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BRIEF REPORT

Merely presenting one's own name along with target items is insufficient to produce a memory advantage for the items: A critical role of relational processing

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Abstract

Using the *self* as a reference point at encoding produces a memory advantage over other types of encoding activities. Even simply co-presenting a target item with self-relevant versus other-relevant information can produce an "incidental" self-memory advantage in the absence of any explicit task demand to evaluate the item's self-relevancy. In the present study, we asked whether an incidental self-memory advantage results from (a) the mere co-presentation of a target item with self-relevant information at encoding or (b) relational processing between a target item and self-relevant information at encoding. During incidental encoding, words were presented in two different colors either above or below a name (the participant's own or another person's). Participants judged either the location of each word in *relation* to the name ("Is the word above or below the name?") or the color of each word to which the name had no relevance ("Is the word in red or green?"). In a subsequent memory test, we found a self-memory advantage for both items and their associated source features in the location judgment task but not in the color judgment task. Our findings show that a memory advantage for a target item presented with self-relevant versus other-relevant information is more likely when a task agenda places, via relational processing demands, the self-relevant/other-relevant information in the focus of attention along with the target item. Potential processes that mediate this attention-dependent effect are discussed.

Keywords Self-reference effect · Relational encoding · Attention · Self-related processing · Self

Using the *self* as a reference point at encoding produces a memory advantage over other types of encoding activities. Termed the self-reference effect (SRE; Rogers, Kuiper, & Kirker, 1977), this self-memory advantage has been typically observed in a task that explicitly requires people to evaluate the self-relevancy of given stimuli. For example, the most widely used paradigm involves asking people to judge whether personality-trait words are descriptive of themselves or of another person (e.g., a familiar celebrity) (e.g., M. Conway & Dewhurst, 1995; Kuiper & Rogers, 1979). Notably, subsequent studies found that the self confers a memory advantage even in the absence of explicit evaluation of the stimuli's self-relevancy, for example when people imagine an object as belonging to themselves versus someone else (Cunningham, Turk, MacDonald, & Macrae, 2008).

Of particular relevance to the current study, Turk, Cunningham, and Macrae (2008) showed that even simply presenting self-relevant information simultaneously with a to-be-processed target item at encoding can produce a SRE. In their study, participants were asked to indicate locations of personality-trait words with respect to a cue presented in the middle as a reference point (i.e., above or below the cue). The referent cue was either one's own name (or face) or that of someone else. In a subsequent surprise memory test, the words that were presented with a self-relevant cue were better recognized than words presented with an other-relevant cue. Using a similar location judgment task and young children participants, another study (Cunningham, Brebner, Quinn, & Turk, 2014, Experiment 3) found a SRE for both target items (i.e., pictures of toys and objects) and their associated source feature – whether an item was presented with one's own face or another person's face (i.e., source memory; Johnson, Hashtroudi, & Lindsay, 1993). What might account for this "incidental" SRE that emerges

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in the absence of any task requirement to process the target items' self-relevancy?

We note that there were two different aspects of the procedure of Turk et al.'s study (2008) that might have contributed to the emergence of the incidental SRE: First, a target item was simultaneously presented with self-relevant information. Second, a target item was processed in "relation" to self-relevant information by virtue of an encoding task that required the participants to judge the spatial location of the item in *reference* to the centrally presented self-relevant cue. Thus, an important question arises as to the role of these factors in the incidental SRE: Is mere co-presentation of a target item with self-relevant information in the absence of relational processing between them sufficient to produce a SRE? If so, an incidental SRE should emerge regardless of whether an encoding task places self-relevant/other-relevant information in the focus of attention along with the target item. Alternatively, does relational encoding between a target item and self-relevant information contribute to a SRE? If so, the presence or magnitude of an incidental SRE should depend on whether self-relevant/other-relevant information bears any relevance to the encoding task at hand. The current study addressed these possibilities by observing the impact of relational versus non-relational processing between a target item and self-relevant (or other-relevant) information at encoding on subsequent memory for the target item and its associated source features.

