

# The effect of spontaneous self-reference on memory: A replication

Serge Brédart<sup>1\*</sup>, Sarah François<sup>1</sup> and Serge Guimond<sup>2</sup>

<sup>1</sup>University of Liège, Belgium

<sup>2</sup>CNRS and Blaise Pascal University, Clermont-Ferrand, France

## ABSTRACT

The present study was aimed at replicating Kesebir and Oishi's (*Psychological Science*, 21, 1525-1532, 2010) results who documented a spontaneous self-reference effect on memory for birthday dates. The spontaneous self-reference effect was replicated using the dependent measure that Kesebir and Oishi used in their original study: the average distance between participants' own birth month and the months they could remember was significantly smaller than the average distance between the own birth month and the months they could not remember. In addition, the self-reference effect was also evidenced by inspecting another dependent measure i.e., the proportion of correct recall of birth month. The proportion of correct recall was significantly higher for the target persons who were born on the same month as the participants than for those who were born on a different month.

## Reproduction d'un effet d'autoréférence spontané en mémoire épisodique

### RÉSUMÉ

L'objectif de cette étude était de tenter de reproduire les résultats de Kesebir et Oishi (*Psychological Science*, 21, 1525-1532, 2010) qui ont décrit un effet d'autoréférence spontané pour la mémoire des mois d'anniversaire de 4 personnes dont une était née le même mois que le participant. Nous avons reproduit cet effet en utilisant d'abord la même variable dépendante qu'eux : la distance moyenne (en mois) entre le mois de l'anniversaire du participant et les mois qu'il pouvait rappeler était plus petite que la distance moyenne entre le mois de naissance du participant et les mois qu'il ne pouvait pas rappeler. En outre, l'effet d'autoréférence a aussi été mis en évidence en examinant une autre mesure à savoir la proportion de rappels corrects des mois de naissance. La proportion de rappels corrects était supérieure pour les personnes qui étaient nées le même mois que le participant que pour celles qui étaient nées un mois différent.

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\*Corresponding author: Serge Brédart, Department of Psychology: Cognition and Behaviour (B-32), University of Liège, B-4000 Liège, Belgium. Email: serge.bredart@ulg.ac.be

## 1. INTRODUCTION

The self-reference effect (SRE) in memory refers to the fact that information is better remembered when it has been encoded with reference to self than when it has not (Klein & Loftus, 1988; Kihlstrom, Beer, & Klein, 2003; Rogers, Kuiper, & Kirker, 1977). The standard self-reference paradigm involves an explicit evaluation task during which participants are presented with adjectives describing personality traits (e.g., creative, shy) and are asked to evaluate whether these traits are descriptive of self. Other groups of participants are required to evaluate whether these traits describe another familiar person (usually a well-known celebrity) or to evaluate the adjectives on a semantic, phonological or structural way. Such a self-reference effect has been reported in many studies (for a meta-analysis, see Symons & Johnson, 1997). Recently, researchers have explored whether a SRE can occur when self-relevant information is presented without explicit instructions to process it. For instance, in one study, participants saw trait adjectives presented above or below their own face or name and adjectives presented above or below a famous actress' face or name. Their task was simply to report whether the adjective was above or below the cue (face or name). This study indicated that, even though participants were not explicitly instructed to relate trait adjectives to the presented faces or names, their memory performance was better for adjectives presented in the context of their own face or name compared with items seen in the context of a famous person's face or name (e.g., Turk, Cunningham, & Macrae, 2008). More recently, studies reported that participants were more likely to free-recall friends' birthdays from on or around the date of their own birthday than would be expected by chance (Kesebir & Oishi, 2010; Rathbone & Moulin, 2010). This SRE occurs in absence of self-cues since the experimenter avoided mentioning the participants' birthdays before or during the free-recall task. In addition, such a SRE occurs for pre-experimentally unfamiliar persons. Indeed, Kesebir and Oishi's (2010, Experiment 3) participants were presented with pictures of and biographical information (e.g., first names, occupation, birthplace, birth month, and so on) about four individuals. The birthdays of the target persons varied for each participant. The birth month of one target person was the same as that of the participant. The other birth months were 3 months before, 3 months after, and 6 months after the month of the participant's birthday. After participants intentionally encoded information about the 4 target persons, they were given the name and the picture of each target separately and were asked to recall everything

