

Texting!!!

Attributions of gender and friendliness to texters who use exclamation marks

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Previous research shows that females use more exclamation marks than males, often to establish rapport. The purpose of the present studies was to test whether people associate texters' use of exclamation marks with friendliness and femaleness. If this association is due to normative expectations, we hypothesized that females would appear less friendly if they did not use an exclamation mark in texting. In Study 1, participants rated a texter using an exclamation mark to be highly female and highly friendly. The gender results disappeared when friendliness was controlled for. In Study 2, we tested whether friendliness ratings decreased if texters violated gender-associated punctuation. Participants rated a texter with a gendered name on friendliness. Regardless of gender, participants inferred greater friendliness to texters using an exclamation mark. That is, there was no evidence of a cost for violating this gender expectation. We conclude that people predict that a texter using an exclamation mark is likely to be female, but do not penalize females for not using an exclamation mark.

Keywords: friendliness, gender differences, punctuation, exclamation marks, exclamation points, texting

In interpersonal communication, expression of emotion depends on a myriad of factors, including subject matter, power, and social roles, as well as the gender composition of the interlocutors (De Lemus et al., 2012; McDuff et al., 2017; Mehu & Dunbar, 2008). Notwithstanding, women tend to display more positive emotion than men (Hall et al., 2000; Simpson & Stroh, 2004). For example, women tend to smile more than men (Briton & Hall, 1995) and provide more facial cues to their emotional state (Wagner et al., 1993; see review in Hall & Gunnery, 2013;

cf. McDuff et al., 2017). These gender differences can be particularly salient in an affiliative context, where emotions can mediate rapport (Mehu & Dunbar, 2008).

These gender differences in emotional expression can become normative expectations for social roles (Koenig & Eagly, 2014). According to social role theory, normative expectations for social roles, such as women trying to achieve affiliation, come from observations of how people behave (Eagly & Wood, 2013; Koenig & Eagly, 2014). Indeed, interlocutors often expect women to be more emotionally expressive than men (Briton & Hall, 1995; Hung et al., 2019; Radeke & Stahelski, 2020; Vogel et al., 2006). Moreover, there can be a cost for women behaving differently from these expectations. For example, Luong (2007) showed that female service employees were negatively evaluated when they did not express friendliness with the client. Conversely, Darley and Luethge (2019) found that friendliness was a significant predictor of retention among female employees in the automotive service repair industry.

In the present studies, we tested whether people's associations between friendliness and femaleness and expectations for social roles generalize to online communication. It is likely that people apply the same expectations for social roles learned in offline interactions to online interactions. For example, they might expect females to seek affiliation and to express a lot of positive emotion (as in face-to-face interactions; Simpson & Stroh, 2004). They might also penalize females if they do not express positive emotion (as in face-to-face interactions; Luong, 2007).

Previous studies have shown that there are gender differences in emotional expression in online communication (Thelwall et al., 2010). For example, one function of emoticons in online communication is expression of emotion (Skovholt et al., 2014). Wolf (2000) found that females tended to use more emoticons than males in online newsgroups. Wolf (2000) also found that males used more emoticons in mixed-gender newsgroups than same-gender newsgroups, suggesting that males adopted the stereotypical female style of expressing emotion in the mixed-gender newsgroups. Not all studies have found the same direction of gender effects in online communication: Huffaker and Calvert (2005) found that male adolescents used more emoticons than females in online blogs. While emoticons can serve functions other than emotional expression (Glikson et al., 2018; Skovholt et al., 2014; Vandergriff, 2013), these results could mean that gender roles are less rigid in online environments.

In the present studies, we tested whether readers associate exclamation mark usage in texts with gender. The function of the exclamation mark in print is to indicate emotive force and excitement (Baron & Ling, 2011; Waseleski, 2006). We therefore predicted that the use of exclamation marks would be associated with friendliness. Waseleski (2006) demonstrated that in an online messaging board,

73% of all exclamation points used came from women (see also Rubin & Greene, 1992). Another study found that women use more exclamation marks than men in emails (Colley et al., 2004). If people's expectations for online communication are constructed on the basis of their experience with online communication, they might have strong associations between femaleness and use of exclamation marks in online communication. If so, then, according to social role theory, an omission of the exclamation mark could signify a lack of enthusiasm and perhaps even a violation of social roles. In other words, the use of exclamation marks might become an expectation for women, rather than a courtesy (see discussion in Tannen, 2012).

