

Do I Belong Here?

An exploration of meeting structure and language, alongside gender and a sense of belonging.

Alice Ashcroft

alice.ashcroft@lancaster.ac.uk

School of Computing and Communication, Lancaster University
Lancaster, UK

ABSTRACT

This paper discusses to what extent the productivity and creativity of a design meeting can be attributed to meeting structure and various, related, aspects of social interaction including gender, and participants' sense of belonging. This paper examines the literature on meeting structure, language, gender and sense of belonging and analyses them for overlaps and potential areas of future research. Following a discussion, this paper then considers 'implications for design' presenting three possible areas of further research and development; how can meeting structure be designed for equal opportunity, how can a sense of belonging be created in design meetings and what can be done to encourage empathy in design?

CCS CONCEPTS

• **Human-centered computing** → **Human computer interaction (HCI)**; • **Social and professional topics** → **User characteristics**; • **General and reference** → **Design**.

KEYWORDS

design, meetings, meeting structure, gender, gender and discourse, feminist research, sense of belonging

ACM Reference Format:

Alice Ashcroft. 2021. Do I Belong Here?: An exploration of meeting structure and language, alongside gender and a sense of belonging.. In *33rd Australian Conference on Human-Computer Interaction (OzCHI '21)*, November 30-December 2, 2021, Melbourne, VIC, Australia. ACM, New York, NY, USA, 8 pages. <https://doi.org/10.1145/3520495.3520514>

1 INTRODUCTION

This paper concerns itself with the longstanding evidence that women¹ in Computer Science and other STEM subjects are systemically overlooked and their perspectives questioned [22], particularly when it comes to design [46]. Whilst individualistic theories, such

¹It should be understood that gender is not a binary. Although in this paper, 'men' and 'women' are referred to, this is simply because this is how the existing literature is laid out. Furthermore it is understood that 'male' and 'female' refer to sex and not gender, and therefore, unless quoting existing literature, these terms are avoided where possible.

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from [permissions@acm.org](https://permissions.acm.org).

OzCHI '21, November 30-December 2, 2021, Melbourne, VIC, Australia

© 2021 Association for Computing Machinery.

ACM ISBN 978-1-4503-9598-4/21/11...\$15.00

<https://doi.org/10.1145/3520495.3520514>

as the argument that "men are socialized to be more competitive and women more collaborative" [46], the idea that there will be discrepancies in how men and women are listened to, or ignored, within design meetings cannot be understated. This paper particularly focuses on more systemic, institutional or structural factors. These factors are both empirically more elusive and possibly more consequential and resistant to change. This is what Brey [12] might term the 'disclosive' organisational ethics of everyday work in Computer Science – the hidden and embedded biases of organisational structure. Accordingly, this paper looks to examine how design meetings may be structured in such a way that enables or facilitates forms of institutional bias and inequality, considers how these factors might impact on creativity and productivity and suggests three areas of further research for consideration.

Any form of institutional or structural bias is difficult to examine empirically. This paper builds upon feminist Conversation Analysis (CA) to document the ways in which design meetings are structured, including purpose, agenda and roles; how this overlaps with existing literature surrounding gender and language [54]; and, importantly, how this affects women's sense of belonging [15]. This paper outlines the existing literature in these four areas (see Figure 1), discusses how they may overlap, and how this could affect design. The scope for further research is then split into three areas, the aim of which is to improve not only the designs which are created by groups, but the experiences of the designers no matter their gender. The fundamental research questions this paper answers are: **RQ1** - How does the current structure of design meetings enable equal participation? **RQ2** - How does this affect women's sense of belonging in design meetings? **RQ3** - Is the output of a design meeting affected by gender, interaction and sense of belonging?

2 MEETING STRUCTURE

Meetings are "the interaction order of management, the occasioned expression of management-in-action, that very social action through which institutions produce and reproduce themselves" [10]. The topic of this theoretical article is that of design meetings, which do not differ wildly from standard meeting structure, but do pose some subtle differences explored within this paper. Although it could be suggested that use of innovation practices (e.g. Adobe's Kickbox [1]) adopted by many 'start ups' aim to disrupt this, they are still a group of people working in an organisation with a common goal in mind, it just so happens that the goal in question is design.

The structure of the meeting, however, is one that may differ (examined in Sections 2.2 and 2.3), including the timeline of the meeting (see Section 2.4). This will then be analysed alongside literature surrounding gender discourse and interaction (see Section 3), and how people feel they belong (see Section 4).

2.1 Design Meetings

Although it could be argued that meeting structure differs according to field, there will be some who disagree. For examples, more focused Agile meetings [2, 40] will have dissimilar elements to more focused participatory design meetings [5] or innovation design meetings [3]. Whilst they may still have similar structure and roles, all be it with different names, the way in which this may affect interaction should not be discounted.

The aim of a design meeting, at the most fundamental level, is to bring people together in order to make design decisions. The way in which these are structured, and the people within the meeting may vary as explored in Sections 2.2, 2.3 and 2.4, but the intention remains the same. Within the field of HCI there has been a huge effort to encourage women to enter the field, for this to be embedded in the curriculum [11], and to ensure inclusiveness in meetings that take place. Yet it cannot be assumed that equality has been achieved once there are an equal number of men and women are in the room. When design decisions are being discussed and made, it must be ensured that each voice in the room is given the same consideration. However, due to other factors many of which are outlined in this paper, this is not always the case. But what is it about design meetings specifically that may cause additional problems compared with that of other fields?