they remembered about these persons. The authors predicted that the average distance between participants' birth month and the birth months they could remember would be smaller than the average distance between participants' birth month and the birth months they could not remember. Results supported this prediction. Results from these studies of memories for birthdays are consistent with those of Turk et al.'s (2008) study. Taken together, these results show that the SRE can occur spontaneously in the absence of explicit instruction to process information in a self-referential way.

The aim of the present study was to attempt a replication of results that Kesebir and Oishi (2010) reported in their Experiment 3, i.e. when participants have to learn information about unfamiliar people. Indeed, if the spontaneous SRE on recalling friends' birthdays has now been observed in different studies (Kesebir & Oishi, 2010, Experiments 1 and 2; Rathbone & Moulin, 2010), to the best of our knowledge, the occurrence of such SRE with newly introduced persons has not been replicated yet. In addition, besides Kesebir and Oishi's (2010) dependent measure that we described above, the proportion of participants who correctly recalled a birth month was calculated for each of the four targets (i.e., born in the same month as the participant, three months before, three months after, and six months after). In this case, the SRE effect would be replicated if the proportion of participants producing a correct response is significantly higher for the target person who was born in the same month as the participant in comparison with each of the other targets. Kesebir and Oishi (2010) reported such proportions in a descriptive way but did not conduct statistical analysis in order to compare them.

## 2. EXPERIMENT

### 2.1. Method

#### 2.1.1. Participants

Ninety-six undergraduate volunteer students (48 women) of the University of Liège took part in the experiment. They were aged between 17 and 25 (mean age = 19.65,  $SD = 1.69$ ). All the participants were tested individually and had normal or corrected-to-normal vision. All were native French speakers and gave written informed consent.

### 2.1.2. Procedure and materials

Kesebir and Oishi (2010)'s procedure was respected. Participants were instructed that they would be participating in a study of impression formation. The experimenter explained that they should try to learn as much information about four persons as they could because, later, they would have to answer questions about these persons. Participants were then presented with pictures of the four target persons (the stimuli were pictures of four Belgian students, 2 men and 2 women, all aged of 21) along with information about these individuals, at a pace of 30 s per individual. Stimuli were displayed on a 15-inch monitor at a viewing distance of approximately 60 cm and the stimulus presentation was controlled by the E-prime software. Photographs measured 6.6 X 4.4 cm. Information was printed in black and typed with Arial font Size 18. The order of presentation of the target individuals was random. The information included the target person's first name, her or his Faculty (College), birthplace, current location, favourite hobby, favourite holiday, birth day, and birth month.

The birthdays of the target persons varied for each participant. The birth month of one target person was the same as that of the participant. The other birth months were 3 months before, 3 months after, and at a distance of 6 months from the participant's birthday. For example, if the participant was born in October, one target person was also born in October, and the three other persons were born in July, January and April. The experimenter specified that each of the four target persons was 21 year-old. Contrary to the months, the days of the birthday dates were fixed.

After all information about the target persons has been presented, each target person's face and name were shown on the screen as cues for recall. Participants were then asked to say everything they remembered about each person separately. The order of presentation of the target persons at the recall phase was also random. The participant's own birth date was obtained before the experimental session from the central University of Liège Student database that S.B. may access.

## 2.2. Results and discussion

### 2.2.1. Number of birth months remembered correctly

On average, participants correctly recalled 1.92 ( $SD = 1.10$ ) of the target persons' four birth months. A  $t$  test revealed that women correctly recalled significantly more birth months ( $M = 2.27$ ,  $SD = 1.05$ ) than men ( $M = 1.56$ ,  $SD = 1.05$ ),  $t(94) = 3.31$ ,  $p < 0.01$ ,  $d = 0.68$ .

