

# 'I totally agree with you': gender interactions in educational online discussion groups

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## Abstract

This paper discusses findings from an extensive project examining gender, language and computer-mediated communication (CMC) in the context of undergraduate psychology courses. The contributions of 197 introductory psychology students (148 females, 49 males) participating in asynchronous CMC as part of their course were collated and coded for their language content using a qualitative content analysis procedure in Atlas.ti 4.2. Nearly 700 postings were characterised according to gender on the basis of seven categories relating to language and communication style – attenuated, authoritative, traditional male and female language features, mixed language, positive socioemotional and negative socioemotional. Gender interactions were analysed in terms of positive and negative socioemotional content, focusing on explicit markers of agreement and disagreement. Gender-related patterns in language use and interaction style were found. Females were more likely than males to make attenuated contributions and express agreement, whereas males were more likely than females to make authoritative contributions and express disagreement. These results are discussed in terms of the implications for the increasing use of CMC in education.

## Keywords

agreement, computer-mediated communication, disagreement, gender, language.

## Introduction

Electronic mailing lists, newsgroups or, more broadly, online discussion forums are key features of the digital era, connecting people who share common interests from voyeurism to *The Simpsons*. These many-to-many forms of computer-mediated communication (CMC) are also becoming popular as a way to encourage and extend educational dialogue between students and instructors on traditional campus-based courses. Consequently, there is already a large and rapidly expanding literature on the educational use of CMC (e.g. Kaye 1992; Harasim *et al.* 1995; Garrison *et al.* 2000; Laurillard 2002).

The relationship between gender and language use is an important aspect of gender and CMC research, especially given that the only cues available in text-based communication are linguistic. It has been argued that the gendered power differentials evident in face-to-face communication are transferred into online environments (Herring 1993, 1994, 2000, 2003; Sussman & Tyson 2000). Furthermore, in an online questionnaire study, Herring (1993) found that women were more likely than men to react negatively to aggression in online interaction and consequently fell silent and dropped out of groups. This clearly is an issue for gender equality and the use of CMC in education.

Herring (1994) suggested that males and females may have different communication ethics regarding what are acceptable communication patterns in online interaction, and that this is likely to result in male dominance and female submission. Blum (1999)

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conducted a small-scale study on a postgraduate distance learning course and found that females tended to post messages that were more empathetic and cooperative and contained more references to self. However, males dominated and used abusive language to the extent that females left the groups. Yates (2001) suggests that altering the social context in the form of women-only online groups can moderate some of the problems experienced by women in educational interactions. However, gender segregation is neither practical, nor desirable, within the context of Higher Education.

### Gender and language offline

Lakoff (1975) argued that the linguistic patterns typical of women are less powerful than the patterns associated with men. Powerful language can be characterised by the use of declarative statements as opposed to statements that convey vagueness and uncertainty. Powerless language contains hedges, qualifiers, intensifiers, tag questions and polite forms. It was suggested that socialisation processes in childhood lead to women developing a language style that keeps them in submissive positions in society, whereas men remain in the dominant roles. Many of the linguistic variables that have been described as gender typical in spoken language (e.g. Tannen 1991, 1994; Holmes 1992, 1995; Coates 1993) have also been found to indicate female styles in written discourse (e.g. Mulac & Lundell 1994).

More recently, Timmerman (2002) conducted a meta-analysis of studies of power in language on the basis of sex using 25 language features divided into four categories of floor allocation, certainty–uncertainty, politeness–impoliteness and style. Overall, the results supported Lakoff's claim that men use more powerful language than women; however, effect sizes were small across all subcategories. The results also imply that, when females present ideas or attempt to influence others, they are in danger of being perceived as less credible and less persuasive than males because of the language that they use. This is consistent with the relationship between an individual's language style and perceptions of social power identified by Burrell and Koper (1998). These authors concluded from their meta-analysis that a powerful language style is indeed perceived as more credible than a powerless language style.

### Gender, language and CMC

Herring (1993) examined gender and language use in the context of academic electronic mailing lists. Through the observation of 261 messages posted to a cognitive linguistics discussion, Herring described gendered language styles, similar to the task-orientated versus socioemotional distinction identified in other communicative contexts (e.g. Tannen 1991). Herring described the female style as displaying features of attenuation, such as hedging, apologising, asking questions and a personal orientation, revealing thoughts and feelings and interacting with and supporting others.

On the other hand, male postings were longer and/or more frequent and the male style was described as adversarial, with language features such as strong assertions, self-promotion, humour, rhetorical questions, sarcasm and flaming. Herring believes that individuals are influenced by the overall pattern of communication within the group; therefore, norms emerge in order to support a style of communication that seems to represent the relevant proportions of males and females. In relation to many-to-many exchanges, where CMC participants can be exposed to a variety of styles, Herring (2000, 2003) suggests that the majority gender group online will have the greater influence on the shared discursive norms, as it has been found that men tend to be less aggressive in female-dominated groups (Baym 1996; Herring 1996). This implies that gender differences in communication style may not be found in mixed-gender groups if the minority gender accommodates to the communication norms of the predominant gender group.