In Study 1, we test whether there are associations between the use of an exclamation mark in a text and the friendliness and femaleness of the texter. If people are sensitive to online probabilities, they should infer a greater degree of femaleness in a texter who uses an exclamation mark than in a texter who uses a period. This inference may come about because they expect females to be friendlier than males. In Study 2, we test whether people have come to expect females to use exclamation marks as part of their social roles. If so, they might find females who use a period in a text less friendly than males who use a period.

Study 1

The primary purpose of Study 1 was to test whether people attribute gender to the use of an exclamation mark (compared to a period) in text messaging. If so, then this could be because of greater attributions of friendliness to women than to men (Hess et al., 2005). A secondary purpose of this study was to test whether these gender differences would apply equally to formal and informal communication. One study found a restricted range of emoticons used in formal online interactions (Maíz-Arévalo, 2015). Another study found that the use of a smiley face in formal communication was associated with low perceived competence of the writer (Glikson et al., 2018). It is possible that the use of an exclamation mark in formal communication could be perceived as an unnecessary expression of emotion. As a result, the gender attributions might not skew as strongly female (or could even disappear) in a formal communication relative to an informal communication.

Method

There were a total of 113 participants in this study (87 females, 24 males, and 2 non-binary). Participants were recruited at a university in western Canada via a

student digest newsletter. No compensation was offered to participation. Participants were randomly assigned to one of four conditions: Formal/Exclamation ($N=25$; 19 females, 6 males), Formal/Period ($N=25$; 19 females, 6 males), Informal/Exclamation ($N=29$; 24 females, 4 males, 1 non-binary), or Informal/Period ($N=34$; 25 females, 8 males, 1 non-binary).

Materials

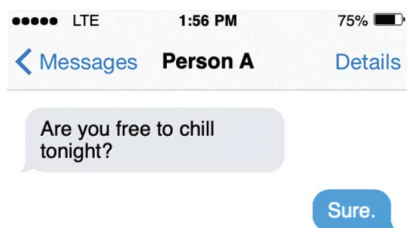
Participants saw one of the four text messages in Figure 1. We chose to compare exclamation marks to periods so that all participants saw punctuation in the texts. We return to possible limitations of this choice in the General Discussion. Using 7-point-Likert scales, they rated the respondent (the person texting the speech bubble in blue in Figure 1) on 16 variables: friendly, intelligent, extraverted, professional, punctual, charismatic, considerate, sociable, confident, powerful, respectful, formal, approachable, truthful, male, female. The attributes other than gender came from a study on bilinguals' perceptions of code-switching (Genesee, 1984). We included in our analyses only our variables of interest, namely female-ness and friendliness.



a. Formal/period



b. Formal/exclamation mark



c. Informal/period



d. Informal/exclamation mark

Figure 1. Text messages shown in Study 1

Procedure

Participants accessed the study through a link to a Google form. After consenting to participation, they were randomly assigned to a condition. They read the text and were asked to rate the respondent on all 16 variables. The study took approximately five minutes to complete.

Results

Figure 1 summarizes the average (SD) attributions of femaleness by condition. We tested if there were any differences in implications of femaleness by context and punctuation with a 2×2 ANOVA. This analysis revealed no main effect of style, $F(1, 109) = 0.56$, $p = .46$, $\eta^2 = .004$, but a significant main effect for punctuation, $F(1, 109) = 16.19$, $p < .001$, $\eta^2 = .128$. There was no interaction effect, $F(1, 109) = 0.81$, $p = .37$, $\eta^2 = .005$. As can be seen in Figure 2, the main effect of punctuation was due to the participants perceiving that the exclamation point user was more likely to be female than the period user.