In 2012, Détienne et al. [20] brought together a methodology termed the Quality of Collaboration (QC) method, first used by Burkhardt et al. [13] with regards to architectural designers, to analyse the quality of a design meeting taking place. The seven dimensions outlined include;

- (1) Fluidity of collaboration
- (2) Sustaining mutual understanding
- (3) Information exchanges for problem solving
- (4) Argumentation and reaching consensus
- (5) Task and time management
- (6) Cooperative orientation
- (7) Individual task orientation

Now although the method itself is not tied to HCI design specifically, Détienne et al. [20], these factors allowed an in depth analysis of the impact this has on design meetings and surmised that collaborative design and any analysis carried out on this must involve social and psychological research, for it is through people that collaborative design is done. Therefore, it follows that as a subsection in the field, that gender and sense of belonging must also have a bearing on the effectiveness of these meetings, with regards to these dimensions. For example, each of the dimensions outlined by Burkhardt et al. [13], could be effected by gender and principles raised in feminist CA [53]. To bring this back to gender-inclusive HCI design, it is clear from all areas of existing literature, that these areas are linked [55]. But the subtleties in how discourse affects this and sense of belonging, have been seemingly ignored.

2.2 Purpose and agenda

Productive meetings must also have a purpose or goal [56], supported by Schwartzman [48] who describes meetings as;

"a communicative event involving three or more people who agree to assemble for a purpose ostensibly related

to the functioning of an organization or a group, for example, to exchange ideas or opinions, to solve a problem, to make a decision or negotiate an agreement, to develop policy and procedures, to formulate recommendations, and so forth."

How this purpose is met is often through an agenda; which can be simply broad (e.g. "design x") or much more structured and detailed. When an agenda item or topic is concluded, Barnes [6] suggests that it is silence which suggests a conclusion has been reached, not verbal confirmation. Regardless, the structure of a meeting is one pre-established and similar to all good stories; with a beginning (an opening which outlines the objectives), a middle (in which discussion takes place or decisions are made) and an end (everyone leaves with a common understanding).

Jay [34] also states that there are other considerations when it comes to types of meetings that should be raised; frequency, composition (who is in the meeting and their dynamics), motivation (and how this differs between attendees), and the decision process. The decision process is perhaps one that should be most strongly considered, especially when it comes to looking at group dynamics and how they affect this. Are decisions made by a general consensus, a majority vote or the chair after they have listened to the discussion [34]? All of this should be agreed before the meeting, but opinions on this may of course differ, once the meeting is in progress.

2.3 Roles

When it comes to attendees of a meeting, their roles depend purely on context, however it could be suggested that regardless of purpose those in attendance of a meeting should be active participants, not merely observers.

When it comes specifically to design, the standard roles of those in attendance may vary according to the make up of the team and their project management structure e.g. Waterfall or Agile. This paper will reflect on design meetings as a whole, but it is understood that this may leave some gaps when it comes to specifics.

2.3.1 The chair and their responsibility. Although all participants should be active, in the standard meeting structure, there is often a chair, the person who's role is to keep the meeting on topic and on track to complete it's purpose [56].

"The most distinguishing feature of meeting interaction is the presence of a chair that is charged with managing the access to the floor and assuring the topical progression of the meeting according to the agenda. These tasks provide the chair with special rights and obligations in controlling the contributions of the participants. He or she has a dominating and privileged position in being authorized to encourage contributions and actions that are considered constructive to the goals of the meeting and sanction behaviour that is considered illegitimate or counter-productive. Also, in formulating decisions and conclusions the chair acquires a strategic position in the meeting." - Svennevig [56]

The power that this position holds cannot be discounted, especially when it comes to diversity, particularly when it comes to turn-taking (see Section 3.1.2. If the chair is there as a facilitator,

their views may be discounted. If they are there as a participant, they may inadvertently dominate the meeting. The affect that they have on other participants must also be fully understood, for example, are they allowing equal opportunity to speak and express views to all participants?

Unconscious bias is something that must also be considered when it comes to chairing meetings. For example, if the chair of a meeting believes themselves to be unbiased, they may not actively ensure that everyone has equal opportunity. However, they may still have bias and prejudice they are unaware of, only by becoming aware of this would they be able to actually provide equal opportunity for all participants. Although unconscious bias training' is sometimes seen as an exercise to fill a quota, it can also be quite effective when carried out properly; as The Harvard Business Review states in their article "Don't give up on unconscious bias training — make it better" [23]. Once it has been made better, there is definitely an argument to make this a mandatory requirement in any organisation.

2.4 A beginning, a middle, and an end

Like all good stories, a meeting should have a strong beginning, a productive middle, and a conclusive end [34]. The beginning of the meeting should outline the objectives and aims, and it is most common for this to be done by the chair [56]. The middle should comprise of a list of agenda items, which can typically fall into four categories [34]. And the end should be where the output of the meeting is summarised, so all attendees leave with the same understanding.

The four categories into which agenda item can fall into include: "informative-digestive", "constructive-originitive", "executive responsibilities", and "legislative framework" [34]. But what is perhaps of more interest in the context of this paper is the structure of the discussion, which even Jay [35] (originally published 1976) suggests is too nuanced to outline for all cases;

"It may seem that there is no right way or wrong way to structure a committee meeting discussion. A subject is raised, people say what they think, and finally a decision is reached, or the discussion is terminated. There is some truth in this. Moreover, it would be a mistake to try and tie every discussion of every item down to a single immutable format. Nevertheless, there is a logical order to a group discussion, and while there can be reasons for not following it, there is no justification for not being aware of it." - Jay [35]

However, what past literature can agree on is that the structure of meetings, however variable, does affect the output. Therefore, how they take place is important; and most frequently, how these interactions take place, is through discourse and interaction.

