

An Own-Name Bias on Person Memory in Twins

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It has been previously shown that participants recall a greater number of known (familiar or famous) people with the same first name as their own than do paired participants, and vice versa. For example, if Mary and Sarah were paired, Mary recalled, on average, more people called “Mary” but fewer people called “Sarah” than Sarah did. The present study evaluated further whether this own-name bias can be impacted by a strong closeness between the self and the comparison target, by examining whether the bias would still occur in pairs of twins. The results showed that twins recalled more people with the same first name as their own than did their co-twins. Thus, the present study showed that an own-name bias in memory may occur between twins. However, the size of the effect obtained in the present study was smaller than in identical experiments previously conducted with less intimate participants.

KEYWORDS Own-name, Self, twins, memory, identity, psycho-onomastics, familiarity.

Introduction

Memory for information encoded with reference to self has been shown to be better than memory for information encoded in relation to other people (e.g. Bower and Gilligan 1979; for a review, see Symons and Johnson 1997). This effect is known as the self-reference effect (SRE). More recent research has demonstrated that one’s own name may produce a self-reference bias in memory. For instance, pairings between target stimuli and the self-name have been shown to elicit better subsequent recognition memory of these stimuli than pairings between a celebrity and target stimuli (Turk, Cunningham, and Macrae 2008). In addition, using a task consisting of verifying learned arbitrary associations between a name and a geometric shape, Sui, He, and Humphreys (2012, Experiment 3D) reported that participants produced faster responses when verifying associations that included their own name than when verifying associations that

included their best friend's name. Moreover, it was recently demonstrated that people are particularly good at retrieving people with the same first name as their own (Brédart 2016): participants retrieved more familiar (famous or personally known) people with the same first name as their own than did yoked participants when performing a verbal fluency task. For example, if Mary and Sarah were paired, Mary recalled, on average, more people called "Mary" but fewer people called "Sarah" than Sarah did.

The occurrence of this own-name bias can be explained as follows. One's own name seems to be a particularly powerful cue for attention. Indeed, it is more easily perceived and more difficult to ignore in the environment than other names (for a recent review, see Humphreys and Sui 2016). This attentional advantage is assumed to serve to support the own-name bias in memory by enhancing the encoding of associations between one's own name and co-occurring stimuli in the environment, such as encountered people bearing the same name as us (Cunningham 2016; Cunningham and Turk 2017).

The present study evaluated whether an own-name bias on memory may occur when the participant's performance is compared with that of her/his twin sibling. Both monozygotic and dizygotic twins usually know each other for a lifetime and are usually described as extremely close persons (e.g. Alin Åkerman and Suurvee 2003; Määttä et al. 2016; Pietilä, Björklund, and Bülow 2013). The fact that twins share an unusually large part of their histories (Sheen, Kemp, and Rubin 2001) led us to examine whether the above-described own-name bias in memory for people occurred when the participants were pairs of twins. Indeed, twins are used to meeting many people when they are together, so that the proportion of people they both know would be exceptionally large. Would twins retrieve more efficiently individuals with their own name than individuals with their twin's name in their largely shared data base about people? To assess this point, the experiment examined whether twins recalled a greater number of people with the same first name as their own than did their co-twins, and vice versa.

Experiment

Method

Participants

The minimum sample size necessary to evaluate a medium size effect of 0.5 with a power of 0.8 at an alpha level of .05 for a two-tailed matched-pairs comparison was 34 (G*Power 3.1; Faul et al. 2007). However, to complete the counterbalancing between the different order in which pairs of participants retrieved people with self *vs* other names, the next greater multiple of eight had to be reached, i.e. 40 participants. Therefore, 20 pairs of same-sex twins were chosen to participate in the study. Thirteen pairs of twins were female and seven male; 11 of the pairs claimed to be monozygotic, eight dizygotic, and one pair reported that their zygosity had never been determined. Thirty-one participants were students and nine were employees. They were aged between 18 and 42 ($M = 23.4$; $SD = 5.7$) and reported living or having lived in the same household for a period of time ranging from 18 to 25 years ($M = 20.8$; $SD = 2.1$). The participants' average educational level, as measured by the number of years of study completed to achieve their highest qualification, was 13.6 ($SD = 1.8$). All participants were French-speaking

Belgians. They were recruited through advertisements sent by email to the University of Liège community and by word-of-mouth. This study was approved by the Ethics Committee of the Faculty of Psychology, Speech and Language Therapy, and Education of the University of Liège. All participants gave their written informed consent prior to participation and were compensated for taking part (20€).