The current investigation builds on previous work on self-effects in attentional processing. Since Moray's (1959) seminal study, much research has investigated whether self-relevant information preferentially attracts attention but the findings have been equivocal. Some studies reported visual versions of the "cocktail party effect" in which one's own name is more likely to be detected than other names/words under limited attention (e.g., Mack & Rock, 1998; Shapiro, Caldwell, & Sorensen, 1997). However, other studies found that one's own name or face presented as a distractor did not cause more interference than did other names or faces, casting doubt on the attention-grabbing ability of self-relevant information (Bundesen, Kyllingsbaek, Houmann, & Jensen, 1997; Harris, Pashler, & Coburn, 2004; Laarni et al., 2000). Reconciling these findings, subsequent studies pointed to the importance of task context for the presence/degree of preferential attentional allocation to self-relevant information. For example, in a modified attentional-blink paradigm, one's own name attracted attention when participants were set to identify target names but not when they were set to find a target color (Kawahara & Yamada, 2004). In a Stroop-like task, whereas one's own name attracted attention when presented at the same location with the color (i.e., inside the focus of attention), when spatially separated from the color, the own name attracted attention only when it was task-relevant (Gronau, Cohen, & Ben-Shakhar, 2003; but see Alexopoulos, Muller, Ric, & Marendaz, 2012). In addition, once one's eyes were fixated on a face during a visual search task, one's own face was fixated longer than unfamiliar faces, with this attentional difference being larger when the own face contained a target-defining feature than when it did not (Devue, Van der Stigchel, Brédart, & Theeuwes, 2009). Taken together, these findings suggest that self-relevant information is more likely to attract or engage attention when it appears within one's attentional focus and when it has a task-relevant feature/status within a given task context. The critical role of task context in determining the likelihood of an *attentional* advantage for self-relevant information suggests that a self-advantage in *memory*, like that in attention, should be affected by whether self-relevant information bears any relevance to the task at hand – specifically, whether an encoding context promotes processing of self-relevant information in *relation* to a simultaneously presented to-be-processed target item.

Following this logic, we manipulated whether or not a target item was required to be processed in relation to self-relevant (or other-relevant) information, using a modified version of Turk et al.'s (2008) design: Words were presented in two different colors either above or below a centrally presented name (the participant's own or someone else's). In the location task, participants indicated the location of each word with the name as a reference point ("Is the word above or below the name?") as in Turk et al. (2008). In the color task, participants indicated the color of each word ("Is the word in red or green?"). Critically, in the location task, but not in the color task, the target word was processed in *relation* to the central name. Note that in both tasks, names appeared in the center of the display and the identity of the name per se was irrelevant to the task. We probed participants' memory for both the words themselves and their associated source features (simultaneously presented name, location, color). Based on the self-related attention findings noted above, we hypothesized that target words should have a better opportunity of deriving any attentional benefits to one's own name over another person's name in the location task than in the color task. Thus, we expected to observe a SRE in both item and source memory in the location task (i.e., relational encoding context), replicating and extending the findings of Turk et al. (2008) and Cunningham et al. (2014). Importantly, the color task (i.e., non-relational encoding context) provided the opportunity to observe either of two informative patterns of results: (a) only a *source* SRE but not an *item* SRE would be attenuated compared to the location task. This pattern of results would be consistent with findings that source memory tends to require greater attention (e.g., more complex initial processing) than does item memory (e.g., Castel & Craik, 2003; Troyer, Winocur, Craik, & Moscovitch, 1999). Alternatively, (b) both an item SRE and a source SRE would be attenuated compared to the location task, suggesting that both encoding of items and incidental binding of source features to the items are affected by relational versus non-relational task contexts. This pattern of results would constitute particularly strong evidence for the importance of relational processing in memory advantages for items incidentally occurring in proximity to self-relevant information.

