Just Following Directions! The Effects of Gender on Direction Giving

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Abstract

Direction giving involves diverse cognitive processes such as creating a mental map, following the desired route and choosing the correct terminology to provide directions efficiently. Many perceived differences have been speculated in the speech of men and women, yet research on spontaneous direction giving differences based on gender is limited. This small-scale qualitative study uses Cognitive Discourse Analysis to investigate whether men and women differ in the frequency of usage of projective terms, cardinal directions, hedges, modal verbs, landmarks, serial orientation measures and distance indicators in route directions. The patterns emerging consistently through the results show that gender plays an important role in the provision of directions. Key results included a utilization of humor by women when direction giving, as well as a higher usage of landmarks and hedges than men. Key results contradicting previous findings showed no usage of cardinal directions by either gender, as well as the serial orientation marker 'then' being utilized more by women rather than men.

Keywords: Cognitive Discourse analysis; cardinal directions; spatial concepts; landmarks; hedges

Introduction

Gender differences in communication have been studied in abundance over a variety of fields over the past few decades; due to varying early socialization and different genetic build, there appear to be systematic differences in the way male speakers and female speakers use language to communicate with members of their own and the opposite sex.

Regardless of gender, most people at some point find themselves in the position of either giving or receiving route directions. To give route directions, speakers must access their spatial representation of an environment, and tap into their spatial skills to ascertain accuracy and suitability of the chosen route. Previous research has identified substantial gender differences regarding cognitive abilities in the spatial domain (Halpern 2000). In our study, we ask if the language used to describe a known environment systematically reflects the speaker's gender.

State of The Art

The idea that men and women speak differently has been present for a long time. In 1975, Robin Lakoff introduced the idea of 'Women's language', aiming to capture a perceived powerlessness that women exhibited in their speech by identifying specific linguistic features that characterized women's speech as 'softer' and 'more polite'. Such linguistic features included polite forms, hedges, expressions of uncertainty, 'empty' adjectives, absence of jokes and tag questions. According to Lakoff (1975), hedges in particular reflect a degree of uncertainty in the speaker. Not all research agrees that the use of hedges indicates uncertainty, however; Coates (1996) argued that the increased use of hedges found in female speech over male speech is a multifunctional strength, not a weakness, that it stems from women's sensibility to interpersonal aspects of speech, and that it is context dependent. For instance, although hedges may ostensibly exhibit tentativeness, this is done in an intentional manner, to alleviate the force of a statement. According to another pioneering theory introduced by Tannen (1990), the two different genders generally use language to achieve different goals. In this view, men are more likely to use language to increase their social status and assert dominance whilst women are more likely to use language to achieve closeness with the other speaker.

Since then, there have been a plethora of studies investigating uncertainty and differences in the speech of men and women. Mulac and Lundell (1994) found that women use verbs communicating uncertainty more than men, especially cognitive or perceptual verbs in combination with first person singular pronouns (e.g., 'I wonder if'), supporting Lakoff's (1975) work. Lakoff's claim that women use hedges more than men has also been confirmed to occur in professional settings, such as in simultaneous interpreting (e.g., 'I think') (Magnifico & Defrancq, 2017).

When examining the relationship between direction giving and gender, studies have found that women are more likely than men to use an increased number of left/right markers when giving directions (Lawton, 2001; Devlin, 2003), although this pattern was not confirmed in other studies (Dabbs, Chang, Strong & Milun, 1998). Women have also been found to exhibit a superiority in object-location memory, as in a task introduced by Silverman and Eals (1992) in which women exhibited a greater recognition of objects on a piece of paper. This possible advantage in recollection ability, replicated by Montello, Lovelace, Golledge, and Self (1999), could be an explanation as to why women were displaying an increased recollection of landmarks when direction giving (Dabbs et. al., 1998; Hong Sing & Kalingga, 2011), especially buildings. This leads women to use buildings as landmarks and reference points in route directions more frequently than men (Lawton, 2001).

Not all studies, however, have confirmed this apparent gender difference in landmark use when direction giving; e.g., Devlin (2003) found no significant difference in their participants, although according to the author this may have been due to the selected route being short and therefore not ideal for landmark use differences to emerge. Ward (1986) also found no landmark differences between male and female participants in a fictitious (and thus unfamiliar) route covering 14.5 km. Taken together, these diverse results suggest that gender differences may be mediated by situational factors. In general, the fundamental impact of landmarks on human understanding regarding spatial environments is uncontroversial (Caduff & Timpf, 2008), with directions that contain landmarks resulting in fewer wayfinding errors than those that do not, beyond gender differences (Allen, 2000).