Although Herring's computer-mediated discourse analysis is valuable in terms of providing rich descriptions of gendered language styles, it relies on anecdotal evidence for the existence of these contrasting styles. However, a purely quantitative empirical approach could be criticised for reducing complex patterns of language use and interaction to numbers. Conducting a micro-analysis of the use of particular words and phrases in electronic discourse also neglects to consider the use of language and communication styles in the context of both the whole message and the interaction taking place.

Furthermore, Wolfe (1999) criticised Herring's (1993) well-publicised results by stating that it was the only study in which women were found to actually

receive fewer responses than men and was based on an unrepresentative, adversarial sample of discourse. Nonetheless, many studies have provided at least some support for the gendered language styles identified by Herring (e.g. Kaplan & Farrell 1994; Savicki *et al.* 1996a; Barrett & Lally 1999). Savicki *et al.* (1996a) also partially supported Herring's prediction in terms of the influence of the gender composition of groups on language content.

Savicki *et al.* coded 2692 messages sent by 1208 participants for language content and genders and found that participants in groups with higher proportions of females used more self-disclosure, whereas participants in groups with higher proportions of men used more fact-oriented language. However, a major methodological problem in this study was that participants' gender could not be reliably inferred from their username. This is inevitably the case with samples of public electronic discourse taken directly from the Internet, which also raises an ethical issue in terms of the need for informed consent to analyse such discourse.

However, Savicki *et al.* attempted to overcome this methodological problem by conducting subsequent research in controlled settings. Savicki *et al.* (1996b, 1996c) set up small task groups in order to study the linguistic behaviour of male-only, female-only and mixed-gender groups using e-mail to discuss a hypothetical scenario over a 3–4-week period. Their analysis led to the identification of what was termed 'high communication style' (HCS) and 'low communication style' (LCS). Female-only groups used the HCS, defined by Savicki *et al.* as consisting of self-disclosure, statements of personal opinion, 'I' statements and coalition language, more than male-only or mixed groups. Female-only groups were also the least likely to argue. On the other hand, male-only groups used the LCS more than any other group, which consisted of no self-disclosure, no 'I' statement opinion, no references to others and some argumentativeness or coarse language.

Savicki *et al.* (1996b) found that the HCS pattern was associated with higher levels of group satisfaction and development. For example, Savicki *et al.* (1998) compared male-only, female-only and mixed-gender groups that had been given either instructions to use an HCS or standard e-mail etiquette instructions. However, the only groups that were found to be actually higher in the use of an HCS following instruction were the female-only groups. This finding

was explained through the failure of males to read instructions and/or females being more compliant. Perhaps this result could also be explained through the reinforcement of the female-typical style as an ethical and desirable communication style. The HCS may have deviated too much from a male-preferential language style.

As Savicki *et al.* (1996b, 1998) and Savicki and Kelley (2000) argued that an HCS style is associated with higher levels of group satisfaction and development, Savicki *et al.* (2002) attempted to train participants in the use of an HCS style. Male-only, female-only and mixed-gender experimental groups received active training in the use of an HCS. The control groups were trained in the use of e-mail etiquette guidelines. Results showed that the experimental groups that had received HCS training showed higher levels of self-disclosure and opinion. However, HCS training did not produce any other differences in terms of language use between groups. Interestingly, Savicki *et al.* (2002) also did not support the association between the use of an HCS and higher levels of group development and satisfaction, as they found no relationship between language content variables and levels of group development and satisfaction.

The authors suggest that there may have been a mismatch between the imposed style of communication and naturally occurring communication patterns in male-only groups. This raises the issue of how appropriate it is to instruct CMC participants to use a particular communication style, especially when it may be a recognised gender-preferential style of communication and therefore its use may be biased towards one gender. Furthermore, the suggestion that the HCS style is more valuable than the LCS style and should be the recommended style is arguable. Guiller and Durdell (in press) suggested that a style of communication involving self-disclosure and attenuated statements may actually be perceived as less valuable in terms of producing a credible argument than a style that uses authoritative and impersonal language. This suggestion seems likely in light of the aforementioned research (i.e. Burrell & Koper 1998; Timmerman 2002) into perceptions of credibility and social power and language style.

Overall, the results are mixed when it comes to the relationship between gender, language and CMC and many studies have not replicated Herring's findings

(e.g. Wolfe 1999; Sussman & Tyson 2000; Michaelson & Pohl 2001). Perhaps the conflicting findings could be attributed to the large variation in the contexts being studied, in addition to the methods used. For example, much of the work on gender and CMC has been experimental (e.g. Adrianson 2001; Savicki & Kelley 2000; Thomson & Murachver 2001) and has involved various forms of CMC, such as e-mail (e.g. Michaelson & Pohl 2001; Thomson & Murachver 2001) and synchronous chat (e.g. Soukup 1999; Stewart *et al.* 1999). Furthermore, Sussman and Tyson (2000) suggested that a more precise measure of the content of postings needed to be developed. A qualitative element would also be useful in terms of examining the linguistic norms involved in particular real-life interactions, e.g. agreements and disagreements, as opposed to simply counting instances of this type under experimental conditions.