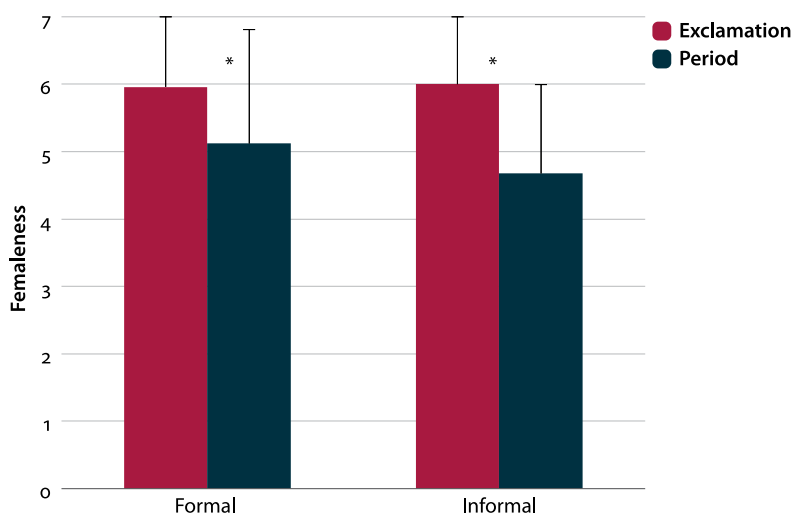


Figure 2. Average ratings of femaleness by punctuation and genre in Study 1
Error bars show standard deviations

The average friendliness ratings for the formal text with an exclamation mark was 5.72 ($SD = 1.14$) and with a period 3.96 (1.43). For the informal text, the average friendliness rating with an exclamation mark was 6.38 ($SD = 0.78$) and with a period 3.35 ($SD = 1.15$). On a 2×2 [style $\times$ punctuation] ANOVA, there was no main effect of style, $F(1, 109) = 0.02$, $p = .90$, $\eta^2 < .001$, but there was a significant

main effect for punctuation, $F(1, 109) = 123.43$, $p < .001$, $\eta^2 = .512$. There was also a significant interaction effect, $F(1, 109) = 8.64$, $p = .004$, $\eta^2 = .036$. The interaction effect was likely due to the greater difference in friendliness ratings for the informal text depending on punctuation than for the formal text. Across all the conditions, friendliness ratings were positively correlated to femaleness ratings, $r(111) = .408$, $p < .001$. These results are consistent with the argument that people attribute greater friendliness to females.

We next performed another analysis to test if friendliness was related to the judgement of gender. We repeated the 2×2 ANOVA on femaleness, with friendliness covaried. This analysis revealed no main effect of style, $F(1, 108) = 0.62$, $p = .43$, $\eta^2 = .005$, no main effect for punctuation, $F(1, 108) = 1.51$, $p = .22$, $\eta^2 = .013$, and no interaction effect, $F(1, 108) = 0.09$, $p = .77$, $\eta^2 = .001$. The main effect of friendliness was significant, $F(1, 108) = 4.67$, $p = .03$, $\eta^2 = .041$. This result means that once controlling for perceived friendliness, there were no longer femaleness differences by punctuation. These results are also consistent with the argument that people's inferences about the degree of femaleness is related to the degree of friendliness that they detect.

Discussion of Study 1

For both formal and informal genres of texts, the participants attributed gender based on punctuation. Texters using exclamation marks were perceived as more female than those using periods. These results could mean that participants were sensitive to the fact that females tend to use more exclamation marks than males in online communication (Colley et al., 2004; Waseleski, 2006). However, it is possible that participants were basing their inferences on their beliefs that women are more emotionally expressive than men (Briton & Hall, 1995; Hung et al., 2019; Radeke & Stahelski, 2020; Vogel et al., 2006). In support of that argument, we found that the degree of femaleness attributed to the texter was highly correlated with the degree of friendliness. Also, once perceptions of friendliness were statistically controlled for, the gender associations with punctuation disappeared.

While Study 1 showed that people associate the use of exclamation marks in texts with femaleness (and friendliness), this study did not test if people have normative expectations about females using exclamation marks. In Study 2, we tested that possibility.

Study 2

The purpose of Study 2 was to test whether texters were judged lower on friendliness if they violated the gender associations with punctuation. Previous studies have shown costs for violating gender expectations. For example, Luong (2007) found that female service employees were judged more harshly than male service employees if they did not express friendliness with the customer. Similarly, Varghese et al. (2018) found that displaying a feminine style of warmth negatively affected perceptions of hirability. If these results generalize to the use of punctuation in texting, then female texters might be perceived as less friendly than male texters when they use a period rather than an exclamation mark.