Further studies have shown that men are more likely than women to use cardinal directions (Dabbs et al., 1998; Lawton, 2001; Montello et al., 1999; Ward, 1986), although Ward (1986) pointed out that although women may prefer not to use cardinal directions, they can do so if asked. Not all verbal direction studies have found an increased cardinal direction use by men, however; Devlin (2003) found no difference between genders and almost no cardinal direction use at all in direction giving, and Hong Sing and Kalingga (2011) found an increased use of cardinal directions in women rather than men. Men have also been found to have an increased use of locating hidden targets, pointing to out-of-sight markers, and using an increased number of serial orientation measures such as 'first, second', 'then', and 'after' (Boerger & Henley, 1999). Hong Sing and Kalingga (2011) found that while the word 'first' was only used by men, 'then' and 'after that' were used more by women. Men have also been found to be more likely to use distance or mileage indicators or metric-distance terms (Dabbs et al., 1998; Devlin, 2003; Montello et al., 1999; Ward, 1986).

Altogether, it appears that although research has addressed the relationship between gender and the language used in direction giving, limitations as well as contradictory results hamper the ability to make any direct predictions as to what linguistic features will emerge. Notably, all direction giving studies reviewed thus far have instructed their participants to provide either written directions or verbal ones. In the case of verbal directions, the researchers either did not specify the location of their participants when giving directions (Hong Sing & Kalingga, 2011) or the participants were in different locations while formulating them (Tenbrink, Bergmann & Konieczny, 2011) or walked the route prior to recollecting it (Montello et al., 1999). No study, to our knowledge, has recruited participants and conducted the direction giving study at the destination point. Such a study is highly advantageous as the environment around the destination point is fresh in the participants minds after having arrived there, but, as participants were going about their daily routine, they were unlikely to have paid special attention to their surroundings in a way that might affect their direction giving during data collection. This study aims to investigate the linguistic features that emerge from each gender in direction giving when conducted at the destination point.

Research Questions

Based on the literature review our study will address the following research questions:

- In the present scenario, will women use more landmarks in direction giving than men, as well as more uncertainty markers and modal verbs expressing uncertainty, following indications in previous studies?
- Similarly, will men use more cardinal directions, distance indicators, and serial orientation measures than women?

Hypotheses

In accordance with previous findings, it can be expected that women will use more landmarks, uncertainty markers and modal verbs expressing higher degrees of uncertainty, but less cardinal directions, distance indicators and serial orientation measures than men in direction giving.

Overall Design

To address gender differences in direction giving, participants were asked to envision providing a stranger with route directions from Deiniol library to the Main library, located in the Main Arts building of Bangor University, Wales, UK. The task scenario was designed to ensure that participants would produce unconstrained, natural verbal data, as a result of two types of cognitive processes (Tenbrink, 2015): the mental representation of the desired route that participants would take if they were to walk from Deiniol library to the Main library (for example, the conceptualization of different locations whilst travelling between the two libraries) and the complex cognitive processes that are involved when planning a route (which involves decision making due to the choice of a variety of paths). To analyze the natural language data systematically, Cognitive Discourse Analysis (Tenbrink, 2015) was employed so as to identify systematic linguistic patterns emerging in the speech of the participants that were indicative of underlying cognitive processes and concepts. As manual in-depth scrutiny of linguistic features precludes high case numbers, emerging patterns of results are represented qualitatively, in terms of possible indications of gender-related tendencies that may be consistent with or depart from previous findings in various ways, thus adding relevant insights to the state of the art in this highly debated field.

Procedure

Participants

The participants recruited were 5 males (mean age 20.2 years) and 5 females (mean age 20 years). All participants were native speakers of British English and were students at Bangor University (where directional data was collected) to ensure their thorough knowledge of the route. The

participants recruited were either in their second or third year of study, studying an array of subjects, including nursing, medical sciences, and music. First-year students were not considered for this study so as to exclude knowledge gaps.

Instruments

The two libraries were selected due to a variety of paths available from Deiniol library to the Main library; four of these are depicted in the map below, each of which requiring reference to many turns and landmarks in a route description. The starting point, Deiniol library, is located on a main road in Bangor, whilst the destination point, the Main Arts library, is situated inside the Main university building on top of a hill. Several turns are required to ascend that hill, independent of whether the participants chose to take a shortcut through another University building (called Pontio) or to go around it, via Glanrafon Hill or Penrallt Road.