3 GENDER, DISCOURSE AND INTERACTION

Language and conversation are one of the main forms of interaction be that in person, through online calls or through written messages. This paper focuses on spoken word, but all forms of communication can be affected by gender. Research by Kizilcec et al. [37] has shown that women are more likely to be affected by social cues than men. Gender has also been shown to have an affect on women's sense of belonging in groups [39, 58]. This section will focus on examining

existing literature when it comes to gender, conversation and the effect this may have on women's sense of belonging in design meetings.

Another component of meetings which must be carefully considered are power dynamics when it comes to the positions of participants [32], as was discussed in Section 2.3. It should also be understood that position may not simply refer to the role within the company, but any factor which may support a power imbalance; e.g. race. Therefore, it must be understood in smaller sample sizes that interactions and discourse may be the effect of positions within an organisation and not gender. That is not to say gender has no affect, only that it is one aspect of many.

3.1 Traits of Conversation and Discourse

Conversation, similar to meeting structure, has a beginning, a middle and an end. How conversation opens, takes place, and is closed is an area that is well researched [52]. These traits must be understood before they are compared with how they are used in the context of meetings.

3.1.1 Opening conversation. Described by Stokoe [52] as the beginning of "the conversational racetrack" and as a classic trait of Conversation Analysis (CA) [38], opening conversation and discussion has an enormous impact on how a conversation is likely to unfold [52]. It therefore follows, that this may also be the case when it comes to meetings and conversation.

For example, opening conversation with a question may seem quite forward, but is likely to invite a conversation more than a simple "hello" [49]. Stokoe [52] states that "conversations routinely start with three pairs of reciprocal actions: greetings, identifications and 'how-are-you'." How this affects design meetings, and if this is affected by gender is a topic that definitely requires further research, and is discussed further in Section 5.

3.1.2 Turn taking. Turn taking is a classic trait of conversation and is often explored in CA [47]. This is often informal and local, but "formal meetings differ from this in that an appointed chair has the formal right and responsibility to manage the interaction among the participants" [56] which builds upon work by Boden [10] who suggests that in formal meetings it is the chair who takes on this role (as was mentioned in Section 2.3.1).

Ford [25] carried out research on academic meetings and found that the majority of turn taking was decided through non-verbal cues "such as leaning forward, gazing at the chair and raising a hand" [56]. How this transitions into remote meetings, which have become more common since Covid-19 social distancing measures were introduced, may now be more prevalent but has been something considered by researchers for many years. In 2016 Paulus et al. [44] analysed literature relating to online conversation analysis, and with regards to turn-taking, or as they term it "turn design", they relate this back to the work of Sacks et al. [47] and whilst finding some deviations, find a number of similarities.

Stokoe [52] also poses that on the basis of turn taking, a party "may assess what sort, or type, or kind of person they are talking to". This suggests that not only does turn taking, of course, affect what is being said, but then how it is perceived, which may then affect how points raised in meetings are received.

3.1.3 Gaps and overlaps in turn taking. More specifically than just turn taking, how gaps and overlaps are observed in conversation can have a significant impact on the output of discussion [38], especially when a meeting, which design meetings most often do, has more than two participants in. The opportunity for gaps, it could be suggested, is likely to decrease, whilst the cases of overlapping, may increase. However, it could also be suggested that this simply depends on the participants, their rapport, and how likely they are to speak over one another.

Although, whether or not overlapping conversation is seen as a negative action, or just an inevitable trait of conversation is still debated amongst researchers. Stokoe [52], for example, states that overlap can be "an example of collaboration".

How gaps and overlap then affect the conversation is one that has been researched in detail, but how this then affects sense of belonging and design outputs in design meetings are areas that still further research.

3.1.4 Closing conversation. How conversation ends is the final step in much analysis of discourse [38], and how this ties into the ending of meetings [34] is one that should, again, be carefully considered. At the end of a meeting, it is the hope that decisions will have been made, and how these decisions are communicated and shared between attendees, and potentially wider, is crucial. It is the hope that at the end of any conversation, be that in a design meeting or more generally, all participants leave with the same understanding of the conversation which just occurred. Any discrepancies in this, when it comes to design meetings, could lead to larger issues when it comes to product development.

3.2 Gender and Language

Gender and language is an established field, with many researchers using Conversation Analysis (CA) and Discourse analysis (DA) to uncover gender differences [8, 26, 54]. Research has also started to be done examining the effect that gender and language can have on User Experience (UX) and Software Design [3].

The main relevant areas of research when it comes to gender and language are as follows.

3.2.1 Sex differences in language. Speer and Stokoe [50] state that one consideration of gender and language is "sex differences in language", which focuses on the way men and women are represented in the language itself. In meetings and interactions, an example of this could be, referring to the user as "he" as an assumption, as opposed to using gender neutral pronouns such as "they".

3.2.2 The construction of gender and gender identities. How gender, and varying identities, are constructed is another area that affects talk [50]. This is also affected by the the previous point (3.2.1) and whilst Speer and Stokoe [50] recognise the dispute in the use of CA as a way of understanding gender and language and the impact they have upon one another, they suggest that these parallels still hold value when it comes to categorisation and talk.

3.2.3 Problem raising. The effect gender has on groups making decisions and what constitutes a problem are linked by Park [43]. How this then impacts raising problems in a group environment, may also be affected by gender [3]. This could have a major impact

on design meetings, if the women who are participating do not, for whatever reason, raise any problems or concerns they may see in what is being designed.