Moreover, it is not known to what extent the results from experimental studies can be generalised to naturally occurring groups in real-life contexts. Many experimental studies also use hypothetical scenarios as a basis for discussion, which may not be meaningful to participants. Additionally, they often involve comparisons between small numbers of male-only, female-only and mixed groups, with only four to six members, to compare the linguistic norms of groups with varying gender composition (e.g. Savicki *et al.* 1996b,c; Savicki & Kelley 2000). Therefore, it is not known to what extent these results will generalise to large mixed-gender groups of students using discussion forums for real-life learning tasks.

### A combined approach

Miller (2004) used a combination of quantitative and qualitative methods to study the real-life learning interactions of Level 1 Introductory Psychology students using asynchronous CMC to discuss course topics. Not only is psychology a subject with plenty of scope for debate and discussion, it is also predominantly 'female', as females outnumber males considerably, enabling a test of Herring's prediction regarding the majority group norms being adopted by the minority gender group. The discussion boards were linked to a coursework assessment and marks were on offer for online participation; however, it was not compulsory. A methodological advantage of studying gender,

language and CMC in this private context was the certainty in identifying the gender of participants, whether they revealed their real name online or used a pseudonym by which they could be identified.

The use of computer-assisted qualitative data analysis software in the form of Atlas.ti 4.2 offered a way to combine qualitative and quantitative forms of data analysis under the framework of qualitative content analysis (QCA) (Mayring 2000). QCA seeks to conserve some methodological advantages of quantitative content analysis and broaden them to a concept of qualitative procedure. A complex coding scheme was created (see Miller 2004), using potential discriminators of gender identified in previous research. 'Code families' were created: groupings of similar codes that could be used as filters. Retrieval methods, including Boolean operators, were used to create complex queries of combinations of codes and code families (known as 'supercodes') and to obtain frequencies of coded categories by gender, which were then subjected to statistical analysis (using  $\chi^2$  and Fisher's exact test). This resulted in an examination of the use of combinations of language features in the context of whole messages and interactions, as opposed to purely quantitative measures of individual linguistic features.

This procedure was carried out to search for male and female messages that were classed as attenuated, authoritative, used female language, used male language, used mixed language, and positively or negatively socioemotional in nature. Guiller and Durndell (in press) argued that the task-orientated/socioemotional distinction was too simplistic in this context, as both males and females were engaged in task behaviour due to the specific, formal purpose of the interaction, and focused instead on a positive versus negative socioemotional distinction. Thus, disagreement and challenging utterances were described as negative socioemotional discourse as they also involve reacting to the contributions of others, albeit in a more negative way.

Miller (2004) reported that the discussion groups with the greatest proportion of males tended to have the greatest proportions of male language features and negative socioemotional responses. On the other hand, the discussion groups with the highest proportion of females tended to have the greatest proportion of female language features, positive socioemotional responses and self-disclosure.

Guiller and Durndell (in press) reported some of the overall quantitative findings of a 'supercode' analysis by gender in Atlas.ti 4.2, which showed that, for example, significantly more females than males made attenuated contributions,  $\chi^2(1, N = 197) = 16.26, P < 0.001$ , used female language,  $\chi^2(1, N = 197) = 19.43, P < 0.001$ , and engaged in positive socioemotional behaviour,  $\chi^2(1, N = 197) = 7.24, P < 0.01$ . On the other hand, significantly more males than females made authoritative contributions,  $\chi^2(1, N = 197) = 14.88, P < 0.001$ , used male language,  $\chi^2(1, N = 197) = 11.50, P < 0.001$ , and engaged in negative interactions,  $\chi^2(1, N = 197) = 25.32, P < 0.001$ . Table 3 illustrates these significant results in terms of the corresponding number of postings.

The current paper focuses on the relationship between gender and interaction style in terms of the overall classification of postings, gender interactions and an exploration of the emergent discursive norms of agreement and disagreement. Rather than purely quantifying instances of agreement and disagreement, this paper also presents an analysis of the linguistic behavioural norms of these actions. The present research also attempted to resolve some of the methodological problems inherent in other studies by incorporating the reliable inference of gender, use of real-life mixed-gender groups and a precise measure of content of postings.

## Method

### Participants

Online discussion forums were set up for an introductory psychology module at a Scottish university over

four semesters. In total, 197 campus-based introductory psychology students (149 females, 48 males) chose to take part in the online discussion groups as an optional part of the module. There were three sub-groups set up each semester, and the topics changed in conjunction with the coursework essay topics. Students could access and contribute to more than one group if they wished. In semesters two and four, the participants were all BSc Psychology students. However, in semesters one and three, the module was offered out to students from a variety of courses; hence the increased number of participants in these semesters. These students were predominantly BA Social Science students, but also BA Marketing and BA Communications and Mass Media students.

Table 1 gives details regarding the total number of participants each semester and the gender composition of the subgroups.

It can be seen from Table 1 that nearly all of the discussion groups were female majority in terms of gender composition. Also, males were more likely to participate in discussions surrounding the topic of intelligence. Females, on the other hand, were more likely to contribute to discussions on eating disorders and memory and studying. Results were mixed in relation to the personality and open forum discussions.

