted the importance of personal interactions in driving change in language patterns and believed that the effectiveness of the tool largely depended on an individual’s awareness and willingness to think about its suggestions. Social researchers have emphasized the ‘willingness’ of the individual to change as a key aspect affecting their ability to change [12]. Participants acknowledged the complexities surrounding language. For participants like P6 and P9, understanding and adopting inclusive language is a multilayered process for which technological interventions such as the MSIS can act as a propeller or provide aid, but they are unlikely to drive a wider societal and linguistic transformation.

Lastly, the practical value of using this tool was also appealing, particularly in its ability to help users conform to what they perceive as ‘academic writing norms.’ As Torres et al. [67] explain, this tendency to adhere to perceived norms and expectations creates a positive sense of self and allows students to ‘fit in.’ For some, the tool was beneficial in checking for ‘red flags’ in their writing and made it easier to conform to what they felt was a necessary writing standard to fit in with academic writing, while for others such as P9, the appeal laid in the possibility of mitigating ‘ethical issues’ when publishing a research paper.

I feel like it’s really great, and I feel more secure when I write something. So, when it’s a research paper that’s going to be published, at least I won’t have some kind of ethical issues where I actually unconsciously or

accidentally discriminate [against] some particular groups of people, which is nice. (P9, F, Asian, 20-25)

A subset of the participants saw the tool primarily as a means of avoiding potential writing problems, particularly in academic settings, ensuring that their work met anticipated standards. This perspective appeared to align with a broader ‘inclusion for inclusion’s sake’ approach, where the act of ensuring inclusivity is seen as a requisite activity rather than an intentional practice [6, 20].

5 IMPLICATIONS FOR DESIGN

To enhance the effectiveness of inclusivity tools like the MSIS, a comprehensive approach that integrates various aspects of language, cultural differences, and experiences of users affected by various language biases is essential. Echoing with Davis [19], our data makes clear that the MSIS tool in its current form has not included diverse participants in its design. This, in turn, has made it ineffective in multiple ways, and it is fair to assume that many of its shortcomings might apply to other persuasive technologies about inclusive language. While our study evaluated the MSIS through our user feedback, we suggest the following be done across the sector:

Expanding and diversifying the database. A regular database of persuasive writing tools should encompass a broader global range of words and expressions in regional or culture-specific language uses and dialects, particularly those prevalent in multilingual societies. This includes not only standard language forms but also colloquialisms and slang which are a part of any living and changing language.

Enhanced detection of code-switching and cultural nuances. Code-switching and the use of culturally nuanced expressions pose a considerable challenge to current inclusivity tools. To address this, there’s a need for sophisticated algorithms capable of understanding the context and cultural underpinnings of code-switched language.

Addressing both explicit and implicit or context-based biases. To be truly effective, inclusivity tools must navigate the spectrum of language bias, from the overtly offensive to the subtly exclusive. This requires a nuanced approach that goes beyond simple word replacement to understand the context in which language is used.

User engagement in tool adaptation. User engagement is crucial for the iterative development and refinement of inclusivity tools. Providing users with the ability to customize feedback, contribute suggestions, and report inaccuracies or oversights empowers them to participate actively in the tool’s evolution.

Participatory Design and diverse user testing. The principles of Participatory Design need to be followed. Input from an internationally diverse set of users and experts in language, culture, and ethics is required to guide the development process, ensuring that the tool not only identifies and corrects biased language but also does so in a way that is respectful and sensitive to the complexities of human identity and experience.

Theory around design for cross-cultural values. One culture’s diversity is not the next, and yet technological colonialism ensures technology impacts the entire world. Some countries’ religious values are incompatible with others, considering fraught

issues such as LGBTQIA+ rights. Additional, theoretical and philosophical work is required in HCI as to how to mitigate these value tensions ethically.

By addressing these critical areas, inclusivity tools like MSIS can evolve to meet the needs of a diverse global audience reflecting a plurality of humanness and a representative of a set of global values regarding diversity.

6 LIMITATIONS & FUTURE WORK

This study offers valuable insights into the MSIS tool but has limitations that affect the interpretation of results.

First, the version of MSIS we used in this study faced technical challenges which impacted user experience. Future studies will focus on the latest version of the tool which is less buggy and includes more biases such as ableism. Additionally, the participant sample lacked diversity, which limits the applicability of the insights. Efforts should be made to engage older adults, individuals from a wider range of racial backgrounds, disabled, transgender and/or non-binary people, and a range of users from the Global South not represented in the initial study. This expanded demographic would help correct for Anglo-American biases in the tool. The reliance on semi-structured interviews may have introduced social desirability bias, with participants possibly offering favorable responses over their genuine opinions. Furthermore, the study’s focus on qualitative data without a technical evaluation of the tool’s algorithms and databases limited a thorough assessment of its adaptability across diverse linguistic and cultural contexts; Thus future work should adopt a mixed-methods approach, and analyze the algorithms, databases, and interface designs of these tools, to identify specific areas where the technology succeeds in promoting inclusivity and where it falls short. This would allow for a nuanced understanding of the tools’ effectiveness across different linguistic and cultural contexts. Also, the qualitative insights, were focused on academic contexts. There is a need to study these tools in other professional, social, and creative writing contexts to fully explore versatility and adaptability. Finally, the study lacked a longitudinal perspective that could capture long-term changes in users’ attitudes and practices concerning inclusive language. Such research would offer insights into how sustained use of these tools influences individuals’ engagement with inclusive language, contributing to a deeper understanding of the potential for technology to drive social change in digital communication practices.

7 CONCLUSION

At the time of this research, the Microsoft Inclusivity Suggestions team had less than a half dozen full-time employees. This under-resourced team was valiantly attempting to create a product that codified a range of international values on inclusively into a single tool to affect social change to be used around the world. Our research provides a case study examining international participants’ lived experiences using this tool. While our sample size was small, it was more than adequate to illustrate this one-size-fits-all approach to values was inadequate. While our study found that the MSIS effectively identifies and suggests alternatives for explicitly gender-biased language, these findings might not have been as well received outside the US and UK. Further, the tool had difficulty

addressing implicit biases and adapting to multilingual and code-switching contexts. Our data indicates that the use of the MSIS tool did not stem from users' autogenous [53] motivations. More so, it is enforcing endogenous motivation and compliance with the tool designers' values, which is evident in the white, Western bias within its current design. Finally, we have also provided data on some issues where the tool's values were at odds with our participants' lifeworlds and lived experiences of language discrimination, highlighting the need to carefully consider whose values [4] are being embedded into future persuasive writing tools.

Davis [19] has called for increased Value Sensitive Design and Participatory Design and Borning and Muller [10]'s has advocated we must clarify values in persuasive technologies. Given our increasingly politicized climate where liberal values are often demonized as 'woke', and conservative values grounded in major world religions are often ignored, it is vital to interrogate which values are included in design. Critically, given our communities' discussion of 'dark patterns' and manipulation in UX design [58], we need to ensure that these value differences are transparently rendered to ensure, in Sanchez Chamorro et al. [58]'s words, "fair decision spaces." Finally, we call for more research in HCI to discuss how to create software that navigates global differences in value tensions. If we are going to avoid technological colonialism and ensure we respect the plurality of human values, we must design mindfully that designer and user values can not always be brought into alignment.

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