3.2.4 Hedging. Hedging, which is defined as "hedging your bets" when using language, including using phrases like "I think" when something is known, or "maybe" when they are actually certain, has long been researched when it comes to gender [4, 30, 41, 57]. Holmes [30] states that hedging can also have two purposes, expressing uncertainty (e.g. "I think"), or persuasion (e.g. "you know"), and that the purpose can only be uncovered from context [31]. Whilst some research has shown that hedging is used more by women, others have shown that in terms of frequency, there is little difference, and it is the purpose that differs [4]. Regardless of the dispute between intention, nearly all scholars agree with Hyland [33] who describes hedging as a "significant communicative resource".

3.2.5 Leading and turn-taking. The CA trait of turn taking (discussed in Section 3.1.3), is also one that is affected by gender [36]. An example of this may be that, although order of talking may be seemingly random (e.g. based on going around a table), that this may sometimes be led by the men sat at the table [3]. It is therefore important to consider the effect gender has on leadership and turn-taking. Especially as "men often achieve leadership roles regardless of past performance" [45].

4 A SENSE OF BELONGING

Research carried out last year by Mooney and Becker [39] looked at how a student's sense of belonging varied based on their gender and other variables (e.g. sexual orientation, religion, etc.). They found that women who identified as part of another minority group had a lower sense of belonging, whereas women who didn't identify with another group had a similar sense of belonging to the men in the study. This could suggest that gender on its own is not a factor, but has an impact when combined with another. This ties into what is known about intersectionality, a product of Black Feminist Theory [18], but the impact this has on a sense of belonging, has not yet been tied, by literature, into the impact that this has on design. Furthermore, within the field of Computer Science, research has shown that to improve women's sense of belonging overall, there is a need for a collective response [58].

Further research does exist in other STEM subjects, such as Mathematics [28]. Good et al. [28] found a correlation between sense of belonging and perceived limited ability, see the below quotations, which strongly ties into Dweck's previous work on fixed and growth mindsets [29].

"Students who believe that their colleagues view math ability as acquirable are able to maintain a high sense of belonging, which in turn reduces the power of perceived stereotypes to impair females' desire to pursue math and their achievement in math." [...] "Although the studies in this article focus specifically on females' aspirations and achievement in math, the issues addressed easily apply to members of any group who face messages of limited ability in an achievement domain." - Good et al. [28]

The idea of 'a sense of belonging' resonates with previous work done by Olson and Olson [42] which highlights the importance of common ground and the readiness of collaboration with regards to social interaction and technology as a tool for this. This, in conjunction with other research regarding online collaboration, especially since the Covid-19 pandemic, should also not be discounted when looking at the sense of belonging of participants, and how being remote and online can affect this.

Although this paper does not pose any new theories on Sense of Belonging itself, it is important to consider the impact that this has on design, as well as those in the design meetings and those which will use the software or products when they are built.

4.0.1 Physical space and sense of belonging. Mooney and Becker [39] also found that sense of belonging is closely linked with the physical spaces that they are in - which may raise some concerns when it comes to social distancing restrictions due to Covid-19. This ties into work done by Dourish [21] on how technology can enable a space to feel like a home through how it makes people feel. Especially given that other research supports this, for example Cheryan et al. [15] found that changing the environment can change team member's sense of belonging. Therefore an area that may be of interest for further research is that of environment changes, e.g. could taking activities online or remote, have a negative or positive impact on women who fall in minority groups?

5 DISCUSSION

When it comes to meeting structure and how this affects design, it is clear there are many factors at play, such as; gender, language, and interactions between roles.

Research exists into these areas and potential overlaps. For example there is significant research on how meeting structure overlaps with language (e.g. [52]). There is significant research into how language overlaps with gender (e.g. [37]). Finally, research on how gender affects people's sense of belonging (e.g. [39]). With this chain of connections, it therefore follows that meeting structure and sense of belonging can be linked (see Figure 1).

5.1 Meeting Structure

Standard meeting structure, regardless of disruptive innovation practices [1], as mentioned in Section 2, is standardised and set across institutions and organisations. But how can each stage of this, including interactions, be optimised to allow for equal opportunity for all participants to contribute? When a purpose and agenda are outlined, as mentioned in Section 2.2, how is this structured in a way to allow for equal contributions, dictated by language traits and uncovered by conversation analysis, to enable a sense of belonging for participants? For example, would a loose meeting structure allow a more open discussion, and how would this affect a sense of belonging? This could be argued to leave opportunity for women to be spoken over, and for fair turn-taking [47] to be overlooked. However, it could also be suggested that a very detailed meeting structure, maybe so specific that it doesn't allow participants to feel they are allowed to share ideas which may fall outside the expected contribution.

5.2 Roles

The main roles within a traditional design meeting include a chair and participants (see Section 2.3). Combining this existing literature with feminist conversation analysis, as well as how this affects women's contributions, is seemingly a gap in existing literature. Power dynamics and roles have a clear relationship with gender, with men being significantly more likely to obtain roles of leadership [45]. Therefore, who is more likely to have their opinions heard in a group setting?

When it comes to design specifically, there will be many factors at play. For example, if the UX expert in the meeting happens to be a woman, it could be argued that the woman would be listened to in more detail. However, this then feeds back into the existing literature around language and discourse. The structure of conversation is consistently affected by the gender of the participants [50]. The effect of gender on language as outlined in Section 3.2 could then lead to impact on the designs that are created [3], discussed further in Section 5.4.