The age range was 17–46 years, and the mean age of the sample was 22 years ( $SD = 6.52$ ). Students were informed of the research from the outset during their seminar class and were asked for their written consent to collate their contributions for analysis at the end of the semester. Participants were assured of con-

**Table 1.** Number of participants according to semester and topic of discussion.

Semester	Total number of participants		Discussion group									
			Intelligence		Eating disorders		Memory and studying		Personality		Open forum	
	M	F	M	F	M	F	M	F	M	F	M	F
1	18	67	12	20	4	38	4	34	–	–	–	–
2	9	14	7	3	4	9	2	8	–	–	–	–
3	18	54	–	–	12	41	–	–	3	21	11	35
4	3	14	–	–	0	8	–	–	2	6	1	9

–, indicates discussion group did not exist for that semester  
M, male; F, female.

**Table 2.** Code families, codes and examples.

Code family	Codes*	Examples
Attenuated	Personal opinion, qualifiers, suggestion phrased as question	'I think', 'perhaps', 'don't you think that maybe...'
Authoritative	Absolute adverbials, imperative verbs, impersonal truths	'obviously', 'notice that', 'it is a fact that'
Male language	Strong assertions, presuppositions, rhetorical questions, sarcasm, humour	'I am sure that', 'isn't this a two-way street?', 'the delightful Beckhams'
Female language	Intensifiers, compliments, polite forms, references to emotion, self-disclosure	'totally', 'that's a very good point', 'sorry for waffling', 'it makes me sad'
Mixed language	Combinations of both male and female language	'I definitely think'
Positive	Agreement, requests opinions, partial agreement	'I agree', 'let me know your views', 'I understand what you are saying but'
Negative	Disagreement, challenging utterances, controversial statements	'I disagree', 'how can you possibly think that'

\*This list is not exhaustive; for full coding scheme, see Miller (2004).

fidentiality and all messages were coded with numbers in place of names in Atlas.ti 4.2.

### Procedure

The participants contributed a total of 699 postings (538 female, 161 male). The mean number of posts was 3.55, and the average length of posts was 126.03 words. Tutors also contributed online but only the student responses were included in the analysis. Coding was carried out using the coding scheme developed in Atlas.ti 4.2 (see Miller 2004). The researcher performed initial coding of the text documents and constructed a code list, which included definitions and examples from the corpus. A second independent rater then coded 20% of the student sample (65 quotations chosen at random) for 30 linguistic and stylistic variables coded as potential discriminators of gender. The second coder was blind to author sex. Inter-rater reliability for the coding of messages was very good ( $\kappa = 0.94$ ).

Postings were then classified on the basis of their linguistic and stylistic content using the code families listed in Table 2. These higher order code 'families' permitted searches to be conducted into the use of combinations of codes in messages, and therefore aided in the identification of use of particular interaction styles. The electronic discourse was then further analysed in Atlas.ti 4.2 through a qualitative analysis of the search results in Atlas (e.g. 'all messages coded as positive socioemotional but not negative socioemotional'), allowing the linguistic norms of a parti-

cular interaction, e.g. agreement, to be identified. Search results remained in the context of whole messages and episodes of interaction in Atlas.ti 4.2, which helped to keep the researcher in close contact with the original data, memos and contextual factors, such as gender, discussion topic and the sequence of the interaction.

Gender interactions were examined in terms of the negative and positive socioemotional content in messages sent in response to a previous contributor. Episodes of agreement and disagreement were identified on the basis of the language contained in them. Feedback questionnaires were distributed at the end of each semester, which required students to respond to simple open-ended questions regarding what they liked and disliked about the online discussion forums.

### Results

#### Language and interaction styles

Table 3 shows the classification of 699 student postings according to the language and interaction styles described in Table 2.

It can be seen from the table that female postings tended to be attenuated in nature, containing features such as qualifiers and personal opinion, whereas the male postings were more likely to be authoritative, making use of features such as strong assertions and presuppositions. Female postings were more likely to be positive (i.e. requests, opinions, agreements) than negative (e.g. challenging statements, disagreement).

**Table 3.** Classification of postings according to interaction style.

Percentage of postings	Attenuated	Authoritative	Positive	Negative	Male language	Female language	Mixed language
Male ( <i>N</i> = 161)	16% ( <i>N</i> = 26)	40% ( <i>N</i> = 64)	19% ( <i>N</i> = 30)	27% ( <i>N</i> = 44)	12% ( <i>N</i> = 20)	20% ( <i>N</i> = 32)	61% ( <i>N</i> = 98)
Female ( <i>N</i> = 538)	41% ( <i>N</i> = 218)	16% ( <i>N</i> = 85)	35% ( <i>N</i> = 190)	7% ( <i>N</i> = 38)	4% ( <i>N</i> = 19)	44% ( <i>N</i> = 235)	46% ( <i>N</i> = 246)

However, males had a slightly higher percentage of negative postings than positive postings. On the whole, males and females tended to use a mixture of male and language features in their postings. However, males did have a higher percentage of postings containing mixed language.

### Gender interactions

Table 4 shows the total number of interactions between students and tutors, classified by gender (e.g. female replies to male postings). The percentages of these interactions that were categorised as positive or negative (see Table 1) are also displayed. Males accounted for 23% of the total postings and 27% of student replies (113 replies), whereas females accounted for 77% of total postings and 73% of replies (300 replies). As can be seen from the percentages in the table, the majority of female-to-female interactions were positive in nature. This was also true of the female-to-male interactions. Therefore, females were more likely to respond positively to another student than negatively, regardless of gender. Males, on the other hand, were more likely to respond negatively to both males and females. However, the proportions of these negative responses were not much higher than that for positive responses. Finally, females were more likely to respond positively in response to a tutor and male-to-tutor interactions were more likely to be negative.

