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Running Head: Imagery Perspectives and Self

Turning I Into Me:
Imagining Your Future Self

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Abstract

A widely endorsed belief is that perceivers imagine their present selves using a different representational format than imagining their future selves (i.e., near future = first-person; distant future = third-person). But is this really the case? Responding to the paucity of work on this topic, here we considered how temporal distance influences the extent to which individuals direct their attention outward or inward during a brief imaginary episode. Using a non-verbal measure of visual perspective taking (i.e., letter-drawing task) our results confirmed the hypothesized relation between temporal distance and conceptions of the self. Whereas simulations of an event in the near future were dominated by a first-person representation of the self, this switched to a third-person depiction when the event was located in the distant future. Critically, this switch in vantage point was restricted to self-related simulations. The theoretical and practical implications of these findings are considered.

Keywords: mental imagery, visual perspective, self-awareness, prospection, temporal construal, self

Turning I Into Me: Imagining Your Future Self

1. Introduction

To deal with the vicissitudes of daily life, people spend an inordinate amount of time imagining the future (Killingworth & Gilbert, 2010; Smallwood & Schooler, 2006). These moments lost in inner thought are not without purpose, however. By previewing forthcoming experiences, mental simulation acts as a virtual platform on which behavioral selection can be appraised, adjusted and optimized (Boyer, 2008; Gilbert & Wilson, 2007; Suddendorf & Corballis, 2007; Wilson & Gilbert, 2003). Whether one's goal is to bake an apple pie, perform a clarinet solo, or interact effectively with a new colleague, prior mental preparation serves as an important precursor to doing (Addis, Wong, & Schacter, 2007; Buckner & Carroll, 2007; Gilbert & Wilson, 2007; Schacter, Addis, & Buckner, 2007; Pham & Taylor, 1999; Szpunar, 2010; Taylor, Pham, Rivkin, & Armor, 1998). Put simply, imagining oneself in the future is an indispensable psychological tool (Suddendorf & Corballis, 2007).

Given the multiple ways in which imaginary experiences can affect both brain and behavior (e.g., Barsalou, 1999; Christian, Miles, Fung, Best, & Macrae, 2013; Christian, Parkinson, Macrae, Miles, & Wheatley, 2015; Libby & Eibach, 2011; Libby, Shaeffer, Eibach, & Slemmer, 2007; Libby, Valenti, Hines, & Eibach, 2014; Macrae et al., 2014; Macrae, Sunder Raj, Best, Christian, & Miles, 2013; Miles, Christian, Masilamani, Volpi, & Macrae, 2014; Moulton & Kosslyn, 2009), an important question arises — how exactly is the self represented during bouts of prospection? In tackling this issue, conventional wisdom is unequivocal. According to both theories of action identification and temporal construal (Liberman & Trope, 2008; Trope & Liberman, 2003; Vallacher & Wegner, 1985), forthcoming events (e.g., going on vacation) can be represented in

either a super- or subordinate manner — what matters is when the event is scheduled to occur (e.g., next week vs. next year).

Construal-Level theory (CLT, Trope & Liberman, 2003, 2010) contends that whereas impending events (e.g., a trip to Rome) tend to be characterized in a concrete, detail-rich manner (e.g., locating one's passport, reading restaurant reviews, packing), distant events comprise abstract, decontextualized representations that convey only the gist or general meaning of an experience (e.g., enjoying a weekend break with friends). In other words, as events become temporally distant, representations increase in schematic content. Presaging the principles of CLT, Vallacher and Wegner's (1985) Action Identification theory asserts that not all goals and action plans are represented in the same way. Whereas superordinate (i.e., abstract) representations center on the overarching purpose of an action (i.e., *why* the action occurred; e.g., securing one's house), subordinate (i.e., concrete) characterizations focus instead on the specific means through which an action can be realized (i.e., *how* the action is performed; e.g., locking the door). Integrating these theoretical perspectives, research has confirmed that temporal distance shifts the representational specificity of action goals (Christian et al., 2013; Liberman & Trope, 1998).