5.3 Gender, language and a sense of belonging

Given that language is the main means of interaction within design meetings², it could be suggested that this is the main link between the four research areas established throughout this paper; specifically when it comes to meeting structure. As established in Section 3.1, conversation must open, carry out some purpose, and close [52], and this can also be said to be true of meetings and their structure (see Section 2.4). Now whilst this might seem obvious, how they interact cannot be understated, particularly when it comes to gender. With construction of gender and sex differences in language [50] being perhaps the most measurable traits of conversation this should be reflected on alongside the subtleties of gender and the affect on problem raising [3, 43], hedging [4, 30] and turn taking [36].

How this affects sense of belonging, particularly for women, definitely requires more research³. Although research exists around women and their sense of belonging [39], there seems to be little in the space when it comes to how this is affected by gender, and even less when it comes to how this affects the output of the meetings, in this case design.

5.4 How does this affect design?

The overlaps in the four areas outlined throughout this paper; meeting structure, language, gender, and a sense of belonging, all have the potential to impact designs. Furthermore, designs affect anybody who uses them, and when this comes to IT the potential for impact is great. Therefore, not only does there exist an obligation to further investigate how meeting structure, language and gender affect women's sense of belonging in design meetings in teams, but a moral obligation to see how this affects designs which are rolled out to clients, consumers and the public.

²The shift to more online and remote work since Covid-19, however, may be allowing written communication to be more standard [19].

³Although this paper focuses on women as the underrepresented group, due to the scope being Computer Science, it seems important to recognise that in some spaces, particularly when it comes to discussions surrounding mental health or emotive language, that the patriarchal society systematically alienates men [27]. Although this is out of scope for this paper, further research on this seems essential.

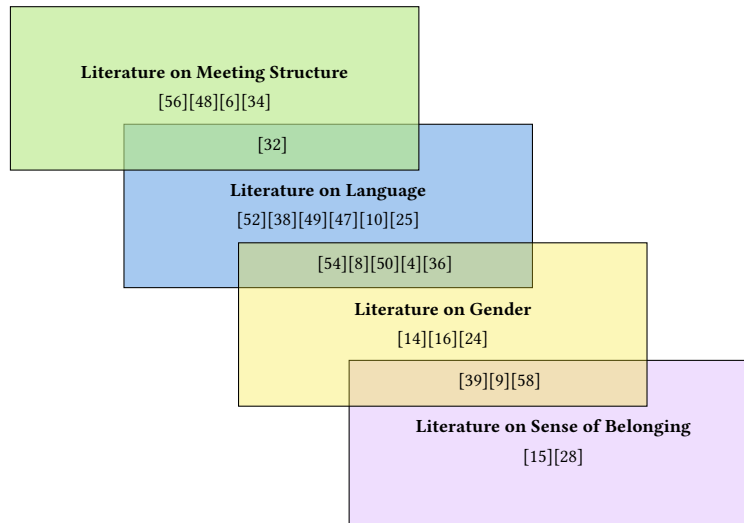


Figure 1: An illustration of the union of research areas this paper is posing as linked.

Alternatives to traditional meeting structure should, of course, be considered, including, but not limited to; user centered design, participatory design, agile meetings etc. However, it could be argued that although the content of the meetings may differ, how they take place is very much the same.

With regards to roles, this paper has discussed the effect men being significantly more likely to obtain roles of leadership [45] may have. But how does this affect women's sense of belonging, which may in turn affect discussion and therefore design decisions? Furthermore, with a lack of women in leadership positions, this is likely to perpetuate a cycle in which women do not see themselves reflected in higher positions which may deter some from striving to achieve them [14]. However, looking at the short-term impact of this, if the person making a final decision cannot relate to other people, then certain traits are likely to be overlooked. Of course, ideally all designers will have extremely high empathy skills, but this cannot assume to be true in all cases.

Finally, when it comes to gender, and the impact of this on discussion, it must be inferred that this has a direct impact on design decisions that are made. If, for example, women are not listened to in design meetings, spoken over, not chosen for leadership positions, or overlooked for any reason then the systematic disadvantages against women and technology will be perpetuated in the technology and the designs that are created. This has been shown time and time again to be true, and has been brought more into the public eye with the success of books such as "Invisible Women" [17]. Consistently, men are taken to be the standard gender, and therefore all design decisions are made with them in mind [17], with women being considered an after thought, if they are considered at all. It could be argued that the solution to this is not simply having more women in design teams and as users involved throughout the development process, but ensuring that these women or representatives are listened to and their thoughts heard. It should also be considered that only if these people feel like they belong will they be able to contribute fully.

6 SCOPE FOR FURTHER RESEARCH

Throughout this paper research has been examined surrounding four areas; meeting structure, language, gender and sense of belonging. Caution must, of course, be taken when looking for areas of research, due to the argument that all areas of research can be linked, however intangibly. However, the clear overlaps in these four areas cannot be overlooked. With this in mind, this paper proposes three areas of future research for consideration.

6.1 Designing Meeting Structure

Traditional meeting structure, and other design meeting structures, should be re-examined with gender in mind. How does the flow of a meeting, and the practices within each step, allow for gender equality in discussions? Furthermore, research should be carried out on how this directly impact the users, as well as the ones designing and building products.

Research should be carried out in a real world setting, using conversation analysis and other tools in order to understand how the existing research surrounding feminist conversation analysis has a direct impact on design. For example, what traits of conversation allow for equal contribution, or stop this from happening? Furthermore, the output of this research should be practical guidelines of how to increase collaboration, which will in turn increase the quality in products created and designed, as well as the sense of belonging felt by team members.