Method

A total of 312 people (237 females, 60 males, and 15 non-binary) participated in this study. The participants were recruited as in Study 1.

Materials

Participants were randomly assigned to one of three texter-gender conditions: female (in which the texter is named Olivia), male (in which the texter is named James), or gender-neutral (in which the texter is named Taylor); see Figure 3 for an example.

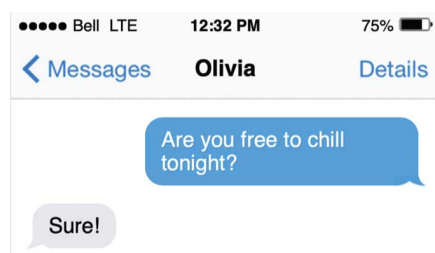


Figure 3. Sample of text shown to participants in Study 2

Within those gender conditions, about half the participants saw the response (in a gray speech bubble in Figure 3) with a period and half the participants saw the response with an exclamation mark. For the female/exclamation mark condition, there were 54 participants (43 females, 10 males, one non-binary). For the female/period condition, there were 59 participants (44 females, 14 males, and one non-binary). For the neutral/exclamation mark, there were 49 participants (43 females, four males, and two non-binary). For the neutral/period condition,

there were 37 participants (28 females, six males, and three non-binary). For the male/exclamation mark condition, there were 52 participants (42 females, seven males, and three non-binary). For the male/period condition, there were 61 participants (37 females, 19 males, and five non-binary). About half the participants saw a formal text (same as in Study 1) and half an informal text. We do not present any analyses based on style here. As in Study 1, a preliminary analysis of the data of Study 2 showed no main effect of formal/informal styles and no interactions with our variables of interest.

Procedure

We followed the same procedure as in Study 1.

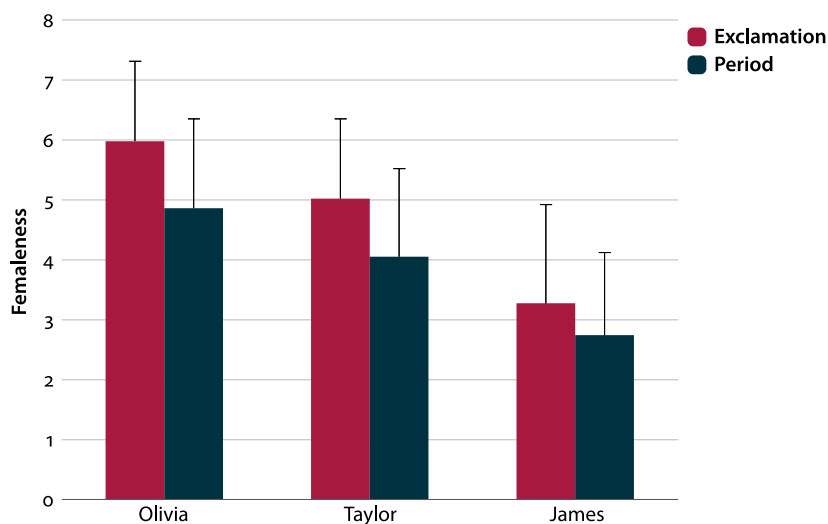
Results

A 3×2 [condition $\times$ punctuation] ANOVA on femaleness showed a main effect of condition, $F(2, 306) = 80.66$, $p < .001$, $\eta^2 = .324$, and a main effect for punctuation, $F(1, 306) = 27.72$, $p < .001$, $\eta^2 = .056$. There was no interaction effect, $F(2, 306) = 1.23$, $p = .29$, $\eta^2 = .005$. As can be seen in Figure 4a, the main effect for punctuation was due to higher attributions of femaleness when the texters were using an exclamation mark ($M = 4.77$, $SD = 1.83$, $N = 155$) than when using a period ($M = 3.85$, $SD = 1.71$, $N = 157$). As for the main effect of condition, Tukey post-hoc tests revealed significantly higher femaleness ratings for Olivia than both James ($t = 12.58$, $p < .001$) and Taylor ($t = 4.27$, $p < .001$). Taylor also received higher femaleness ratings than James ($t = 7.38$, $p < .001$).