Procedure

To prevent the impact of first name frequency, participants were placed in pairs (for example, X and Y). They were asked to recall both people called X and people called Y, so that each name represented a self-related stimulus for one participant and an other-related stimulus for the other participant, and vice versa.

Participants were tested individually and were instructed to recall, by writing down on a blank sheet of paper, as many people as possible that they knew, whose first name was X (or Y). It was specified that these people they were to recall could belong to categories as various as actors, singers, sportspeople, politicians, TV presenters, writers, musicians, characters in novels, cartoons, movies, songs, or famous individuals from any other category, but also non-famous people that they knew personally (these different categories were indicated on a sheet of paper that was placed in front of the participant during the task). Participants were also instructed that there was no obligation to give an exemplar for each category and that giving several exemplars from the same category was allowed. A five-minute time period was allocated for writing down a list of people with each name. For both trials, participants were given advance warning when there was one minute left to complete the task. Half of the participants first recalled people bearing their own first name and then recalled people bearing the paired participant's first name, and the other half did it in the reverse order. When a participant recalled a person but was unable to produce that person's surname, he/she was asked to provide precise biographical information about the person, for example, "She is my little sister's best friend" and not simply "She is an acquaintance." At the end of each trial, the experimenter read each name or description given by the participant and asked the participant to define who each person was (e.g. David Bowie is the singer; Jessica Day is a character in the television series *New Girl*). This allowed us to disambiguate some responses (e.g. David Copperfield could be either a Charles Dickens' character or a famous magician) but also to identify people that were unknown to the experimenter.

After the memory task, participants were invited to evaluate the frequency of the following three events on a four-point scale with 1 = Never, 2 = Infrequently, 3 = Sometimes, and 4 = Frequently. These events were:

1. How often does it happen that people (parents, teachers, friends, and other people) speak to both of you without saying your names, but instead calling you "the twins"?
2. How often does it happen that people (parents, teachers, friends, and other people) speak to both of you without saying your names, but rather "bunching up" your names (for instance, saying "Floriannette" instead of "Florianne" and "Annette")?
3. How often does it happen that people (parents, teachers, friends, and other people) speak to you, individually, without saying your name, but rather calling you by your twin brother/sister's name?

Results

In the following analysis, the random factor was the participants' names. In each pair of participants, the number of people named X recalled by participant X was compared with the number of people named X recalled by participant Y, and the number of people named Y recalled by Y was compared with the number of people named Y recalled by X. The participant's own name and the paired participant's name were excluded when calculating these numbers (if X's name was John Smith and Y's name was Peter Brown, both John Smith and Peter Brown were excluded in calculating the number of names recalled by X or by Y). Only the persons whose first name was phonologically identical to the target name (X or Y) were included, whatever the spelling (e.g. "Christelle" and "Christel" were both accepted). All analyses were performed using the Statistica 13 software.

Participants reported more people sharing their own first name ($M = 4.90$; $SD = 3.16$) than did their twins ($M = 4.08$; $SD = 2.23$), paired $t(39) = 2.49$, $p = .017$, (M_{diff} Self vs Other = 0.83 [95% CI 0.15, 1.50]; Cohen's $d = 0.40$ [95% CI 0.08, 0.72]). This effect size was compared with the effect sizes obtained for the same dependent measure in the Brédart (2016) study: $d = 0.98$ in Experiment 1 and $d = 0.86$ in Experiment 2. The effect size obtained in the present study was significantly smaller than both the d values reported in the Brédart (2016) study, respectively, $z = 4.49$ and $z = 4.03$, both $ps < .001$.

The possibility could not totally be excluded that some participants occasionally cheated by inventing people to enhance their "performance." To avoid this possible bias, the preceding analysis was rerun on those persons whose existence could be verified, (i.e. the experimenter knew the cited persons or found them on the Internet via Google or on the University Intranet). This analysis also indicated that participants reported more people sharing their own first name ($M = 2.15$; $SD = 2.09$) than did their twins ($M = 1.50$; $SD = 1.50$), paired $t(39) = 2.46$, $p = .019$, (M_{diff} Self vs Other = 0.65 [0.12, 1.18]; Cohen's $d = 0.39$ [95% CI 0.07, 0.71]). This effect size was also compared with the effect sizes obtained for the same dependent measure in the Brédart (2016) study: $d = 0.79$ in Experiment 1 and $d = 0.75$ in Experiment 2. Again, the effect size obtained in the present study was significantly smaller than both the d values reported in the Brédart (2016) study, respectively, $z = 3.78$ and $z = 3.60$, both $ps < .001$.