6.2 How to Create a Sense of Belonging

A continuation of this is further research on how to foster a sense of belonging within a design team. Research has begun to emerge around women's sense of belonging in other areas such as education [9, 39, 58] and physical space [15], but how this has a direct correlation on design could be suggested to be an incredibly interesting area of research. Satisfaction and sense of belonging could be monitored in mixed gender design teams to uncover if there is any correlation, and if so then further studies could be carried

out to determine if there is any causation and what can be done to overcome this.

6.3 Understanding Empathy and Design

Finally, whilst it is clearly important for diversity to be considered in every stage of the design process, which is arguably just good design practice, it is clear that even in large organisations, such as Apple, this is not always the case [7]. Therefore research should be carried out into how empathy affects design. This is not to say that it should not matter who is present in design meetings and involved in testing products, but it could be argued that this should be done alongside these practices to negate any issues that may fall between the cracks. This could, hypothetically, both benefit the users as well as those in the design meetings feeling a higher sense of belonging, and therefore feel more able to contribute. This is, of course, speculative, and why further research is required in this area.

7 CONCLUSION

This paper has been concerned with unpacking some of the subtle inequalities in interaction, power and knowledge produced through 'taken for granted', 'normal' features of organisational structure and practice; such as everyday organisational meetings and those specific to design. In particular it has examined the overlaps between four areas of literature, and posed an implicit connection between them. In doing so, the overlaps between *meeting structure and language*, *language and gender*, and *gender and sense of belonging*, have been examined to find three potential areas of further research including *how meeting structure is designed*, *how to create a sense of belonging* when it comes to design meetings, and *understanding empathy when it comes to design*. Existing literature has done well to fill in the gaps between these four areas, but the overall picture is seemingly still to be observed, examined and understood. Of course, it should be considered that further research may be carried out and no implicit or explicit connection can be found, but only once this is carried out can any point be proven.

Furthermore, aligned with feminist methodology practices, any research and literature cannot be simply assumed to have been carried out objectively or fairly [51]. Despite many arguing that feminist methodologies are simply good research practice, any literature examined in this paper may have used previously assumed patriarchal knowledge to strengthen their research. Therefore a closer examination of this in practice would be prudent regardless to reaffirm all that has been taken to be true.

Reflecting upon the research questions, it is clear that the further research outlined in Section 6 is vital to answer these more fully, however existing literature does pose suggestions as to how they could be answered.

RQ1 - How does the current structure of design meetings enable equal participation? The current structure of a design meeting is largely dependent upon the roles of the participants, regardless of the type of design meeting; e.g. agile, innovation etc. Other factors such as gender, race, or other demographics will only add to the complexities of these interactions. As discussed in Section 6.1, further research should be done to break down the meeting

structure of various design methods to uncover the effect gender has on the language and the process of the meeting.

RQ2 - How does this affect women's sense of belonging in design meetings? Following on from the above proposed research, how this ties into the sense of belonging of participants also relies upon further research, but could be carried out using existing methodologies around Conversation Analysis [53] as well those surrounding satisfaction [28]. What can be learnt from existing literature, however, is that sense of belonging and interaction are definitely linked [39], but what remains to be seen is the effect this has on design decisions that are made.

RQ3 - Is the output of a design meeting affected by gender, interaction and sense of belonging? This paper has aimed to answer this question in it's discussion of existing literature around conversation, gender and sense of belonging, but has been limited by the amount of research around the direct impact of these factors on design. Any further research carried out should include the detailed analysis of design decisions that are made alongside Conversation Analysis and the Sense of Belonging of participants.

In conclusion, as designers and researchers, there is an obligation to ensure that all designs are suitable for all users, as well as the obligation to the designers in the room to ensure that everyone present feels that they belong, and that when they voice their opinions they will be heard. The argument this paper has made is that by doing so, the designs created will be stronger for everyone involved.

ACKNOWLEDGMENTS

With thanks to my PhD supervisors Dr Mark Rouncefield and Dr Lynne Blair for their support and guidance. I would also like to thank Dr Kelly Widdicks and Dr Emily Winter for their insight and ideas around 'Sense of Belonging' on our previous work together which informed part of this paper. In addition to this, I would like to thank the reviewers of this paper for their constructive feedback and bringing me back to design.

REFERENCES

- [1] 2021. Kickbox Foundation. <https://www.kickbox.org/>
- [2] Agile Alliance. 2020. What Is Agile Software Development? <https://www.agilealliance.org/agile101/>
- [3] Alice Ashcroft. 2020. Gender Differences in Innovation Design. *OzCHI '20, December 02–04, 2020, Sydney, NSW, Australia* (2020).
- [4] Alice Ashcroft. 2020. 'Hedging' and Gender in Participatory Design. 1986 (2020), 176–180.
- [5] Ellen Balka. 1997. Participatory design in women's organizations: The social world of organizational structure and the gendered nature of expertise. *Gender, Work and Organization* (1997). <https://doi.org/10.1111/1468-0432.00027>
- [6] Rebecca Barnes. 2007. Formulations and the facilitation of common agreement in meetings talk. *Text & talk* 27, 3 (2007), 273–296. <https://doi.org/10.1515/TEXT.2007.011>
- [7] BBC. 2015. *Tattooed Wrists Can Stop Wearables Like The Apple Watch Working*. <http://www.bbc.co.uk/newsbeat/article/32540512/tattooed-wrists-can-stop-wearables-like-the-apple-watch-working>
- [8] Bethan Benwell. 2006. *Discourse and identity*. Edinburgh University Press, Edinburgh, [England].
- [9] Lynne Blair, Kelly Widdicks, Alice Ashcroft, Emily Winter, Miriam Sturdee, Kathy New, and Lisa Thomas. [n.d.]. Women's Sense of Belonging in Computer Science Education. <https://www.researchbox.org.uk/advancehereport>
- [10] D. Boden. 1994. *The Business of Talk: Organizations in Action*. Cambridge: Polity Press.
- [11] Samantha Breslin and Bimlesh Wadhwa. 2015. Towards a Gender HCI Curriculum. In *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems* (Seoul, Republic of Korea) (CHI EA '15). Association