### Explicit agreements and disagreements

This section highlights some of the major themes of language use and interaction style used by participants, focusing on the themes of agreement and disagreement. Over a third of postings explicitly expressed agreement (e.g. 'I agree') or disagreement (e.g. 'I disagree') with other students. Explicit markers of agreement were found in 22% of postings (9% male postings, 26% female postings). The percentage of

**Table 4.** Classification of interactions according to gender and type: positive or negative.

Gender interaction	Total number of interactions	Percentage of positive interactions	Percentage of negative interactions
Female–female	237	53 ( <i>N</i> = 126)	8 ( <i>N</i> = 18)
Female–male	88	48 ( <i>N</i> = 42)	15 ( <i>N</i> = 13)
Male–male	25	28 ( <i>N</i> = 7)	36 ( <i>N</i> = 9)
Male–female	63	24 ( <i>N</i> = 15)	27 ( <i>N</i> = 17)
Female–tutor	105	25 ( <i>N</i> = 26)	7 ( <i>N</i> = 7)
Male–tutor	46	15 ( <i>N</i> = 7)	30 ( <i>N</i> = 14)

students who made an explicit statement of agreement in response to another participant differed by gender,  $\chi^2(1, N = 197) = 11.30, P < 0.01$ . Explicit markers of disagreement were much less frequent and appeared in only 9% of postings (19% male postings, 6% female postings). However, the percentage of students who made an explicit statement of disagreement also differed by gender,  $\chi^2(1, N = 197) = 17.86, P < 0.05$ . Males were significantly more likely to disagree than females, and females in turn were significantly more likely to express agreement than males. This could be construed as a male preference for explicit disagreement and female preference for explicit agreement.

Females were also much more likely to intensify their agreement by using an intensifier such as 'very', 'really' or 'totally' within their statement of agreement or compliment. A total of 30% of explicit statements of agreement by females featured an intensifier (e.g. 'I agree completely'). The use of the word 'totally' in the statement of agreement 'I totally agree' followed by 'with you' or 'with (name of group member)' was by far the most common form of intensive agreement and was used exclusively by females. In fact, only one male used an intensifier when agreeing with a male participant by using the phrase 'absolutely agree' as the title of his contribution. Even then, this is different from the female usage as it is less personal and does

not use first-person ('I') or second-person address ('you') or a reference by name.

Therefore, this intensified and personalised form of agreement was solely a female norm of agreement. Females also often emphasised similarity in their supportive responses with phrases such as 'I also believe', 'I also think', 'I too feel that'. This suggests that females in particular sought to create a positive relationship with the person to whom they were replying, through the claiming of common opinions and experiences, in addition to praising or agreeing with them.

Males also expressed agreement with other participants, both male and female. However, male forms of agreement were less personal and/or explicit than female forms, such as in the examples below (examples from the corpus are reproduced in their original form):

I agree with you on this point.  
 I agree that it is essentially a problem of low self-esteem and lack of confidence along with sufferers having a distorted body image of themselves.  
 I would therefore determine the missing factor in this scenario's success as some form of 'emotional intelligence' as mentioned.  
 For a start, I think the reasons behind the murder were dodgy parenting and largely video nasties as well.

Although instances of female disagreement were far less frequent in the data than occurrences of agreement, naturally females did express disagreement with other participants, both male and female. However, the way in which females disagreed and rejected the opinions and ideas of other participants and tutors was often attenuated.

I'll have to disagree with you there.  
 I think I have to disagree with you on who is affected most.  
 Don't agree that pop idols are a strong positive influence on young children.  
 I am sorry but i really do not agree with you that genetics has nothing to do with the eating disorder debate.  
 Have you not been going to the lectures? do you not read any papers and i am talking about the broad sheets not tabloid.

The above examples of female disagreement show that females did disagree with other participants and could be challenging, particularly in the last example. However, rarely was this disagreement intensified in the same way as their agreement often was. Also, some of

the above examples are attenuated through the use of 'I think I have to' and 'I'll have to', which serves to modify the argumentative tone of the response.

### Alternative forms of agreement and disagreement

It was interesting to find no significant gender variation in the percentage of participants who provided supporting statements,  $\chi^2(1, N = 197) = 3.54$ , NS, which were defined as statements in a message that supported the content of a previous posting in a discussion thread, with or without an explicit statement of agreement. However, the percentage of female postings of this type was higher at 21%, than male postings at 11%. This emphasises the decreased likelihood for males to express explicit agreement, in comparison with females, even if they seem to support the line of argument and provide statements that indicate implicit agreement. There was also no significant gender difference,  $\chi^2(1, N = 197) = 0.00$ , NS, in the category of partial agreement (e.g. 'I agree to a certain extent on your comments but'), and 7% of both male and female postings made use of this strategy.

It was found that females often used authoritative and challenging language in response to male postings containing controversial and/or challenging utterances. Males were more likely to contribute controversial statements to the discussion than females, such as in the examples below, although these were relatively infrequent.