### 2.2.2. The self-reference effect

As in the Kesebir and Oishi (2010) study, the self-reference effect was estimated by comparing the average distance between participants' own birth month and the months they could remember with the average

distance between the own birth month and the months they could not remember. A two-way 2 (Gender) X 2 (Type of months) with repeated measures on the last factor was conducted on the average distance from the participants' own birth month. For this analysis, 17 participants were excluded because they remembered either all birth months ( $n = 10$ ) or no birth month at all ( $n = 7$ ). The analysis showed a significant effect of the Type of months,  $F(1, 77) = 13.95$ ,  $MSE = 36.50$ ,  $p < 0.001$ ,  $\eta^2_p = 0.15$ . The average distance between participants' own birth month and the months they could remember ( $M = 2.48$ ,  $SD = 1.40$ ) was smaller than the average distance between the own birth month and the months they could not remember ( $M = 3.46$ ,  $SD = 1.09$ ). Therefore, the magnitude of the SRE was here 0.98, a value slightly higher than the 0.94 obtained by Kesebir and Oishi (2010). Otherwise, the ANOVA revealed no main effect of Gender,  $F < 1$ , or interaction,  $F < 1$ .

The proportions of correct recall of birth months when the target was born on the same month as the participant, 3 months later, 3 months earlier, and at a distance of 6 months, were compared. A Cochran non parametric test indicated that the proportions of correct recall varied significantly across the 4 categories defined,  $Q = 15.6$ ,  $df = 3$ ,  $p < 0.01$ . Fisher Exact tests showed that the proportion of correct recall was higher when the target was born on the same month as the participant (0.63) than when the target was born 3 months later (0.45), 3 months earlier (0.46) or at a distance of 6 months (0.38), all  $ps < .05$ . No other comparison revealed a significant difference.

### 3. DISCUSSION

Recently, Kesebir and Oishi (2010) documented a spontaneous SRE that did not depend on the processing of explicit self-cues. Indeed, they reported that participants were more likely to recall friends' or pre-experimentally unfamiliar individuals' birthdays if these persons were born on or around the date of the participant's own birthday (see also Rathbone & Moulin, 2010). We replicated this effect in an experiment during which participants learnt information, including the birth month, about newly introduced persons, and were later invited to recall learnt information. Following Kesebir and Oishi (2010), this self-reference effect was estimated by comparing the average distance between participants' own birth month and the months they could remember with the average distance between the

own birth month and the months they could not remember. The average distance between participants' own birth month and the months they could remember was smaller than the average distance between the own birth month and the months they could not remember. The amplitude of the SRE was very similar in the present study (0.98) and in the original Kesebir and Oishi's (2010) study (0.94) while the mean global rate of correct recall was slightly higher in the present study (1.92) than in Kesebir and Oishi's study (1.72).

Further analysis was conducted on the proportions of correct recall of birth month across the four categories of birth month. These proportions represent a simple and relevant dependent measure that was not submitted to inferential statistical analysis in the Kesebir and Oishi (2010) study. This analysis indicated that the proportion of correct recall of birth month was significantly higher when the target person was born on the same month as the participant than when the target was born 3 months later, 3 months earlier, or 6 months away.

While, globally, women correctly recalled more birth months than men did, Gender has no effect on the amplitude of the SRE. Kesebir and Oishi (2010) also failed to obtain such a gender effect in two of their three studies. In addition, in the only study where a gender effect was found, the SRE was larger for men than for women but occurred in both men and women. Taken together, these results indicate that the incidental SRE occurs in both genders, and that its amplitude is more often uninfluenced by gender.

In conclusion, our study presents the first replication of a spontaneous self-reference effect when encoding information about newly encountered people. Moreover, we show that the proportion of correct recall of the critical information may be a simple and useful dependent measure for examining this SRE.

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