Understanding the Dynamics of Online Social Conformity

Senuri Wijenayake
The University of Melbourne, Australia
swijenayake@student.unimelb.edu.au

ABSTRACT

Social conformity is a widespread social phenomenon, where individuals change their personal opinions and behaviour to agree with an opposing majority's expectations. While conformity has been extensively studied in face-to-face groups, its dynamics in online groups is yet to be understood. While literature notes both positive (*e.g.*, sense of belonging) and negative (*e.g.*, undue pressure) implications of online social conformity, it is unclear how online group settings can be designed accounting for conformity effects to facilitate positive group interactions. Thus, this research has three main contributions. First, I aim to thoroughly investigate the effects of contextual and personal determinants of face-to-face conformity in online settings. Second, I will explore the impact of social presence and gender, which may manifest differently in online settings in comparison to face-to-face groups. I then aim to present a set of empirically validated design guidelines to inform the design of healthy online communities, accounting for both positive and negative implications of social conformity.

KEYWORDS

Online social conformity; online group design; contextual & personal determinants; gender stereotypes; social presence

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Majority Size:

- Higher the majority size higher its influential power, until its third member [1, 15].
- Larger majorities exert more pressure to conform as a result of higher normative and informational influences [6].

Task Objectivity:

- Normative influences in face-to-face settings lead to higher conformity in subjective tasks than in objective tasks [3].

Self-confidence:

- Individuals conform more when they exhibit lower confidence on personal answer and higher confidence on majority's answer [11].
- Individuals conform to the majority as a result of being unsure of the 'correct' response in a given situation [5].

Gender, Gender Stereotypes and Cues:

- In CMC settings, individuals infer gender of their peers through cues such as names and avatars [4, 8], and perceive others' competency based on assumed gender [8].

Social Presence:

- Online social presence can manifest as user representation, interactivity, and response visibility.
- **User Representation:** High anthropomorphic (human-like) online representations lead to higher conformity [8, 9].
- **Interactivity:** Individuals are more likely to conform in online settings with higher interactivity [7].
- **Response Visibility:** Conformity is higher when users are informed that their responses are visible to the group (public) than when user responses are private [5].

RESEARCH FOCUS

This work aims to systematically investigate how online group settings can be designed, accounting for effects of social conformity to facilitate positive social interactions. Hence, I first investigate the impact of well-established determinants of face-to-face conformity, and their applicability in online settings. Next, I aim to expand my work towards determinants which are particularly important in online settings, such as gender and social presence. Findings of prior literature on the above is summarised in the left sidebar. Finally, I aim to investigate how conformity influences can be manipulated through online platform design. By doing so, I intend to present a set of design recommendations to be considered when designing online platforms in future, to ensure positive social interactions accounting for socio-psychological factors like social conformity. Thus, this research will focus on the following overarching research questions:

- **RQ 1(a):** How do contextual determinants of social conformity (*e.g.,* majority group size, task objectivity, social presence etc.) manifest in online settings?
- **RQ 1(b):** How do personal determinants of social conformity (*e.g.,* self-confidence, participant gender, group gender composition etc.) manifest in online settings?
- **RQ 2:** How can we apply the above knowledge on factors affecting online conformity, to control (enhance or reduce) conformity behaviour and undue social influence in realistic online settings?

RESEARCH APPROACH

Study One: Measuring the Effects of Gender on Online Social Conformity (CSCW'19)

Research Objectives: Study one explores the effects of four gender-based aspects on conformity, while also validating findings from previous work on the impact of majority size and self-confidence (RQ1 (a) & (b)) [14]. First, I investigate how different gender group compositions in the majority and the minority may affect online conformity behaviour of participants (RQ1 (b)). Since the experiment is related to an online setting, I utilised commonly used stereotypical gendered representations (*i.e.*, stereotypical masculine and feminine avatars and names) to illustrate different gender compositions as shown in Figure 1. Second, I compare these two stereotypical gendered representations (avatars and names) in terms of triggering gender related stereotypes and gender-biased conformity (RQ1 (b)). Third, I explore how the perceived gender of tasks may trigger gender-stereotypical conformity, by comparing conformity behaviour across questions stereotypically perceived in the existing literature to be of masculine, feminine or neutral nature (RQ1 (b)). Additionally, we investigate how the majority – minority group sizes, self-confidence and self-disclosed gender of participants affect their susceptibility to online social conformity (RQ1 (a) & (b)). Finally, based on our findings we provide a number of recommendations for the design of online communities (RQ2).