Figure 1: Four available routes between the two libraries.

Method

Participants were approached by a female researcher in the Main library. Participation was on a voluntary basis and no compensation was provided. The researcher conducted random sampling; participants were approached when alone. They were asked whether they would like to take part in a short study that would take no longer than 5 minutes. If the participants consented, they were provided with a participant information sheet containing a brief outline of the study and ethical concerns. After reading, they were asked to sign a consent form providing their informed consent for the study, including being audio-recorded for the purposes of the study.

The researcher then asked for and noted the gender, age and ethnicity of the participants, plus the length of years they had been studying at Bangor University, and the course they were undertaking. The participants were then asked to provide a route direction; the exact instruction was as follows:

- Imagine a stranger approaches you in Deiniol library and they need instructions to get to Main Arts library. What directions would you give them? Please be as detailed as possible.

The participants were then recorded speaking out loud. For analysis, the data were transcribed and annotated manually. Due to the small number of participants no statistical analysis was undertaken.

Landmarks

Firstly, landmarks mentioned in the directions were identified and quantified for both genders and split into two categories: indoor and outdoor. Following the design of Lawton (2001) outdoor landmarks were then divided into two further categories, buildings (excluding the building that served as the destination), and topographical features (such as road structures and traffic lights). For example, a building landmark can be found in the directions of the first female participant ('a place called Rascals'), whilst a topographical landmark can be found in the directions of the second male participant ('the T-junction in the end').

Hedges

Inspired by Lakoff (1975), various kinds of hedges were identified and quantified to highlight differences in direction giving between the two genders, aiming to capture all uses of hedges in the current data set independent of their type (note that modal verbs, which may also serve as hedges, are addressed separately in the following section). Hedges were split into three categories (Lakoff, 1975): indetermination (such as an epistemic hedge by the 3rd female participant 'you go diagonal *I don't know* into Main Arts!'), depersonalization (avoidance of the use of direct reference, such as by the 5th female participant 'a smaller kind of archway *thing'*) and subjectivisation (the use of verbs that express subjective thinking, as seen by the 1st female participant '*I guess* the grounds of the uni').

Following Tenbrink et al. (2011), a further type of hedges was identified, labelled as 'vagueness markers.' This type of hedge is "used to indicate a lack of expertise from the speaker" (Tenbrink et al. 2011, p.1267) thus signalling uncertainty. One example from our study is the use of 'kinda' by the 1st female participant 'it kinda looks like a high street'.

Modal Verbs

To express various degrees of certainty (or uncertainty) when giving directions via the domain of mind mapping, speakers tend to use modal verbs to highlight the possibility of an event (Gralla & Tenbrink, 2013). When participants want to express high levels of certainty, they may use modal verbs such as 'must' (4th male participant 'you must take a right')

or 'will' (1st male participant 'There will be like Café Terrace'), however when they wanted to express a lower level of certainty, such as to allow room for error, they used modal verbs such as 'should' (2nd female participant, 'you should be at Main Arts library'). Further, options and possibility could be expressed by the modal verb 'can' (1st female participant 'you can also take the lift).

Projective terms

Inspired by Lawton (2001) directional terms were identified such as 'left' (e.g. 5th female participant 'turn left follow along') and 'right' (1st male participant 'get out the library you turn right'), as well as 'in front of' (4th female participant 'in front of you should have Morrison's') and 'behind' (2nd male participant 'a small lane behind the back of Pontio') (the latter two terms have been inconsistent in past research in terms of frequency in male and female speech).

Additionally, any serial orientation measures were identified and quantified (3rd male participant 'so first come out of Deiniol library') distance indicators (1st male participant 'about 20-30 metres you'll see Pontio') and any indications of locating hidden targets (2nd male participant 'a small lane behind the back of Pontio') as they were cognitive features allegedly found more in male speakers.

Spontaneous Speech

When eliciting spontaneous speech, it is natural for a speaker to produce disfluencies, due to the various cognitive processes and language processing involved. Such disfluencies appear in the form of filler words and hesitations, pauses, or restarts (Goodwin, 1980). They may sometimes indicate speaker uncertainty, just as restarts are conveyed as uncertainty markers (Tenbrink et al., 2011). For current purposes, to identify any possible indications of uncertainty, we therefore included disfluencies in this analysis.