Methods

Participants and design

Participants were 48 undergraduate students (20 females; mean age = 19.33 [± 1.06]).[1] All were native English speakers with normal/corrected-to-normal vision and normal color perception. Participants provided informed consent and were compensated with course credit or payment in accordance with the human subject regulations of Yale University and Wesleyan University. Four additional participants were excluded from analyses due to a failure to follow instructions ($N = 1$) or an anticipation of the surprise memory test ($N = 3$).

The experiment had a 2 (Name Identity: Self-name or Other-name) × 2 (Encoding: Relational or Non-relational) mixed factorial design, with Name Identity as a within-subjects factor. The participants were randomly assigned to encoding conditions ($N = 24$ each).

Stimuli

A total of 120 personality-trait words (e.g., *trustworthy*, *naïve*; Anderson, 1968) were divided into three lists (40 words each) matched for word-length, syllable-length, likeability, and meaningfulness. Two lists served as critical "old" items that were presented in the encoding phase. The assignment of critical lists to Self- or Other-name condition was counterbalanced across participants. A random half of the critical words in each Name Identity condition were presented above and the other half were presented below the name. Among the words presented above or below the name, a random half were presented in red and the other half were presented in green (10 words for each of the 2 × 2 combinations of the word location and color). The remaining list served as "new" items in the subsequent memory test.

Experimental procedure

Encoding phase Each trial began with a name presented in the center of the screen in black capital letters (in 48-point Palatino font) – each participant's own full name for the Self-name trials and the name of a gender-congruent familiar celebrity (Angelina Jolie or Hugh Jackman) for the Other-name trials. Five-hundred ms after the onset of the name, a trait word was presented either above or below the name in either red or green in lower case (in 48-point Arial font) for 2 s. Trials were separated by a 500-ms fixation period.

In the Relational encoding condition, participants were asked to indicate whether each word appeared above or below the name regardless of the word's color and the identity of the name. In the Non-relational encoding condition, participants were asked to indicate whether each word appeared in red or green, regardless of the word's location and the identity of the name. In both conditions, 40 Self-name and 40 Other-name trials were randomly intermixed.

Memory test Immediately following the encoding phase, participants took a surprise memory test. The 80 "old" words from the encoding phase along with 40 "new" words were presented individually in black in lower case in the center of the screen (in 48-point Arial font) in a random order. For each word, participants were first asked to indicate whether they had seen the word in the preceding phase (old/new judgments). For each word called "old," the participants were further asked to indicate the three source features associated with the word during encoding: (1) name (self-name or other-name), (2) location (above or below the name), and (3) color (red or green). The name judgments always occurred first, and the order of the location and color judgments was determined based on the Encoding condition: Location judgments first in the Relational encoding condition and color judgments first in the Non-relational encoding condition. For each memory judgment, participants had to respond within 4 s.

After the experiment, participants completed a post-experimental questionnaire that assessed their awareness of the experimental hypothesis and whether they anticipated a memory test. None of the participants correctly guessed the experimental hypothesis. Data from three participants giving ratings of 5 or higher on the memory anticipation scale from 1 ("not at all") to 7 ("very much") were excluded.

Statistical analyses

For the present study, we adopted a Bayesian approach (Jeffreys, 1961; Rouder, Morey, Verhagen, Swagman, & Wagenmakers, 2017; Rouder, Speckman, Sun, Morey, & Iverson, 2009) in order to quantify the confidence in the presence or absence of any effects of interest.[2] The Bayes Factor (BF) expresses an odds ratio of evidence for versus against the null hypothesis (H_0), providing information about the relative

[1] Due to insufficient information, we were unable to calculate the effect size for Turk et al. (2008). We thus decided to exactly match the number of participants in each between-subjects condition to that of Turk et al. ($N = 24$; combined for the own-name and own-face conditions).