Critically, distinct phenomenological representations of the self are also believed to accompany these differences in event/goal specificity (Liberman, Trope, McCrea, & Sherman, 2007; Updegraff, Emanuel, Suh, & Gallagher, 2010; Updegraff & Suh, 2007). Specifically, mental imagery is characterized by a switch from actor- (i.e., first-person perspective, '*view the world through your own eyes*') to observer-based (i.e., third-person perspective, '*seeing oneself from an outside perspective*') representations when simulations shift from events in the near to distant future (e.g., Libby & Eibach, 2011; Pronin & Ross, 2006; Trope & Liberman, 2003, 2010). Despite widespread endorsement of this putative relation between temporal distance and visual imagery perspective, supporting empirical evidence is scant. In the only direct investigation of this issue, Pronin and Ross (2006, Expt. 4) required participants to imagine a meal at different points in the

future (e.g., tomorrow vs. when aged over 40) and then probed the perspective from which the event was simulated using verbal descriptions of first- and third-person visual experiences (for related research, see Wakslak, Nussbaum, Liberman, & Trope, 2008). As predicted, mental imagery was more observer-like (i.e., third-person) for a meal in the distant than near future (Trope & Liberman, 2003, 2010). On closer inspection, however, a dominant imagery perspective only emerged for the near-future event. Specifically, whereas an impending meal triggered predominantly first-person imagery (i.e., 13 out of 15 participants), this tendency was eliminated when the event was slated to occur in the distant future (i.e., first-person = 8 participants; third-person = 9 participants). Thus, it has yet to be established that distant events elicit third-person (vs. first-person) imagery.

Pronin and Ross's (2006) findings are important for at least a couple of reasons. First, they resonate with studies exploring vantage-point differences in the recollection of events from the near and distant past (e.g., D'Argembeau, Comblain, & Van der Linden, 2003; Nigro & Neisser, 1983; Frank & Gilovich, 1989; Libby & Eibach, 2002; Lorenz & Neisser, 1985; Robinson & Swanson, 1993; Vasquez & Buehler, 2007). Second, albeit with a small sample, they provide preliminary evidence that temporal distance influences the dominant perspective from which prior imaginary episodes are reported, at least with respect to near-future events. It is worth noting, however, that this demonstration relies on an explicit verbal measure to ascertain the vantage point adopted during mental imagery. Although such measures have a long history in psychological research (Morin, 2011), emphasis has also fallen on identifying indirect ways of probing differences in self-awareness (e.g., Eichstaedt & Silvia, 2003; Haas, 1984; Wegner & Giuliano, 1980). These techniques are valuable as they have the potential to tap aspects of the self that are unavailable to conscious inspection and circumvent the problems associated with self-reports (Duval & Wicklund, 1972). Accordingly, we used one such measure in the current investigation to explore the effects of temporal distance on the vantage point adopted during future-related mental imagery.

1.1 The Current Research

Numerous theorists have advanced the idea that self-consciousness intensifies when individuals view the self from the standpoint of an external observer¹ (Cooley, 1902; Duval & Wicklund, 1972; Mead, 1934; Piaget, 1926; Wicklund, 1975). Piaget (1926), for example, asserted that egocentrism is diminished when people shift attention from the external world and focus instead on the self from the vantage point of others, a switch in attentional orientation that captures the influential distinction between two fundamental facets of the self: ‘I’ and ‘me’ (i.e., self-as-agent/knower vs. self-as-object/known; see Cooley, 1902; James, 1890; Mead, 1934). Of assistance to the current inquiry, three decades ago Haas (1984) devised an ingenious methodology to reveal these contrasting conceptions of the self. Requesting participants to draw the letter ‘E’ on their foreheads, Haas noted that when attention was directed toward the self (i.e., self as ‘me’), participants adopted an external viewpoint and drew a letter that was oriented appropriately for the perspective of an observer (i.e., backward for self). In contrast, when attention was directed outward (i.e., self as ‘I’), participants produced a letter ‘E’ that was oriented correctly for the self (i.e., backward for an observer). What this demonstrates is that actions near the face can reveal the vantage point from which events are generated in the mind (see Galinsky, Magee, Inesi, & Gruenfeld, 2006).