Intelligence represents everything that is human, this discussion would not be taking place if it was not for intelligence and you only have to read some of the submissions to find how much it can vary from each unique person.  
 Why be scientific, there's a lot of fatties out there and a small minority have a medical problem the rest just like to blame others for their own lack of will power. Come on be honest people and not so bloody P.C all the time.

However, contributions of this nature often provoked anger and disagreement from females and, in response, females often used authoritative and challenging language as in the example below:

If you say that non-intelligent or 'dim' people, as you like to call them should be discriminated against, what will this achieve? the individual in question will certainly not benefit from this treatment, and if those discriminating against them can honestly say it is fair and

appropriate then it only reflects the type of person they are! Your guidance teacher must have been adequately qualified if he got the job in the first place, so I wouldn't go getting so high and mighty just because people don't meet up to your 'standards'!!!

There were also instances of disagreement whereby males dismissed the contributions of other participants as 'rubbish', 'nonsense' or 'poppycock'. There was not one instance of female use of similar language. The following description highlights an episode of interaction that took place between a male and a female participant in the personality discussion group. Male 30 responded to Female 93 with a message entitled 'Poppycock!!!', the start of which is shown below:

I would firstly like to thank (F93) on her interesting comments, in relation to my contribution entitled 'Personality Test Quacks'. Although (F93) generally agrees with me, I do not agree with some of her views.

As can be seen above, Male 30 initially thanked Female 93 for her interesting comments, which could have been intended to be and/or interpreted as sarcastic; however, it was not coded as such due to the ambiguity of the utterance. He then expressed explicit disagreement with some of Female 93's views and took a high-power role in the discourse by making authoritative statements involving strong assertions and absolute adverbials such as 'this is exactly what it is', 'it is certainly a change in personality' and 'but this argument is completely without merit'. Male 30 quoted parts of Female 93's message and replied to them to argue his point. Male 30 then undermines Female 93's argument by stating that her points actually support his argument. The final part of the message is shown below:

Finally, it has been pointed out that other contemporaries such as Carl Rogers would not agree with a dictionary definition of personality, - this only further strengthens the argument, which I made in my previous contribution, that we are all individuals and therefore have different perceptions on the same themes. So by disagreeing with me, (F93) has actually reinforced the issues that I had raised.

This is in direct contrast to Female 93's earlier posting, which had ended on a positive note by emphasising the similarities between their arguments. Female 93 then defended her position by objecting to Male 30 not quoting what she said in full, and at-

tempted to clarify the meaning of her point that she felt had been misconstrued. The final part of Female 93's response is shown below:

Sometimes our convictions are strengthened most when they are presented with an unsuccessful rebuttle. So until (M30) or anyone else presents a reasoned, researched and constructive argument against my 'poppycock', I believe I shall stand by it. However, let's not end on conflict. I think that I would be right to say that where myself and (M30) agree is that whilst there is no definitive description of the concept of personality, it is impossible to measure it - a bit like trying to catch the wind (I'd rather quote Donovan than Freud any day of the week!!!). Even if we could agree on a definition, the ability of humans to deliberately act outside their personality would make validating any measurement impossible.

The implication that Male 30's argument is not 'reasoned, researched or constructive' suggests that she found his previous posting to be negative and unhelpful. This is reinforced by the reference to her posting as 'poppycock'. However, she then uses the exhortation 'let's not end on conflict' and again emphasises where they both agree. Another positive strategy is used in the form of humour with the phrase 'I'd rather quote Donovan than Freud any day of the week!!!'. It is possible that this was meant as a 'dig' at Male 30, who had previously quoted Freud, and Female 93 may have used it to show that she was not taking their disagreement as seriously as Male 30 and was tacitly suggesting that he 'lighten up'. Female 93 did not receive any response to her posting.

There were also instances whereby females explicitly objected to the use of words such as 'rubbish', as shown below:

ONE LAST POINT REGARDING THE LAST FEW COMMENTS MADE IN THIS RESPONSE CALLED 'RUBBISH'. IT IS QUITE RIDICULOUS TO ATTEMPT TO TELL SOMEONE ELSE WHAT THAT SAME PERSON 'WILL THINK' ABOUT A CERTAIN MATTER. NOT EVERYONE THINKS THE SAME WAY ABOUT THINGS, HENCE WHY THIS WEBSITE IS HERE. EVERYONE IS DIFFERENT. UNLIKE CLONES!

This was also an issue that was raised by some females in the feedback questionnaires, as they gave the following responses to the question of what they did not like about the online discussion:

People insulting the previous contributor in a personal fashion e.g. the 'Rubbish' entry. Some individuals only participated for the sake of disagreeing with others and making irrelevant contributions.

However, it emerged out of the feedback questionnaires that both male and female students valued the online discussions for their openness and the fact that people could be more honest and open about their opinions and ideas than in a face-to-face seminar. This suggests that some students may not have objected to the controversial utterances that were made, as they valued the freedom of speech online, but rather the way in which some participants chose to express their disagreement. This is expressed in the following quotes from both a female and a male participant in response to the question 'what did you like about the online discussion groups?':

Getting views of others, helping each other but some people were competing or cheeky online (Female).  
Hearing other views was quite good but some people seemed a bit too quick to dismiss some points of view and could be quite cheeky (Male).