[2] Note that conventional frequentist analyses yielded the same pattern of results for both item and source memory as found with the Bayesian analyses reported here.

likelihood of the alternative hypothesis (H_1) versus H_0. The BF is written as BF_{10} when the evidence favors H_1 and as BF_{01} (i.e., $1/BF_{10}$) when the evidence favors H_0. To interpret the strength of evidence of a BF, we used the following rule-of-thumb classification scheme as a point of reference (Jeffreys, 1961; Kass & Raftery, 1995): No evidence when BF = 1, "weak" evidence when $1 < BF \leq 3$, "substantial" evidence when $3 < BF \leq 10$, "strong" evidence when $10 < BF \leq 30$, "very strong" evidence when $30 < BF \leq 100$, and "decisive" evidence when $BF > 100$.

We used JASP statistical software (JASP Team, 2018, version 0.8.6) to compute the BFs for all statistical analyses with Cauchy priors set at default (for t-tests: $r = 0.707$; for analyses of variance [ANOVAs]: $r = 0.5$, 1, and 0.354 for fixed effects, random effects, and covariates, respectively). For ANOVAs, we manually set the number of samples to 500,000 to reduce the Monte Carlo sampling error. For each ANOVA result, we first report the preferred model (i.e., the model with the highest posterior model probability versus the intercept-only null model) to emerge from the analysis. We then report the $BF_{Inclusion}$ value for each factor in the model (i.e., a main effect or an interaction effect), which indicates the likelihood of the data under models that included a given factor compared to matched models stripped of the factor (i.e., Bayesian model averaging).

Results

Item memory

Participants' hit rates and false-alarm rates were calculated by computing the proportion of "old" words correctly recognized as old and the proportion of "new" words incorrectly identified as old, respectively (Table 1). A Bayesian independent-samples t-test provided a very weak preference for the H_0 that the false alarm rates, in common for the Self-name and Other-name conditions for each participant, did not differ between the Relational and Non-relational encoding conditions, BF_{01} = 1.11. Given the very small value of BF_{01}, corrected hit rates were calculated by subtracting the false-alarm rates from the hit rates and were submitted to a 2 (Name Identity: Self-name or Other-name) × 2 (Encoding: Relational or Non-relational) Bayesian mixed-design ANOVA.[3] The preferred model, extremely favored over the intercept-only null model (BF_{10} = 303.58, ± 1.74%), included main effects of Name Identity and Encoding, as well as a Name Identity × Encoding interaction.

The inclusion of a main effect of Name Identity ($BF_{Inclusion}$ = 58.34; Self-name [M = .274, SD = .116 / $M_{Frequency}$ = 10.96, $SD_{Frequency}$ = 4.65] versus Other-name [M = .203, SD = .126 / $M_{Frequency}$ = 8.10, $SD_{Frequency}$ = 5.02]) and the interaction between Name Identity and Encoding ($BF_{Inclusion}$ = 13.17) was strongly favored. The analysis provided weak evidence against the inclusion of a main effect of Encoding ($BF_{Inclusion}$ = 0.41; Relational encoding [M = .250, SD = .118 / $M_{Frequency}$ = 10.00, $SD_{Frequency}$ = 4.71] versus Non-relational encoding [M = .227, SD = .118 / $M_{Frequency}$ = 9.06, $SD_{Frequency}$ = 4.74]). As shown in Fig. 1A, simple effects analyses using Bayesian paired-samples t-tests revealed that in the Relational encoding condition, decisive evidence was found that the words presented with the Self-name (M = .314, SD = .111 / $M_{Frequency}$ = 12.54, $SD_{Frequency}$ = 4.43) were better recognized than those presented with the Other-name (M = .187, SD = .125 / $M_{Frequency}$ = 7.46, $SD_{Frequency}$ = 4.97), BF_{10} = 25017.17. In contrast, in the Non-relational encoding condition, substantial evidence was found that recognition memory for words presented with the Self-name (M = .234, SD = .110 / $M_{Frequency}$ = 9.38, $SD_{Frequency}$ = 4.39) versus the Other-name (M = .219, SD = .127 / $M_{Frequency}$ = 8.75, $SD_{Frequency}$ = 5.08) did not differ, BF_{01} = 4.05.