Research Methodology: The experiment was deployed as an online multiple-choice questions (MCQ) quiz with 39 objective MCQs, on topics that are stereotypically perceived as being of masculine

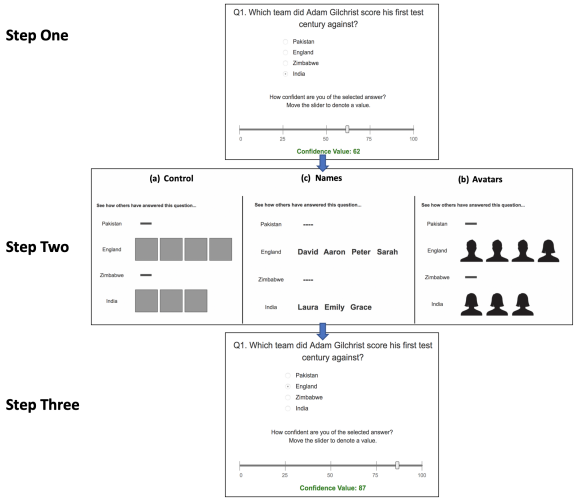

Figure 1: Steps to be followed during the quiz : Step 1: Initial answer and confidence, Step 2: View peer answers (participants will see the representation pertaining to each condition), Step 3: Final answer and confidence.

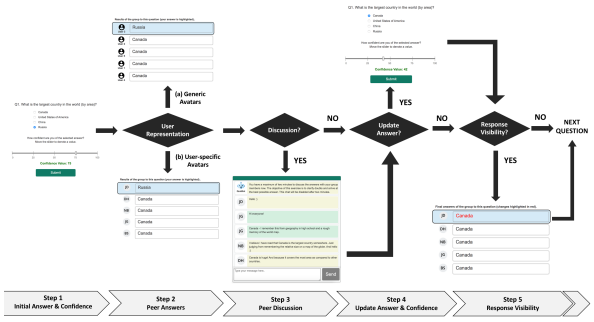

Figure 2: Steps followed during the quiz by participants. Step 1: Initial answer and confidence, Step 2: Peer answers, Step 3: Peer discussion, Step 4: Update answer and confidence, Step 5: Response visibility

(sports), feminine (fashion) and neutral (general knowledge) in literature [8]. For each question in the quiz, participants were first asked to select a personal answer and indicate their self-confidence on the selected answer (see Step One in Figure 1). Next, our software displayed a fabricated distribution of peer answers denoting a clear majority and a minority [10], while placing the participant in either group. This simulation enabled us to test different size and gender compositions for the majority and the minority groups (*e.g.,* Figure 1 illustrates a situation where the participant was place in an all-women minority against a majority consisting more men than women, for a stereotypically masculine question).

There were three conditions (see Step Two in Figure 1): a control condition in which participants did not know the gender of their peers; a condition with stereotypical masculine and feminine names; and a condition with stereotypical masculine and feminine avatars. Subsequent to displaying the fabricated peer answers, participants were given an opportunity to change their initial answer and self-reported confidence if required (see Step Three in Figure 1). Upon completing the quiz, participants were invited to participate in a semi-structured interview to investigate what factors motivated their behaviour.

Study Two: Quantifying the Effect of Social Presence on Online Social Conformity (CSCW'20)

Research Objectives: The second study investigates the effects of social presence on online conformity behaviour (RQ1 (a)) by manipulating three aspects of social presence found in literature – user representation (*generic* vs. *user-specific* avatars), interactivity (*discussion* vs. *no discussion*), and response visibility (*public* vs. *private* responses) [16].

Research Methodology: The research approach is similar to that of study one (an online MCQ quiz followed by a semi-structured interview). The quiz interface participants interact with depends on the experimental condition they are placed in (*e.g.,* only participants in the *discussion* conditions were able to chat with their group when discussing answers, while participants in *no discussion* conditions did not see an option to chat). We discuss the differences between the experimental conditions in the left sidebar. The process followed by participants in each experimental condition is illustrated in Figure 2.

We highlight that the choice of user representations is based on literature explaining how agency and anthropomorphism associated with different online user representations could impact social presence in virtual group settings [9]. Based on the evidence provided by these studies, we hypothesise that *user-specific* avatars with user initials convey a stronger sense of being connected to a 'real' human being (higher social presence), than in *generic* avatars with computer generated usernames. Similarly, we hypothesise that *discussion* and *public* responses will induce more conformity as a result of higher social presence (in comparison to *no discussion* and *private* responses) [5, 7].

Additionally, in this study participants answer both subjective and objective questions, to investigate the effect of task objectivity on conformity, while also validating our findings from study one on group size and self-confidence (RQ1 (a) & (b)). Similar to study one, despite being informed that participants will join four others to complete the quiz, there is only one real participant per experimental session.