### The salience of gender

Gender was a salient factor to an extent in the online discussion because some participants chose to reveal their real name, as their user identification or even as a signature at the bottom of their postings. Even when participants used a pseudonym, they often revealed their gender directly in the content of their posting. For example, participants made statements such as 'as a gay guy I know I can never have kids' and 'as a 19-year-old girl with bulimia'. Furthermore, gender issues were often raised in relation to psychological topics such as eating disorders, abortion and even task behaviour in seminar groups.

For example, gender became an issue in an eating disorders group. Although predominantly female, as in all of the groups, one male took on a high-power role. Instead of conforming to the female norm of personally oriented and supportive language features, Male 13 made many contributions that positioned him in an expert-like role. He posed questions to the group and gave feedback on other's contributions using authoritative language. When a female suggested that men

do not worry so much if they put on weight and typed in 'men and women differ' as the keywords to accompany her message, he responded with the message below, which could be an attempt to justify his extensive participation in a female-majority discussion of a typically 'female' issue:

I agree to a certain extent on your comments, but it is a fact that more and more men are now suffering from eating disorders than before and the number is increasing dramatically. Do you think this might be because of the new breed of men's magazines that feature fashion pages with male models? Or the countless boybands with most of them being picked for their looks rather than their talent? It is not purely a female issue anymore.

### Discussion

Gender-related patterns in language use and interaction style were found in this context. Female postings were more likely to contain attenuated language and positive socioemotional content, whereas male postings were more likely to feature authoritative language and negative socioemotional content. These findings are similar to those revealed in other communicative contexts, such as other CMC contexts (e.g. Herring 1993, 1994, 2000, 2003; Savicki *et al.* 1996a-c; Savicki & Kelley 2000), oral contexts (e.g. Tannen 1991, 1994; Holmes 1992, 1995; Coates 1993) and written contexts (e.g. Mulac & Lundell 1994). It is noted that the difference in proportions of positive and negative socioemotional content in male postings was not as extreme as that of female postings. However, males were significantly more likely to express explicit disagreement than females, and females in turn were significantly more likely to express explicit agreement than males.

Regarding gender interactions and socioemotional content, it was found that the vast majority of female-to-female interactions were positive. However, slightly more male-to-female interactions were negative and male-to-male interactions were more often negative than they were positive. Female-to-male interactions were much more likely to be positive in nature than negative. Adrianson (2001) reported that females agreed more than males in responding to messages from a male in an experimental study of asynchronous CMC. This is supported to an extent by the findings in the present study, as 48% of female-

male interactions were positive, in comparison with 28% of male–male interactions.

However, female-to-female interactions tended to be more positive than female-to-male interactions, suggesting that females were engaging in negative interactional strategies to a greater extent when in response to males, as opposed to females. This could reflect the rejection by females of the male contributions that featured challenging and controversial statements. Female responses to male postings of this nature often contained authoritative and challenging language, similar to the language in the male postings, supporting the notion that language use is dynamic and can change in the context of an interaction.

Males and females were very similar in the quantity and form of expressions of partial agreement. However, Blum (1999) found that significantly more female than male students expressed understanding or partial agreement before ultimately disagreeing. Males and females were also similar in terms of the extent of supporting statements in their contributions, defined as statements that support a previous suggestion or argument, with or without an explicit statement of agreement. Therefore, this suggests that females are more likely to include an explicit marker of agreement in their postings along with the supporting statements, whereas males may also agree with the line of argument, but are prone to using more implicit forms of agreement.

The finding that males tended to exert an authoritative style in their postings, in addition to their tendency to express disagreement, suggests that males were more likely to take on a high-power role in the discussion, relative to females. Females were more likely to adopt a low-power role online through their increased use of attenuated and supportive contributions, such as statements of personal opinion ('I think perhaps'), supportive patterns ('I agree with you') and use of self-deprecating language (e.g. 'I am not an expert but'). Tannen (1994) stated that women typically use more supportive language patterns, which have the effect of diminishing the power of their own contributions. Therefore, these gender-related patterns in language use and interaction style could reflect, or even produce, asymmetrical power relations. The findings also support Timmerman (2002), in that males tend to use more powerful language than females, and may have implications for education in terms of the influ-

ence of authors' language use in assessing the credibility of their contribution or argument.

The present findings also provide support for the online gendered language styles described by Herring (1993, 1994). However, the male style that Herring described was a considerably more extreme authoritative and adversarial style that included sarcasm and extreme forms of flaming, which did not occur often in the present studies. This could have been due to the differences in context, as Herring (1994) examined public Internet discussion lists, whereas the studies here were concerned with private discussion forums in an educational context, where flaming was not an emerging discursive norm.

Miller (2004) suggested that gender interacts with the topic of discussion, in that females are more likely to contribute to discussions on eating disorders and males are more likely to contribute to discussions on intelligence, and therefore the topic of discussion influences the gender composition of the group; this in turn affects the overall communicative style of the group and the proportions of language features found within them. Herring (2000, 2003), suggested that in mixed-gender groups, the minority gender would accommodate to the overall style of the majority gender in a group. Nonetheless, despite the fact that males were outnumbered by females in most groups, gender-related patterns in language use and interaction style were revealed. However, the styles may have converged and may be somewhat less extreme than that found in female-only and male-only groups (see Savicki & Kelley 2000). This is supported by the finding that a higher percentage of male than female postings contained mixed language, defined as a combination of male and female language features.