Table 1 Mean proportion (standard error) of hits and false-alarms for item memory as a function of Name Identity and Encoding

	Relational Encoding		Non-relational Encoding	
	Self-name	Other-name	Self-name	Other-name
Hit	.504 (.033)	.377 (.034)	.375 (.029)	.359 (.036)
False-alarm	.191 (.022)		.141 (.020)	

Note. There were no separate false-alarms per each Name Identity condition as there was a single pool of "new" items

Source memory

Analyses of source attributions among "new" items incorrectly identified as "old" using Bayesian paired-samples t-tests provided weak to substantial evidence that there was no source-attribution bias toward one source over the other for both the Relational encoding condition (Self-name = 52.77% versus Other-name = 47.23%, BF_{01} = 4.12; above the name = 53.46% versus below the name = 46.54%, BF_{01} = 3.47; red = 48.51% versus green = 51.49%, BF_{01} = 4.34) and the Non-relational encoding condition (Self-name = 48.33% versus Other-name = 51.67%, BF_{01} = 4.44; above the name = 50.28% versus below the name = 49.72%, BF_{01} = 4.57; red = 43.20% versus green = 56.80%, BF_{01} = 2.28). Thus, source memory scores were calculated as the mean proportion of correctly recognized old words that were attributed to the correct source for each source type (name, location, color) separately for each name condition.

The source memory scores were submitted to a 3 (Source Memory Type: Name, Location, or Color) × 2 (Name Identity: Self-name or Other-name) × 2 (Encoding: Relational or Non-

[3] A parallel set of Bayesian analyses using d-prime (d') as the dependent measure produced the same pattern of results.

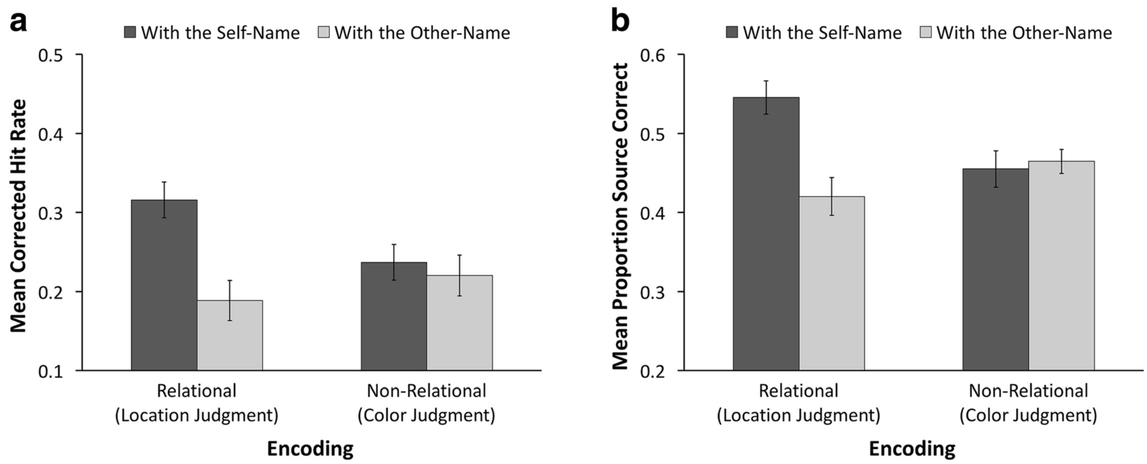

Fig. 1 (**A**) Item memory performance and (**B**) source memory performance as a function of Name Identity and Encoding. Error bars represents standard error of the mean

relational) mixed-design Bayesian ANOVA. The preferred model, extremely favored over the intercept-only null model (BF_{10} = 6.83 x 10^{14}, ± 3.50%), included main effects of Source Memory Type, Name Identity and Encoding, as well as a Name Identity × Encoding interaction. Of note, there was substantial evidence against the inclusion of both two-way and three-way interactions involving Source Memory Type ($BF_{\text{Inclusion}}$s between 0.13 and 0.28), suggesting that neither the effects of Name Identity and Encoding nor the interaction between them differed across different source features.