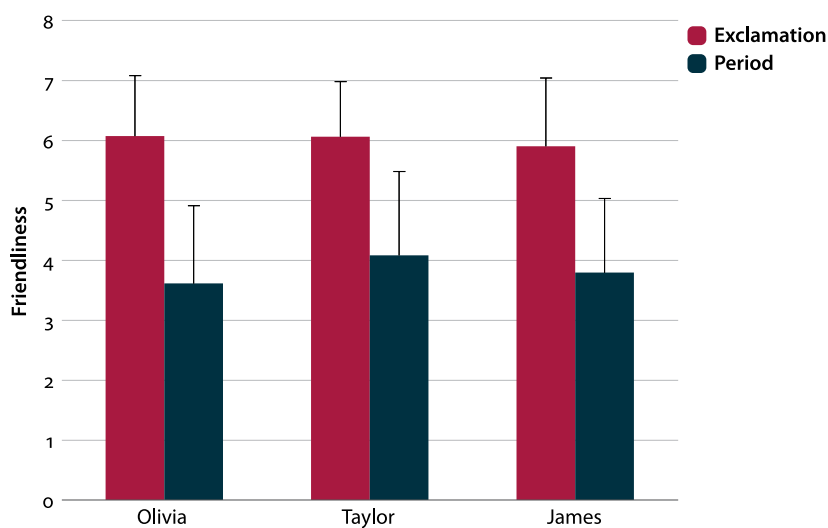
As for friendliness, there was no main effect of condition, $F(2, 306) = 1.15$, $p = .32$, $\eta^2 = .004$, and no interaction effect, $F(2, 306) = 1.15$, $p = .32$, $\eta^2 = .004$. There was, however, a main effect for punctuation, $F(1, 306) = 263.31$, $p < .001$, $\eta^2 = .459$. As can be seen in Figure 4b, texters who used an exclamation mark were judged as higher in friendliness ($M = 6.01$, $SD = 1.03$, $N = 155$) than those who used a period ($M = 3.79$, $SD = 1.31$, $N = 157$).

As in Study 1, friendliness across conditions was positively and significantly correlated with femaleness ratings, $r(310) = .311$, $p < .001$.

As in Study 1, we reran the analyses of femaleness, only with friendliness as a covariate. There was also still a main effect of condition, $F(2, 305) = 84.55$, $p < .001$, $\eta^2 = .341$, and still no interaction effect, $F(2, 305) = 1.05$, $p = .35$, $\eta^2 = .004$. The main effect of friendliness was significant, $F(1, 305) = 17.78$, $p < .001$, $\eta^2 = .036$. The main effect of punctuation was no longer significant, $F(1, 305) = 1.20$, $p = .27$, $\eta^2 = .002$.



a. Femaleness



b. Friendliness

Figure 4. Average ratings of femaleness (a) and friendliness (b) by punctuation and genre in Study 2
Error bars show standard deviations

Discussion of Study 2

Some of the results of Study 2 replicated the results of Study 1: people were more likely to attribute femaleness to texters who used an exclamation mark than a period. Also, in Study 2, like in Study 1, the differences in gender attribution by punctuation disappeared when friendliness was controlled for. These results strengthen our conclusion that people associate femaleness with the use of exclamation marks, likely because they associate femaleness with friendliness.

Surprisingly, we found no evidence for a social cost for violating the gender associations. We had predicted that the female texter would be judged less friendly than the male (and perhaps the gender-ambiguous) texter when using a period. However, there was no evidence for a “cost” in friendliness attributions when texters used gender-atypical punctuation. The results showed no differences in attributions of friendliness relative to punctuation use by a male, a female, and a gender-neutral texter. All texters, regardless of gender, were considered friendlier when using an exclamation mark than when using a period. These results contrast with results from studies of face-to-face interactions, in which women are penalized for failing to express positive emotion (Luong, 2007).