Disfluency features in the current data could take the form of hesitation markers (e.g., 2nd female participant 'and then *erm* press the number five'), fillers (1st female participant 'seeing *like* the top of a hill'), restarts (e.g., 1st male participant 'once you come out of Pontio stairs…once you come out of Pontio) and pauses (2nd male participant 'first set of traffic lights [pause] you then cross'). Hesitation pauses were accounted for if they were 700msec (0.7 seconds) or longer (Rochester, 1973).

Results

The word count was 2133 words in total whilst the average word count was 242 for women and 184 for men. In terms of route choice, 3 male and 3 female participants chose the Pontio route, using either the lift or the stairs that are situated inside. Out of those six, one male and one female participant then chose to go via the Main Arts University building. The remaining two female participants and one male participant chose to ascend Glanrafon hill and then proceed via College Road, whilst one male participant chose to mount the road next to Pontio, with his remaining route being the same as the Pontio route participants.

Landmarks

101 mentions of landmarks were identified in total, 24 of which were indoor and the remaining 77 outdoor landmarks. Indoor landmark mentions were 10 for men and 14 for women. The 'lift' inside of the Pontio building was a prominent indoor landmark with functional significance, as all 6 participants who opted for the 'Pontio' route included it in their directions. As for the outdoor landmark mentions, 13 were topographical landmark mentions by men (such as 'car park') and 20 by women, whilst the building landmark mentions were 18 by men and 26 by women, as shown in Figure 2.

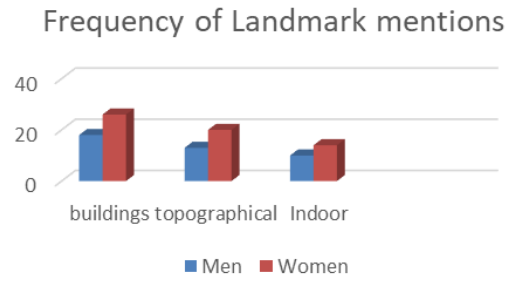

Figure 2: Frequency of landmark mentions.

Hedges

Men used 6 hedges in total (2 subjectivization, 1 indetermination, 2 depersonalization and 2 vagueness markers) whilst women used 19 in total (2 subjectivization, 3 depersonalization, 4 indetermination and 10 vagueness markers) (see Figure 3). The most frequent subjectivization hedge was the verb 'I think' (used twice by both women and men), and the most popular indetermination marker was the phrase 'I don't know'. (Used three times by women and once by men). The only depersonalization hedge was the noun 'thing', and the most frequent vagueness marker was the contraction 'kinda', which was used four times by women, followed by 'somewhat', which was used twice by women.

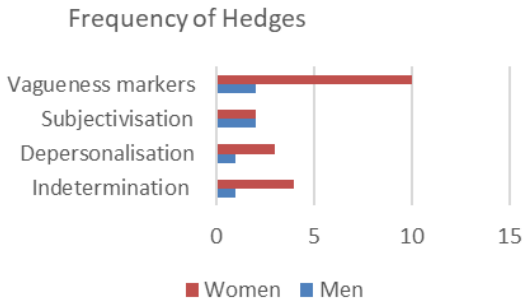

Figure 3: Frequency of hedges in directions.

Projective terms

Overall, women used more spatial terms than men, with higher usage of the words 'left', (women: 16, men: 9), 'in front of' (women:4, men:1) and 'right' (women:18, men:16), whilst men exceeded usage of 'behind' (men: 1, women: 0).

Modal verbs

In total, 15 modal verbs were found in the directions given by men (1 'must', 4 'will', 4 'should' and 6 'can') whilst 12 modal verbs were found in the speech of women (0 'must', 5 'will', 4 'should' and 3 'can') (see Figure 4). Notably, men used 'can' (the modal verb expressing option and possibility) twice as much as women.

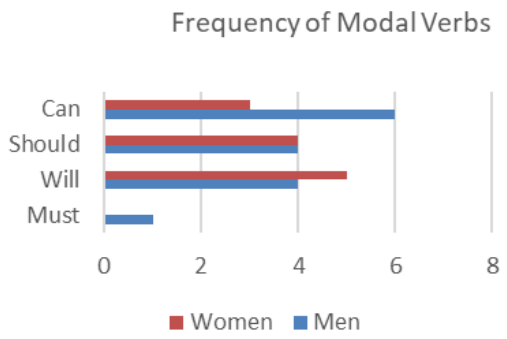

Figure 4: Frequency of Modal Verbs in Directions.