Adopting a modified version of this letter-writing task, here we considered how temporal distance alters the representation of the self during a brief episode of future-related mental imagery (Pronin & Ross, 2006). While imagining walking along a beach in either the near or distant future (Liberman & Trope, 2008; Trope & Liberman, 2003), participants were required to draw the letter ‘C’ just in front of their forehead. We expected the temporal locus of future imagery to influence the visual perspective from which the event was viewed (Libby & Eibach, 2011). Specifically,

¹ Importantly, the target of observation serves as a key determinant. Adopting an observer perspective of oneself inflates self-directed attention, whereas mentally observing another individual has no bearing on one’s own self-awareness.

replicating and extending Pronin and Ross (2006), whereas the near event should be experienced from a first-person vantage point (i.e., self as I), the corresponding distant version should trigger predominantly third-person imagery (i.e., self as me). To establish that this switch in vantage point is restricted to simulations of the self, additional participants imagined their best friend walking along a beach (near vs. distant future) then performed the letter-writing task. Although mentally observing another person relies on third-person imagery (see Christian et al., 2015 for discussion), these images are naturally conjured from one's own vantage point such that only the other person (not the self) is visible in the mind's eye. As such, we expected participants to respond egocentrically (i.e., produce a letter 'C' that is oriented correctly for self) regardless of temporal distance when simulating another person.

2. Method

2.1 Participants and Design

One hundred and sixty members of the general public took part in the research (90 women, 70 men; mean age = 27.17, $SD = 9.49$). The study had a 2 (Target: self or best friend) X 2 (Temporal Distance: near or far) between-participants design.²

2.2 Stimulus Materials and Procedure

Participants were approached by an experimenter in quiet, indoor locations in which they were alone (e.g., library, apartment) and asked if they were willing to take part in a study exploring mental imagery. Once permission had been obtained, participants were informed they would be

² A between-participants design was used as knowledge of the forthcoming letter-writing task in within-participants design may impede the natural course of mental imagery. Adoption of this design is consistent with prior research using this task (Galinsky et al., 2006). Neither the gender composition (i.e., self-near = 22 women, 18 men; self-far = 22 women, 18 men; friend-near = 23 women, 17 men; friend-far = 23 women, 17 men; $G^2(4) = 0.1, n.s.$) nor age of participants (i.e., self-near = 27.0 (9.25); self-far = 28.83 (11.32); friend-near = 26.33 (7.28); friend-far = 26.53 (9.81), all F 's < 1, $n.s.$) varied as a function of experimental condition.

required to engage in a brief period of mental imagery (i.e., a beach walk) during which time they would be required to perform a simple action with their dominant hand. They were told this action should be performed as quickly and thoughtlessly as possible. Once the instructions were fully understood, participants were directed to close their eyes and to imagine themselves or their best friend walking along a beach either tomorrow (i.e., near future) or in 10 years time (i.e., far future).³ After 20 seconds had elapsed (but still imagining the beach walk), participants were instructed to draw the letter 'C' just in front of their forehead (i.e., without touching the skin), using the index finger on their dominant hand (Haas, 1984).⁴ The experimenter noted the orientation in which the letter was written (i.e., first-person or third-person) and signaled the end of the study. Participants were then thanked, debriefed and dismissed.

3. Results

The results of a log-linear analysis examining the effects of Target (i.e., self or friend) and Temporal Distance (i.e., near or far) on the Vantage Point adopted during visual imagery (i.e., first-person or third-person) revealed a significant effect of Target x Temporal Distance x Vantage Point, $G^2(4) = 11.73, p = .025$ (see Figure 1). Whereas simulations of self in the near future (i.e., tomorrow) were dominated by first-person imagery, this switched to third-person imagery when the event was located in the distant (i.e., in 10 years time) future. No such switch in vantage point was observed when best friend was the target of prospection; instead first-person imagery was preferred regardless of temporal distance.