The inclusion of a main effect of Source Memory Type was decisively supported ($BF_{\text{Inclusion}}$ = 7.75 × 10^{12}). Post hoc tests[4] revealed decisive evidence that name memory (M = .579, SD = .171 / $M_{\text{Frequency}}$ = 9.17, $SD_{\text{Frequency}}$ = 4.39) was better than both location memory (M = .424, SD = .147 / $M_{\text{Frequency}}$ = 7.02, $SD_{\text{Frequency}}$ = 3.67), $BF_{10,\ \text{U}}$ = 5.03 × 10^8, and color memory (M = .412, SD = .153 / $M_{\text{Frequency}}$ = 6.59, $SD_{\text{Frequency}}$ = 3.61), $BF_{10,\ \text{U}}$ = 1.37 × 10^9, whereas location and color memory did not differ from each other, $BF_{10,\ \text{U}}$ = 0.14. The inclusion of a main effect of Name Identity ($BF_{\text{Inclusion}}$ = 22.27; Self-name [M = .500, SD = .152 / $M_{\text{Frequency}}$ = 8.88, $SD_{\text{Frequency}}$ = 4.41] versus Other-name [M = .442, SD = .161 / $M_{\text{Frequency}}$ = 6.31, $SD_{\text{Frequency}}$ = 3.38]) and the interaction between Name Identity and Encoding ($BF_{\text{Inclusion}}$ = 219.04) was also strongly favored. The analysis provided substantial evidence against the inclusion of a main effect of Encoding ($BF_{\text{Inclusion}}$ = 0.26; Relational encoding [M = .483, SD = .146 / $M_{\text{Frequency}}$ = 8.40, $SD_{\text{Frequency}}$ = 3.50] versus Non-relational encoding [M = .460, SD = .159 / $M_{\text{Frequency}}$ = 6.79, $SD_{\text{Frequency}}$ = 3.85]). As shown in Fig. 1B, simple effects analyses using Bayesian paired-samples t-tests revealed that in the Relational encoding condition, decisive evidence was found that source memory for words presented with the Self-name (M = .545, SD = .102 / $M_{\text{Frequency}}$ = 10.79, $SD_{\text{Frequency}}$ = 3.71) was better than that for words presented with the Other-name (M = .420, SD = .117 / $M_{\text{Frequency}}$ = 6.01, $SD_{\text{Frequency}}$ = 2.42), BF_{10} = 146.23. In contrast, in the Non-relational encoding condition, substantial evidence was found that source memory for words presented with the Self-name (M = .456, SD = .114 / $M_{\text{Frequency}}$ = 6.96, $SD_{\text{Frequency}}$ = 3.56) versus the Other-name (M = .465, SD = .074 / $M_{\text{Frequency}}$ = 6.61, $SD_{\text{Frequency}}$ = 3.42) did not differ, BF_{01} = 4.45.

[4] The reported BFs (i.e., $BF_{10,\ \text{U}}$) for post hoc tests are uncorrected for multiple comparisons. Post hoc tests have not yet been developed in the Bayesian ANOVA framework and thus are currently unavailable in JASP.

Discussion

The current study asked whether an incidental SRE arises due to (a) a mere co-presentation of a target item with self-relevant information or (b) relational processing between a target item and self-relevant information. We manipulated whether or not the orienting task at encoding required target items (personality-trait words) to be processed in relation to self-relevant or other-relevant information (one's own or another person's name). Under a relational-encoding context (i.e., the location task), we found clear evidence of a SRE not only for the target items but also for their associated source features, replicating and extending the findings of Turk et al. (2008) and Cunningham et al. (2014). Critically, under a non-relational encoding context (i.e., the color task), we found reasonable evidence for the *absence* of a SRE for both item and source memory.