Other

Concerning serial orientation markers, men used more instances of 'first' and 'second' than women (men: 5, women: 2), but women used 'then' more than men. (Women: 44, Men: 14). Interestingly, there was an equal number of 'after' (women: 2, men: 2) and both instances were results of restarts. Regarding distance indicators, there were only two instances produced by two different male participants (one measuring kilometers, the other one steps) but none by women. When considering locating hidden targets the results showed one example for men, and zero for women.

Concerning disfluency features, women used more hesitations (25) than men (23) and more filler words (23) in comparison to the male participants (10). Women used in particular the filler word 'like' more than twice more (17) than the men (7). Female participants also used more pauses (7) than men (3) but used fewer restarts (11) than men (13).

An unexpected result came into light, which was the use of humor by female participants when giving directions, resulting in laughter (4 out of 5 female participants). That was done for a variety of reasons, such as half-serious metacommunication (e.g., participant 2 'Go inside the lift obviously [laughs]) or commenting on the route described (e.g., participant 1 'it's quite a big hill [laughs]'), amongst others. Male participants in this study did not have that approach when direction giving, with no instances of laughter or attempts at humor.

Discussion

When considering the frequency of landmarks, women referred to both indoor and outdoor landmarks more than men, thus confirming the hypotheses; those findings are in line with previous research (Dabbs et al., 1998; Hong Sing & Kalingga, 2011; Lawton, 2001). More specifically, results showed that women mentioned building names more frequently than men (confirming Lawton, 2001), as well as topographical landmarks. The results of this study appear to contradict the findings of Ward (1986) and Devlin (2003). An explanation for this may be that the participants in Ward (1986) were describing an unfamiliar route, whilst participants in this study were ensured to possess a certain level of familiarity with the route.

Based on previous research it was also expected of women to use more hedges than men, as an indicator of uncertainty and to 'soften' their speech (Lakoff, 1975). Although hedges are not always found in female or male speech and have been said to depend on context rather than gender (Dixon et al., 1997), the results in this study were actually consistent with the findings of Lakoff (1975). Women were found to use more than three times the number of hedges (portraying imprecision and non-commitment) than men, especially vagueness markers that indicate a lack of knowledge or expertise on the side of the speaker. All female participants were at least in their second year of university; their directions, therefore, would have been based on a well-developed mental map of the local area. Since the ages of both gender groups were matched, this portrayal of uncertainty appears to be gender based, rather than context or age based.

Regarding disfluency features, some gender differences were detected. Although fillers and hesitations are a natural part of spontaneous speech, women used more a considerably higher number of fillers than men, and a larger quantity of hesitations, indicative of uncertainty, confirming previous research (Lakoff, 1975; Magnifico et al., 2017). Female participants also used more than twice the number of pauses than men. Although interpreted as an uncertainty marker, this difference in pauses may also indicate a difference in mental representation timing when mentally planning a route.

Also relevant to gender and uncertainty, a surprising finding in the analysis of modal verbs was that although the modal verbs expressing high certainty 'must' and 'will' and the modal verb expressing a medium level of certainty 'should' had the same number of uses in both men and women, men used the modal verb 'can' twice more than women, expressing a higher degree of choice or possibility. This finding appears to contradict our hypotheses based on Lakoff (1975), as it appears to indicate some amount of uncertainty in the speech of males. However, at a closer look 5 out of these 6 uses of 'can' were produced by just one male participant; therefore, this finding appears to reflect individual differences rather than a gender-based pattern.

Regarding spatial concepts, the findings supported our hypothesis as women were found to use more projective terms than men in their verbal output whilst giving directions, consistent with previous findings (Lawton, 2001; Devlin, 2003). When considering right/left markers, previous research proposed that they are indicators of an intrinsic frame of reference on route perspective (Levinson, 1996); this could relate to differences in spatial skills found between men and women (Halpern, 2000). Interestingly, only one man (but no woman) used the spatial concept of 'behind', a result

which could be related to the previous finding that men refer to hidden targets more (Hong Sing et al., 2011), as the male participant instructed the 'stranger' to follow 'Love Lane, which is a small lane behind the back of Pontio', an indication of a lane presumably not well known by all students.