User Representation

- **Generic Avatar:** All participants are assigned one gender-neutral avatar (as used in online social networks such as Twitter and YouTube and in Learning Management Systems such as SAP Litmos) along with generic usernames such as "User 1" and "User 2" to differentiate participants.
- **User-specific Avatar:** Participants are assigned dynamically generated avatars including the first letters of their first and last names (*e.g.,* John Doe is represented by **JD** as used in Google).

Interactivity

- **Discussion:** After displaying group answers, participants are given an opportunity to discuss the answers and justifications before submitting their final answer.
- **No Discussion:** After displaying group answers, participants are required to submit their final answers without a group discussion.

Response Visibility

- **Public:** Participants are instructed that their final answers will be visible to the rest of the group, and are shown a list of updated answers of the group before moving to the next question.
- **Private:** Participants are informed that their final answers will not be visible to others in their group, and will be taken to the next question upon submitting their final answers.

The peer responses are simulated either by the software (in *no discussion* conditions) or by confederates (in *discussion* conditions), to control the majority – minority group distributions.

Study Three (on going): Designing Online Platforms accounting for Conformity Effects

The third study aims to investigate how the previously tested determinants of conformity can be appropriately manipulated in online group settings to facilitate positive social interactions, while minimising its adverse effects (R2). Currently, we plan to validate the design implications set forth by study one and two (with regard to the representation of peer feedback, task objectivity, user representation and social presence) in two online settings: a Learning Management System (LMS) where conformity is seen to have negative effects [2], and an online support group where conformity is desired [12]. Ultimately, through this experiment I aim to aggregate the findings of my previous experiments, and further validate their applicability in controlling conformity influences in realistic online group settings.

CURRENT FINDINGS

I have completed the first two studies and their research methodology, foundation on literature and results have been compiled in to two research papers [14, 16].

Majority Size, Self-confidence and Task Objectivity: Findings highlight main effects from majority size (Figure 3), task objectivity (Figure 4) and the initial self-reported confidence of participants (Figure 5) on conformity behaviour. Participants in both studies were more likely to conform when the distance between themselves (the minority) and the majority increased (confirming prior findings in literature [1, 6]). In study two, where participants answered both subjective and objective questions, conformity was higher in objective questions than in subjective questions as opposed to previous literature on this regard [3]. This sentiment was also observed in the interview data, where participants described that they could not be 'wrong' on subjective questions, as opposed to objective questions with a clearly correct answer. Furthermore, the median self-reported confidence of conformity responses was consistently lower than in non-conforming responses, implying that individuals who displayed higher confidence on their initial answers were less likely to be impacted by the majority, as previously implied in [5, 11].

Gender and Gender Cues: There were no statistically significant gender disparities in online conformity behaviour. However, in study two there was a statistically significant interaction effect between participants' gender, stereotypically perceived question type, and the illustrated gender composition of the majority. In other words, both men and women conformed more to a majority consisting more masculine names or avatars (supposedly of other participants), in stereotypical masculine questions (sports), and to a majority consisting more feminine names or avatars in stereotypical feminine questions (fashion) as illustrated in Figure 6. In the interview, participants highlighted that they perceived sports-related questions as masculine and fashion-related questions as feminine expertise areas, and preferred the answers of the relevant gender group over others. Moreover, this effect is stronger in the 'avatars'

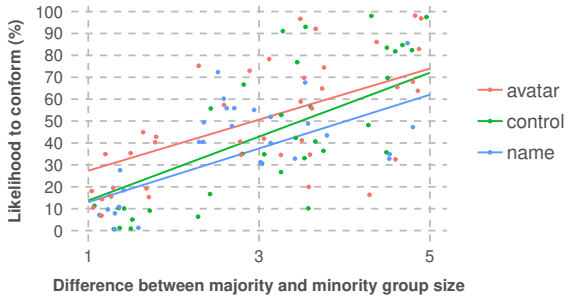

Figure 3: The likelihood of participants conforming to the majority, as its group size increases in the control, 'names' and 'avatars' conditions (Study one).

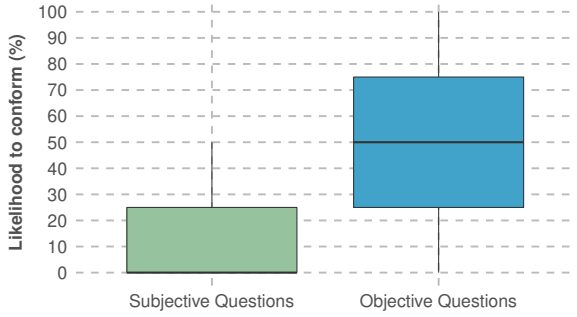

Figure 4: The likelihood of participants conforming to the majority in subjective and objective questions (Study two).