One participant did not respond to the questions related to others' naming practices. Therefore, in the following analyses, the number of participants was 39. To the question "How often does it happen that people speak to both of you without saying your names but rather calling you 'the twins'?", 25 (64.1%) responded "Frequently," four (10.2%) "Sometimes," nine (23.1%) "Infrequently," and one (2.6%) "Never." To the question "How often does it happen that people speak to both of you without saying your names but rather 'bunching up' your names?" one (2.6%) responded "Frequently," five (12.8%) responded "Sometimes," eight (20.5%) "Infrequently," and 25 (64.1%) "Never." Finally, to the question "How often does it happen that people speak to you, individually, without saying your name but rather calling you by your twin brother/sister's name?" 24 (61.5%) responded "Frequently," 12 (30.8%) "Sometimes," and three (7.7%) "Infrequently." No participant responded "Never" to that question.

Discussion

It has been previously shown that one's own name may induce a self-reference bias in memory for people, i.e. participants recalled more familiar (famous or personally known) people with the same first name as their own than did paired participants (Brédart 2016). The present study evaluated whether this bias would occur in twins despite their long-term high intimacy. The results indicated that twins recalled more people with the same first name as their own than did their co-twins. However, the effect size was smaller than previously reported in two experiments that used exactly the same procedure with, respectively, mere colleagues and partners as participants (Brédart 2016). In the present study, the effect size was "small to medium," whereas it had been large when pairs of colleagues and pairs of partners participated in the previous study. In brief, the effect was attenuated in the present study, but it did not disappear.

One factor that has been proposed to explain the attentional advantage serving to support the own-name bias in memory is the *relative familiarity* of one's own name. Research has shown that young humans are sensitive to their own name as early as 4–6 months of age (Imafuku et al. 2014; Mandel, Juszyk, and Pisoni 1995; Parise, Friederici, and Striano 2010). Because it was learned very early in life and processed extremely frequently when hearing other people calling us, greeting us, talking about us, holding our attention during conversations, and when reading or writing our name on self-referring documents, our own name has become outstandingly familiar (Holeckova et al. 2006; Tacikowski and Ehrsson 2016). Others have claimed that familiarity per se could not explain the cognitive advantage for one's own name, since a personally familiar name, such as one's mother's name, was not as likely to capture the attention as one's own name (Yang et al. 2013). But here we are concerned with the *relative familiarity* of one's own name rather than its all-or-none familiarity (e.g. our own name and our mother's name are both familiar to us but our own name is presumably still more familiar than our mother's name).

As mentioned in the Introduction, young adult twins often share an unusually large part of their histories (Sheen, Kemp, and Rubin 2001), during which they have heard their co-twin's name almost as often as they have heard their own name. It is likely that twins are used to hearing their co-twin's name more frequently than any other name, except their own. Most of the time, twins have presumably heard their co-twin's name as a word that was properly used to designate the co-twin. However, same-sex twins are likely to be frequently erroneously called by their co-twin's name because they exhibit many similarities (physical resemblance, similarity in age, gender, or family membership), and such a combination of similarities is prone to elicit person-naming errors (Griffin and Wangerman 2013). In the present sample of same-sex twins, 60% of participants reported having been frequently called by their co-twin's name. This means that the twins commonly experienced the situation of being personally associated with their co-twin's name. Even though it is anecdotal, it is interesting that one twin participant spontaneously commented that being called by her sister's name happened so frequently to her that she used to turn round when she heard her twin's name spoken behind her. In addition, about 36% of participants were confronted, although not frequently, with a naming practice consisting of calling twins by a combination of their two names (see Määttä et al. 2016; Pietilä, Björklund, and Bülow 2013). For instance, twins named

“Alix” and “Fanny” were sometimes called “Fanix.” Thus, for these different reasons, it seems that twins have processed their twin’s name during their life much more frequently than colleagues and partners (see the Brédart (2016) comparison study) have processed their paired person’s name. This may explain why the effect size was dampened in the present study.

In conclusion, the present study showed, for the first time, that a SRE may occur between twins: twins exhibited an own-name bias in memory for people, even though the magnitude of this bias seems to be smaller in comparison with pairs of less close persons.

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No potential conflict of interest was reported by the author.

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Notes on contributor

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