Another lexical feature only displayed by men in our results are distance indicators, with one male participant using 'meters' and another male participant using 'steps' as indicators. This supports previous findings that men use more distance indicators when giving instructions than women (Dabbs et al., 1998; Devlin, 2003; Montello et al., 1999; Ward, 1986). In terms of cardinal directions, our results matched those of Devlin (2003), who also reported no use of cardinal directions by their male or female participants; thus, no support could be offered for previous claims that men use more cardinal directions than women (Lawton, 2001; Ward, 1986). A potential explanation for this was the high usage of projective terms by both genders, as Dabbs et al. (1998) found a negative correlation between cardinal directions and right/left references.

Another finding in this study that remains inconclusive in terms of gender differences concerns the serial orientation markers that were used by men and women when giving instructions. Previous research suggested that men use serial orientation measures more than women (Boerger & Henley, 1999); this study found this to be partly true as men used the words 'first' and 'second' more than women. However, contrasting to these findings, women used the word 'then' far more often than men – supporting previous findings by Hong Sing and Kalingga (2011). This indicates a need for further in-depth research on the topic, as results appear inconclusive. Notably, Hong Sing and Kalingga (2011) attributed their results to the fact that their participants were from Indonesia, whilst those of previous research were from Western cultures. As the results of this study are in line with those of Hong Sing and Kalingga (2011), this rather indicates a similarity in direction giving gender patterns between the two cultures.

The most surprising finding that emerged from this analysis was the high frequency of humor and laughter in the data collected from women, contrasting with no such occurrences in the men's data. This directly contradicts the claims by Lakoff (1975), who stated that women's speech is characterized by a lack of jokes. It may possibly be an indicator of uncertainty, as it could be interpreted as nervous laughter, such as in the case of the third female participant (I'm not doing turns am I – I'm just saying go straight [laughs]) – if this is the case, it would again support Lakoff (1975). On the other hand, our observation might also support Tannen (1990), who stated that men use language to gain social status, whilst women use language to achieve closeness with others. As Zeigler-Hill et al. (2013:2) observed, "humour plays an important role in the establishment, enhancement, and maintenance of relationships" – and this may have been more relevant to female speakers in our study, as the study was conducted by a female researcher. However, some other interpersonal functions of humor include status control and social maintenance (Zeigler-Hill et al., 2013). This opens up some interesting considerations concerning social status and gender. Is humor used by female speakers as a covert way to attain social status? Is that done so only with members of their own gender or both sexes? In our scenario, the use of humor may have been related either to uncertainty or to achieve closeness with the listener – or both, in a convenient conflation of purposes. Future research examining the relationship between gender and jokes may reveal complex distinct motives for the use of humor in contexts where it may appear unexpectedly, such as route directions.

When investigating language use, a plethora of variables are likely to act jointly alongside speaker gender due to the complexity that defines human nature. In this study, all participants were in their early 20s; future research in this area could add age differences as a likely factor influencing linguistic choices, along with gender. Similarly, participants of the same gender but of different academic disciplines portrayed linguistic differences in their direction giving. For example, the 5th female participant, a 20-year-old philosophy student, used no disfluencies in her speech whilst the 2nd female participant, a 20-year-old nursing student used 12. In another example, the 1st male participant, a 20-year-old medical sciences student used 8 modal verbs, whilst the 3rd male participant, a 20-year-old history student did not use any. Although these may have been individual differences in this case, they do raise the question as to what extent our academic discipline shapes the way in which we speak, paralleling findings on how professional background affects linguistic patterns (Cialone, Tenbrink & Spiers, 2018).

Lastly, the gender of the imagined interlocutor may also affect the way in which the participants convey their direction giving. Although the addressee was merely referred to as a 'stranger' in this study without suggesting a gender, it is likely the participants assumed a gender regardless or implicitly addressed the female experimenter. When investigating problem solving language, Mulac, Wiemann, Widenmann and Gibson (2009:331) found that "in mixed sex dyads, both genders adopted a linguistic style more like that of their out-group partner than they would have maintained with an in-group partner". Future research could address linguistic features in same-sex direction giving as opposed to mixed-sex ones.

To conclude, this study set out with the aim to explore the extent to which gender influences direction giving when collected at the destination point. Results show that despite modern tendencies towards gender fluidity (Diamond, 2020), gender still appears to have a considerable influence in direction giving in a controlled setting; it affects the number of landmarks referred to, the degree of uncertainty shown by the speaker, and whether a speaker will joke with the listener when providing route directions. Our small-scale qualitative study could only provide some indications of patterns of current gender preferences in relation to previous findings; it is hoped that further studies will be added to shed further light on the way spatial language operates in liaison with gender alongside other influencing factors.

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