General discussion

In both Studies 1 and 2, we showed that people attribute greater femaleness to texters who use an exclamation mark (relative to a period). One possible interpretation of this result is that these results are simply a reflection of the reality that females tend to use more exclamation marks in online communication than males (Colley et al., 2004; Waseleski, 2006). However, other results in the present studies suggest that the gender attribution is mediated by an attribution of friendliness. In both studies, when friendliness was covaried, the gender effects disappeared. We interpret these results to mean that people attribute greater friendliness to exclamation mark users. They infer greater femaleness by associating females with greater friendliness. Similar results have been reported with emotions expressed on the face. Hess et al. (2005) found that sex differences in expectations about expression of emotion could be accounted for by expectations about affiliation (for smiling for women). Similarly, Radeke and Stahelski (2020) found that facial expressions were more powerful at influencing viewers’ inferences than gender and age.

In Study 2, we tested whether the association between femaleness (and friendliness) and the use of exclamation marks was a normative expectation. Previous studies have shown that, in the service industry, there are social rewards for

females who are friendly (Darley & Luethge, 2019) and social costs for those who are not (Luong, 2007). If our participants held the same sort of social norm expectations for online communication, we predicted that a female texter would be rated less friendly when using a period than a male or gender-ambiguous texter. Surprisingly, we found no evidence for this prediction. All texters who used periods were rated less friendly than the texters who used exclamation marks, with no effect of the gender of the texter.

It is possible that online communication, particularly among young people, is adopting different gender expectations about emotional expression than face-to-face interactions. In face-to-face interactions, people often expect females to display more emotion than males in face-to-face interactions (Briton & Hall, 1995; Hung et al., 2019; Luong, 2007; Radeke & Stahelski, 2020; Vogel et al., 2006). In contrast, some studies have found that males use more emotional expressions online than females (Huffaker & Calvert, 2005) and when interacting with mixed-gender groups (Wolf, 2000). Future studies can test whether people have flexible expectations about sex roles in the communication of emotion in online environments.

It is also possible that we found no evidence for a cost for producing gender-atypical punctuation because young adults' attitudes toward sex roles are changing. Studies have shown that today's young adults are more egalitarian in their expectations about gendered behaviour than young adults of previous generations (Scarborough, Sin, & Risman, 2019), although expectations are not perfectly equal for men and women (Dernberger & Pepin, 2020; Scarborough et al., 2019). Young people are also open to allowing a wide range of possibilities for sex roles (Dernberger & Pepin, 2020). It is possible that young adults are now predicting that females will be friendlier than males, but do not expect them to behave so in a normative way. If this explanation were true, then we would predict that there would be little social cost for females producing gender-atypical emotion expression in face-to-face interactions among young adults (cf. Luong, 2007). Future studies can test this possibility.

One important design feature of future studies will be how social cost for violation of sex roles is measured. In Study 2, the way that we operationalized a social cost on violating gender expectations was in attributions of friendliness. It is possible that this operationalization did not adequately capture social cost. Future studies might include measures of social cost in terms of competence and/or willingness to continue a longer-term relationship. Previous studies on sex roles and friendliness in face-to-face interactions in the service industry have shown effects on job competence and hirability (Darley & Luethge, 2019; Luong, 2007).

There are other limitations to the present study that can only be addressed by future studies. These studies were designed to focus on participants' interpre-

tations of a single, simple text. As social interactions get more complex, it is not clear that these results will generalize. In our studies, we compared texts ending in an exclamation mark with texts ending in a period. In our experience, it is more common to end a text with no punctuation than with a period. It is not clear what emotional effect (if any) texters might try to convey by choosing to use a period rather than no punctuation at all. It is also important to keep in mind that emotional expression in face-to-face communication is complex, too (De Lemus et al., 2012; McDuff et al., 2017).

In conclusion, our results have shown that people associate the use of an exclamation mark in texts with friendliness and femaleness. Just like in face-to-face interactions (Hess et al., 2005), in texts, people associate expressions of positive emotion with femaleness, perhaps through associations between femaleness and friendliness. Unlike in face-to-face interactions (Luong, 2007), we found no evidence that there was a cost for gender-atypical punctuation use. Future studies can test whether young adults' attitudes toward sex roles are changing, at least in online environments, to allow greater flexibility for gender-appropriate behaviour.

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