Nonetheless, Herring's suggestion that the more numerous a gender group is online, the greater the influence it will have on shared discursive norms was not wholly supported, as males did not conform to the female interactional norms of agreement, such as explicit statements of agreement and intensified agreement. The tendency for females to provide explicit markers of agreement and emphasise the extent of that agreement through the use of intensifiers could reflect a desire to seek a positive relationship with the recipient and a need for affiliation. This was supported by the finding that females often professed their similarity in terms of opinions and experiences,

and there were also instances of reciprocal self-disclosure.

Females did of course occasionally disagree with other participants in the discussion. However, this disagreement was rarely emphasised through the use of an intensifier within the statement of disagreement and was often attenuated through their use of language. It was also found that females expressed disagreement more often in response to males than other females and that these instances of disagreement with males were often angry reactions to controversial and challenging contributions. Some males rejected the ideas of other participants using words such as 'rubbish', 'nonsense' and 'poppycock'.

However, there was no evidence of females using such words and some females expressed their resentment concerning the use of such words, both in the feedback questionnaires and in their online contributions. Some of the female participants directly challenged the content and style of the male postings that they perceived to be overcritical and unconstructive. This could be due to the difference in context, as the females involved in the present studies may have felt more motivated to stand up for their right to take part in the discussion, as it was part of their education. Furthermore, they may have felt more empowered as they were the majority group and the subject of psychology is considered a 'female' domain to some extent.

This also supports Herring's (1994) suggestion that men and women have different communication ethics regarding what counts as acceptable postings, to some extent. It could also reflect gender differences in learning styles. Females may prefer to learn through connectedness and cooperativeness, whereas males may prefer a more independent and argumentative environment. Perhaps the latter point is captured in the title of a contribution from a male participant, 'fire in the hole'. Future research could investigate student perceptions of the language of argumentation, acceptable linguistic forms and how ground rules for argumentative discourse can be negotiated in CMC.

In the discipline of psychology, the combination of emotive and personally relevant topics and a computer-mediated environment may be more conducive to relational communication and self-disclosure than in a face-to-face seminar. Results will no doubt vary across disciplines depending on the nature of the subject and, of course, the gender composition of the groups,

highlighting the need for more research in different educational contexts.

It should also be noted that there are issues with using psychology students as participants in gender-related studies, as there are such disproportionate numbers of males and females taking psychology and social science courses. However, it is believed that the benefits of studying naturalistic data in this particular context of psychology undergraduates' computer-mediated interactions outweigh the disadvantages of having unequal numbers of male and female participants. Psychology is also a discipline in which there is considerable scope for debate and discussion, and may be more likely to make increased use of computer-mediated discussion groups than other disciplines such as mathematics.

This paper has shown how gender can influence language use and interaction style in educational computer-mediated discussion forums. The gender-neutral nature of CMC is a myth and language may be a powerful means of constructing and maintaining gendered power differentials in CMC. This research suggests that the style of communication involving authoritative utterances and argumentation is used more by males than by females. In this research, although females expressed dissatisfaction with some of the contributions, they did not state that they felt abused or harassed to the point of leaving the group. However, gender differences in the style of contribution could be problematic if more credibility and status is awarded to a more authoritative and argumentative discourse style in computer-mediated interactions. As the standard academic writing style is impersonal and objective, this may be more typical of a male discourse style, and more attenuated and supportive contributions could be viewed as less credible, biasing the assessment of online contributions in education. Therefore, differences in communication style must be considered when using CMC in educational contexts.

Students and staff using online discussion forums should be made aware of possible differences in communication style and ethics, and should agree a style of contribution and protocol for use of CMC in undergraduate psychology courses. There is a need to help students learn how to use language for the sharing of knowledge, argumentation and the construction of meaning online. More research is required to establish how participants can negotiate and establish ground

rules for discourse in educational contexts. It is argued here that the answer is not to have women-only groups as Yates (2001) suggested, as segregation will not lead to increased understanding and tolerance of styles. Moreover, having single-sex discussion groups would be impractical in educational contexts, and males and females may have to collaborate together in future working environments.

Furthermore, attempts by Savicki *et al.* (1998, 2002) to impose the use of an HCS style on participants could be viewed as biased towards one particular gender, as the HCS style is analogous to a female-typical communication style. Savicki *et al.* make the implicit assumption that agreement is preferential to disagreement in CMC with their recommendation of an HCS involving self-disclosure and coalition language over an LCS, which they define as containing some argumentativeness. However, it could be argued that disagreement is valuable in terms of the diversity of opinion and subsequent cognitive restructuring or conflict resolution could contribute to higher order learning.

For example, Anderson *et al.* (2001) state that peer interaction can have a positive effect on conceptual development as a function of conceptual conflict. Perhaps the main point here is not that instructors should try to impose the use of a particular interaction style over another, but rather CMC participants should be involved in establishing the ground rules for electronic discourse, particularly concerning the way in which disagreement is expressed online. Perhaps imposing a particular style is not the way to go and we should instead be attempting to increase understanding and tolerance of different styles. It could be argued that true equality can only be achieved when we recognise similarities and differences and celebrate the diversity.

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