³ Ten years was selected for the distant-future event as previous research has shown this interval to trigger abstract construal (Christian et al., 2013).

⁴ The procedure was modified in this way as the sensorimotor feedback involved in touching one's forehead may trigger a first-person orientation regardless of the perspective adopted during mental simulation (Petkova, Khoshnevis, & Ehrsson, 2011). Prior research has shown that the letter-writing task is not impacted by the handedness of participants (Galinsky et al., 2006; Haas, 1984).

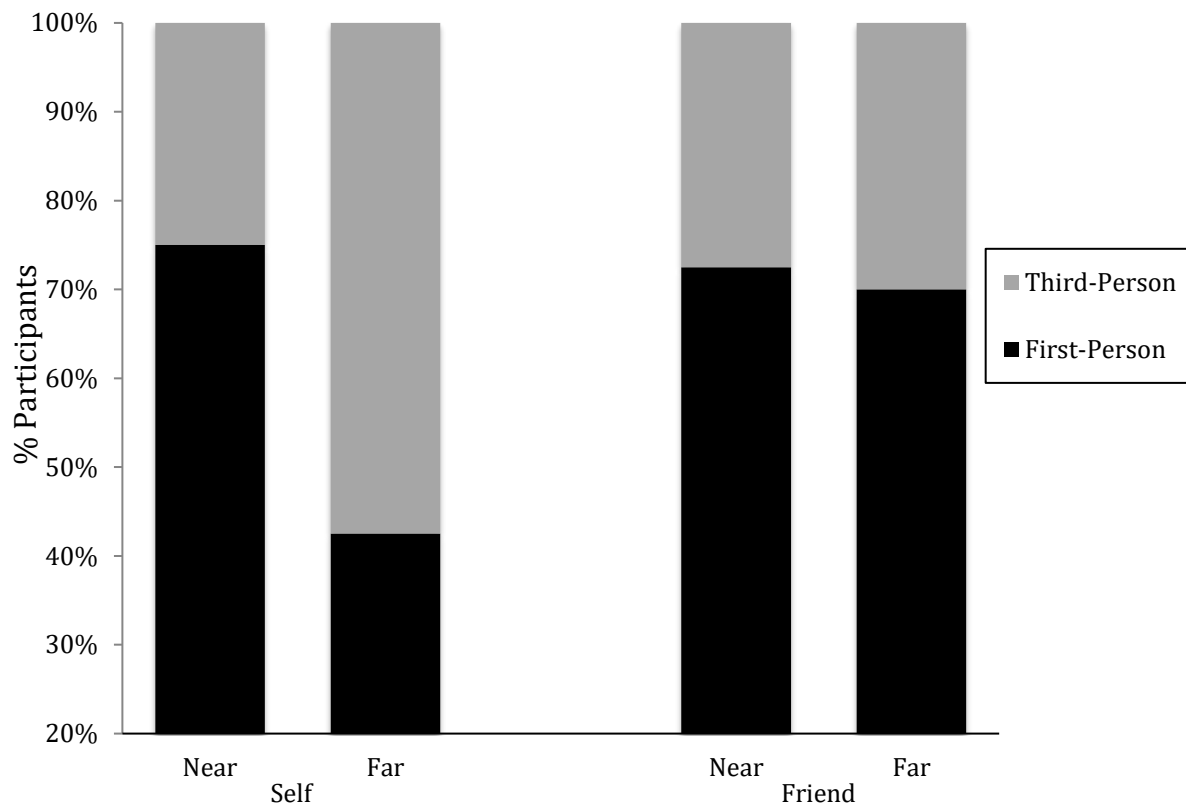


Figure 1. Vantage point adopted during mental imagery as a function of target and temporal distance.