The failure to find a SRE in the non-relational encoding context indicates that a mere co-presentation of a target item with self-relevant information is not sufficient for an incidental self-memory advantage. Instead, the presence of a self-memory advantage appears to depend on the nature of the encoding task, specifically whether or not a target item is processed in relation to simultaneously presented self-relevant/other-relevant information. That is, target items presented with self-relevant information appear to benefit from greater attention to self-relevant over other-relevant information when an encoding task places both self-relevant/other-relevant information and target items in the focus of attention. Thus, the present findings suggest either that (a) one's own name simply does not attract more attention than another name when self-relevant/other-relevant information bears no relevance to the task at hand or that (b) if one's own name attracts more attention than another name irrespective of the task-relevancy of self-relevant/other-relevant information, such attentional benefit does not "spill over" to the nearby target item when no relational processing is required between the self-relevant/other-relevant information and the target item. Note that in the relational encoding context, whether or not a centrally presented name was self-relevant was completely irrelevant to the task at hand. Rather, it was the "central location" in which the names were presented that was relevant to judging the location of the target item. In this regard, our findings are in line with previous findings of task-context-dependent modulation of attentional allocation to self-relevant information by showing that task-relevance of a feature (in the present study, a stimulus location) "carrying" the self-relevant information determined the presence/absence of a SRE.

What kinds of processes may underlie this task-dependent encoding benefit? According to the source-monitoring framework (Johnson et al., 1993), episodic memory depends, in part, on the kinds of attentional processes (perceptual and reflective, e.g., Chun & Johnson, 2011; Johnson & Hirst, 1993) engaged during encoding: Memory for an event improves when the processes engaged promote encoding and binding together of details associated with the event that will be useful later (e.g., on item or source memory tests). Our findings of an item and source SRE in the relational encoding condition thus suggest that participants engaged such attentional processes that promoted the representation of target items and binding them to not only self-relevant information (name) as a feature but also other features (location, color) (see also Cunningham et al., 2014, Experiment 3). Such processes may solely reflect perceptual processing of the target items and spatiotemporal processing between the target items and their associated source features (e.g., the *green* word *honest* is presented *above my name*), or greater refreshing of source features once the display is removed. Alternatively, they may additionally reflect the "semantics" of the relationship between various features and the target items (e.g., noting the word *honest* and its color *green* both have positive connotations; *I* like *honest* people). Neither the present study nor previous studies of the incidental SRE (Cunningham et al., 2014; Turk et al., 2008) provides an answer as to whether there is any contribution of semantic processing between a target item and its associated features beyond perceptual relational processing between them. Future studies would enhance our understanding of potential processes occurring during encoding that underlie the incidental SRE by using target stimuli that are of varying likelihood to be semantically associated with various source features to see how these differing characteristics of target stimuli affect the magnitude of an incidental SRE for both item and source memory. For instance, if spontaneous semantic processing between a target item and self-relevant information is in part responsible for the incidental SRE, then there should be a larger SRE for stimuli that are relatively easier to associate/semantically-process with one's concept of self (e.g., personality-trait words) than those that are relatively difficult to do so (e.g., affectively neutral concrete nouns or abstract shapes) (see Maki & McCaul, 1985 for corresponding effects of using personality-trait adjectives versus nouns, and Durbin, Mitchell, & Johnson, 2017 for effects of emotional valence and format [words versus pictures] of items, in producing a SRE in explicit self-referential tasks).

The present findings of modulation of an incidental SRE by different encoding contexts join other findings showing modulation of various "self biases" by contextual factors (for review, see Cunningham & Turk, 2017), for instance, elimination of perceptual processing benefits for self-associated over other-associated geometric shapes by task instructions (Lui & Sui, 2016) or attenuation of one's tendency to view oneself in a positive light by experimentally-priming a cultural value of "modesty" (Shi, Sedikides, Cai, Liu, & Yang, 2017). A fuller understanding of how the self influences cognition awaits further research exploring how contextual factors affect the dynamic interplay between the psychological/neural mechanisms involved in self-related processing and those supporting attentional selection and executive control processes (e.g., A. Conway, Cowan, & Bunting, 2001; see also Humphreys & Sui, 2016).

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