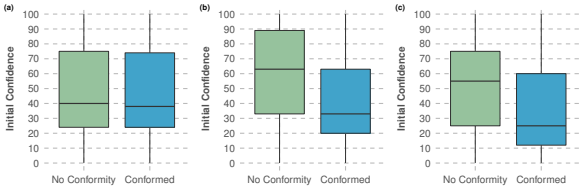

Figure 5: Initial confidence of participants and conformity behaviour across the three conditions: (a) control, (b) names, and (c) avatars (Study one).

condition (than in 'names'), further establishing the importance of user cues in triggering such stereotypical perceptions as suggested in [4, 8]. Thus, we highlight that these observations extend the findings of current literature on the effect of perceived partner gender on conformity to larger online groups.

Social Presence: There were no main effects from any of the three aspects of social presence considered in study two. However, a statistically significant interaction between the level of interactivity (*discussion* vs. *no discussion*) and response visibility (*public* vs. *private*) was noted such that, highest conformity was observed when participants were provided the opportunity to discuss answers with peers, while also displaying their final answers to the rest of the group before moving to the next question (*discussion:public* condition). In contrast, participants were least likely to conform when there was no peer discussion, and the final responses were private (illustrated in Figure 7).

CURRENT AND EXPECTED CONTRIBUTION

The contribution of this research is three-fold. First I aim to bridge the gap between the face-to-face and online conformity literature by thoroughly investigating the effects of majority size, task objectivity and self-confidence in online settings. Based on findings from study one and two:

- Larger majorities are more influential than smaller majorities in online group settings, similar to observations in face-to-face conformity literature [1, 6] **(Study one & two)**.
- Individuals are more likely to conform when they are unsure of their own judgements, as previously seen in face-to-face settings [11] **(Study one & two)**.
- In online settings, conformity is higher in objective tasks than in subjective tasks as opposed to findings of face-to-face conformity literature [3] **(Study two)**.

Next, I aim to explore conformity determinants which may be of specific relevance in online settings. For instance, study one explored the impact of different gender representations in triggering stereotype-based conformity, while study two investigated how different levels of online social presence could influence conformity behaviour. Based on the findings, I set forth the following design implications to be considered when developing online group settings, accounting for effects of conformity influenced by gender stereotypes and social presence.

- Carefully consider whether displaying gender and other user cues is relevant and value-adding from the perspective of end-users as well as the platform **(Study one)**.
- Avoid using obvious gender cues such as binary-gendered avatars when individuals could perceive the competency of others based on gender. Instead, use alternatives devoid of gender cues (*e.g.,* identicons, site specific avatars) to ensure unbiased decision making **(Study one)**.
- Enhance perceived online social presence by increasing interactivity and response visibility where *normative* conformity is desired (*e.g.*, online support groups [12]) and vice versa **(Study two)**.

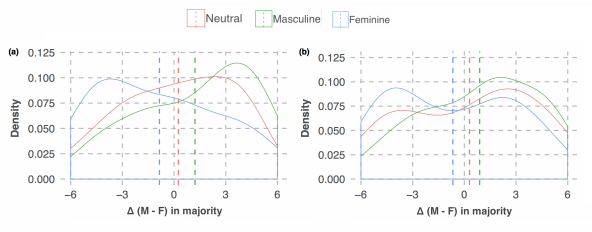

Figure 6: Interaction between question type and difference between the number of stereotypical masculine and feminine avatars in the majority among (a) women and (b) men (Study one).

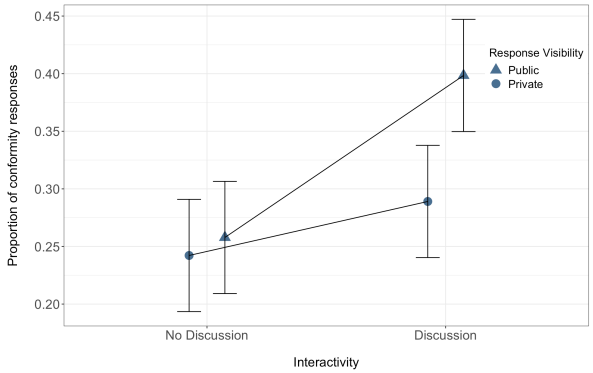

Figure 7: Proportion of conformity responses across the four levels of interactivity and response visibility (Study two).

Moreover, with study three I aim to to validate the design recommendations put forward by study one and two, while further informing how online group settings can be designed to encourage or discourage conformity influences as desired in realistic online settings. Even though study three will focus on two online group settings where conformity is seen to result in negative (learning management systems [2]) and positive (support groups [13]) effects, due to the widespread nature of social conformity, findings of these studies are likely to be relevant across other online group settings as well.

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