- for Computing Machinery, New York, NY, USA, 1091–1096. <https://doi.org/10.1145/2702613.2732923>
- [12] Philip Brey. 2000. Disclosive computer ethics. *ACM Sigcas Computers and Society* 30, 4 (2000), 10–16.
- [13] Jean-Marie Burkhardt, Françoise Détienne, Linda Moutsingua-Mpaga, Laurence Perron, Stéphane Safin, and Pierre Leclercq. 2008. Multimodal collaborative activity among architectural designers using an augmented desktop at distance or in collocation. In *Proceedings of the 15th European conference on Cognitive ergonomics: the ergonomics of cool interaction*. 1–4.
- [14] Alecia J. Carter, Alyssa Croft, Dieter Lukas, and Gillian M. Sandstrom. 2018. Women's visibility in academic seminars: Women ask fewer questions than men. *PLoS ONE* (2018). <https://doi.org/10.1371/journal.pone.0202743> arXiv:1711.10985
- [15] Sapna Cheryan, Victoria C Plaut, Paul G Davies, and Claude M Steele. 2009. Ambient belonging: how stereotypical cues impact gender participation in computer science. *Journal of personality and social psychology* 97, 6 (2009), 1045.
- [16] Benjamin Collier and Julia Bear. 2012. Conflict, confidence, or criticism: An empirical examination of the gender gap in wikipedia. In *Proceedings of the ACM Conference on Computer Supported Cooperative Work, CSCW*. <https://doi.org/10.1145/2145204.2145265>
- [17] Caroline Criado Perez. 2019. *Invisible Women: Exposing Data Bias in a World Designed for Men* (10 ed.). Vintage.
- [18] Lori Beth De Hertogh, Liz Lane, and Jessica Ouellette. 2019. "Feminist Leanings:" Tracing Technofeminist and Intersectional Practices and Values in Three Decades of Computers and Composition. *Computers and Composition* 51 (2019), 4–13. <https://doi.org/10.1016/j.compcom.2018.11.004>
- [19] Evan DeFilippis, Stephen Michael Impink, Madison Singell, Jeffrey T Polzer, and Raffaella Sadun. 2020. *Collaborating during coronavirus: The impact of COVID-19 on the nature of work*. Technical Report. National Bureau of Economic Research.
- [20] Françoise Détienne, Michael Baker, and Jean-Marie Burkhardt. 2012. Quality of collaboration in design meetings: methodological reflexions. *CoDesign* 8, 4 (2012), 247–261.
- [21] Paul Dourish. 2006. Re-space-ing place: "place" and "space" ten years on. In *Proceedings of the 2006 20th anniversary conference on Computer supported cooperative work*. 299–308.
- [22] Susan M Dray, Andrea Peer, Anke M Brock, Anicia Peters, Shaowen Bardzell, Margaret Burnett, Elizabeth Churchill, Erika Poole, and Daniela K Busse. 2013. Exploring the representation of women perspectives in technologies. In *CHI'13 Extended Abstracts on Human Factors in Computing Systems*. 2447–2454.
- [23] Joelle Emerson. 2017. Don't give up on unconscious bias training—Make it better. *Harvard Business Review* 28, April (2017).
- [24] Dail L. Fields and Terry C. Blum. 1997. Employee satisfaction in work groups with different gender composition. *Journal of Organizational Behavior* 18, 2 (1997), 181–196. [https://doi.org/10.1002/\(SICI\)1099-1379\(199703\)18:2<181::AID-JOB799>3.0.CO;2-M](https://doi.org/10.1002/(SICI)1099-1379(199703)18:2<181::AID-JOB799>3.0.CO;2-M)
- [25] CE. Ford. 2008. *Women Speaking Up: Getting and Using Turns in Workplace Meetings*. New York: Palgrave.
- [26] Marcus C. G. Friedrich and Elke Heise. 2019. Does the Use of Gender-Fair Language Influence the Comprehensibility of Texts? *Swiss Journal of Psychology* (2019). <https://doi.org/10.1024/1421-0185/a000223>
- [27] Orly Turgeman Goldshmidt and Leonard Weller. 2000. "Talking emotions": Gender differences in a variety of conversational contexts. *Symbolic Interaction* 23, 2 (2000), 117–134.
- [28] Catherine Good, Aneeta Rattan, and Carol S Dweck. 2012. Why do women opt out? Sense of belonging and women's representation in mathematics. *Journal of personality and social psychology* 102, 4 (2012), 700.
- [29] Kyla Haimovitz and Carol S Dweck. 2017. The origins of children's growth and fixed mindsets: New research and a new proposal. *Child development* 88, 6 (2017), 1849–1859.
- [30] Janet Holmes. 1986. Functions of You Know in Women's and Men's Speech Language in Society. *Source: Language in Society* (1986).
- [31] Janet Holmes. 1990. Hedges and boosters in women's and men's speech. *Language and Communication* (1990). [https://doi.org/10.1016/0271-5309\(90\)90002-5](https://doi.org/10.1016/0271-5309(90)90002-5)
- [32] John Hughes, Dave Randall, Mark Rouncefield, and Peter Tolmie. 2016. Meetings and the accomplishment of organization. In *Ethnomethodology at work*. Routledge, 157–176.
- [33] Ken Hyland. 1996. Writing without conviction? Hedging in science research articles. *Applied Linguistics* 17, 4 (1996), 433–454. <https://doi.org/10.1093/applin/17.4.433>
- [34] A. Jay. 2009. *How to Run a Meeting*. Harvard Business Review Press. <https://books.google.co.uk/books?id=umdZCgAAQBAJ>
- [35] Antony Jay. 2017. How To Run a Meeting. <https://hbr.org/1976/03/how-to-run-a-meeting>
- [36] Celia Kitzinger. 2008. Developing feminist conversation analysis: A response to Wowk. <https://doi.org/10.1007/s10746-008-9088-7>
- [37] Rene F. Kizilcec, Andrew Saltarelli, Petra Bonfert-Taylor, Michael Goudzwaard, Ella Hamonic, and Rémi Sharrock. 2020. Welcome to the Course: Early Social Cues Influence Women's Persistence in Computer Science. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (Honolulu, HI, USA) (CHI '20). Association for Computing Machinery, New York, NY, USA, 1–13. <https://doi.org/10.1145/3313831.3376752>
- [38] Anthony J. Liddicoat. 2011. *An Introduction to Conversation Analysis: Second Edition*. Continuum International Publishing Group.
- [39] Catherine Mooney and Brett A. Becker. 2020. Sense of Belonging: The Intersectionality of Self-Identified Minority Status and Gender in Undergraduate Computer Science Students. In *United Kingdom & Ireland Computing Education Research Conference*. (Glasgow, United Kingdom) (UKICER '20). Association for Computing Machinery, New York, NY, USA, 24–30. <https://doi.org/10.1145/3416465.3416476>
- [40] Sandip Mukhopadhyay and Rajen Gupta. 2019. Reviewing Commonalities between Agile Software Development Methodology and Grounded Theory Methodology. *SSRN Electronic Journal* (2019). <https://doi.org/10.2139/ssrn.3326376>
- [41] B. Murphy. 2010. *Corpus and sociolinguistics : investigating age and gender in female talk*. John Benjamins Pub. Co, Amsterdam ; Philadelphia.
- [42] Gary M Olson and Judith S Olson. 2000. Distance matters. *Human-computer interaction* 15, 2-3 (2000), 139–178.
- [43] Daewoo Park. 1996. Gender role, decision style and leadership style. *Women in Management Review* 11, 8 (1996), 13–17. <https://doi.org/10.1108/09649429610148737>
- [44] Trena Paulus, Amber Warren, and Jessica Nina Lester. 2016. Applying conversation analysis methods to online talk: A literature review. *Discourse, Context & Media* 12 (2016), 1–10. <https://doi.org/10.1016/j.dcm.2016.04.001>
- [45] Ernesto Reuben, Pedro Rey-Biel, Paola Sapienza, and Luigi Zingales. 2012. The emergence of male leadership in competitive environments. *Journal of Economic Behavior and Organization* (2012). <https://doi.org/10.1016/j.jebo.2011.06.016>
- [46] Jennifer A. Rode. 2011. A theoretical agenda for feminist HCI. *Interacting with Computers* (2011). <https://doi.org/10.1016/j.intcom.2011.04.005>
- [47] Harvey Sacks, Emanuel A. Schegloff, and Gail Jefferson. 1974. A Simplest Systematics for the Organization of Turn-Taking for Conversation. *Language* 24, 2 (1974), 111–134. <https://doi.org/10.2307/412243>
- [48] HB. Schwartzman. 1989. *The Meeting: Gatherings in Organizations and Communities*. New York: Plenum Press.
- [49] David Silverman. 1998. *Harvey Sacks: Social science and conversation analysis*. Oxford University Press on Demand.
- [50] Susan A. Speer and Elizabeth Stokoe. 2011. *Conversation and gender*. Cambridge University Press, Cambridge. <https://doi.org/10.1017/CBO9780511781032>
- [51] J Sprague. 2016. *Feminist methodologies for critical researchers: Bridging difference* (2nd ed.).
- [52] Elizabeth Stokoe. 2018. *Talk: The Science of Conversation*. Robinson.
- [53] Elizabeth H Stokoe. 2004. Gender and discourse, gender and categorization: Current developments in language and gender research. *Qualitative Research in Psychology* 1, 2 (2004), 107–129.
- [54] Elizabeth H. Stokoe and Janet Smithson. 2001. Making gender relevant: Conversation analysis and gender categories in interaction. *Discourse and Society* 12, 2 (2001), 217–244. <https://doi.org/10.1177/0957926501012002005>
- [55] Simone Stumpf, Anicia Peters, Shaowen Bardzell, Margaret Burnett, Daniela Busse, Jessica Cauchard, and Elizabeth Churchill. 2020. Gender-inclusive HCI research and design: A conceptual review. *Foundations and Trends in Human-Computer Interaction* 13, 1 (2020), 1–69.
- [56] Jan Svennevig. 2012. Interaction in workplace meetings. *Discourse studies* 14, 1 (2012), 3–10.
- [57] D Tannen. 1994. *Talking from 9 to 5*. New York: Avon Books.
- [58] Kelly Widdicks, Alice Ashcroft, Emily Winter, and Lynne Blair. 2021. Women's Sense of Belonging in Computer Science Education: The Need for a Collective Response. In *United Kingdom and Ireland Computing Education Research conference*. 1–7.