4. General Discussion

Exploring the structural characteristics of mental imagery using a non-verbal measure of self awareness (Haas, 1984), here we showed that temporal distance alters the vantage point that is naturally adopted during a brief imaginary episode (Christian et al., 2013), but only when self was the target of interest. Whereas simulations of a beach walk in the immediate future were dominated by a first-person representation of the self, this switched to a third-person depiction when the event was scheduled to occur at a much later date (Libby & Eibach, 2011; Pronin & Ross, 2006). In

contrast, when one's best friend was the simulated target, first-person imagery predominated regardless of the timing of the walk⁵.

These findings are noteworthy given the assumption that temporal locus (i.e., near vs. far) influences how future events are constructed in the mind (Trope & Liberman, 2003). Elsewhere, researchers have demonstrated that temporal distance shapes core aspects of self-representation. Confirming the tenets of action identification theory and CLT (Liberman & Trope, 2008; Trope & Liberman, 2010; Vallacher & Wegner, 1985), conceptions of the self in the distant future are more abstract and structured than those in the here and now (Freitas, Salovey, & Liberman, 2001; Heller, Stephan, Kifer, & Sedikides, 2011; Wakslak et al., 2008). For example, compared with the near-future self, the distant self incorporates more superordinate identities and is characterized by less complexity and greater cross-situational consistency (Wakslak et al., 2008). In addition, more observer-like attributions are offered for the behavior of one's future than current self (Pronin, Olivola, & Kennedy, 2008; Pronin & Ross, 2006). Extending these findings, this temporal shift in level of construal also affects the visual perspective from which the self is viewed during prospection. Here we showed that shifts from concrete construal (i.e., near future) to abstract construal (i.e., distant future) influence the vantage point (i.e., first-person vs. third-person) through which future events are viewed (Pronin & Ross, 2006).

Notwithstanding the observed preference for third-person imagery when simulating self in the distant-future, 40% of participants continued to adopt an egocentric vantage point when contemplating a beach walk in 10 year's time. This then raises an interesting question, how stable are the vantage points adopted during future-oriented thought (Trope & Liberman, 2010)? Related findings from the memory literature suggest that although people routinely switch between first- and third-person imagery during event retrieval (Rice & Rubin, 2011), individual or cultural

⁵ This suggests that participants imagined the event from their own visual perspective rather than adopting their friend's vantage point (e.g., stepped into their shoes). Because Haas's (1984) measure captures viewing *oneself* from an outside perspective, we can conclude that temporal distance does not influence the self-perspective adopted when simulating another person.

differences in cognitive processing styles favor one perspective over the other (Cohen, Hoshino-Browne, & Leung, 2007; Libby & Eibach, 2011; Nigro & Neisser, 1983). Echoing this viewpoint, Christian et al. (2013) have recently shown that sociocultural differences in conceptions of the self (i.e., individualistic vs. collectivist, see Oyserman, Coon, & Kimmelmeier, 2002; Triandis, 1989) influence the vantage point adopted during mental imagery. In particular, whereas Western (i.e., individualistic) participants report adopting first-person imagery during prospection, residents from Eastern (i.e., collectivist) nations tend to favor a third-person visual perspective. It remains to be seen, however, whether comparable effects would emerge on indirect (i.e., non self-report) measures of visual perspective and events that occur at different points in the future. In terms of the structural characteristics of self-construal (e.g., concrete vs. abstract), a useful task will be to explore how cultural forces and temporal considerations shape both the process and products of prospection (Wilson & Gilbert, 2003).

Future research should also direct attention to the temporal distances traveled during mental simulation and the contents of the associated imaginary experiences (Liberman & Trope, 2008; Trope & Liberman, 2010). If, as reported in the current investigation, increasing temporal distance triggers a switch in self-construal from first- to third-person representations, it would be interesting to establish when exactly this switch occurs. Inspection of the available literature reveals ambiguity around when in the future an event is considered to be distant (i.e., from a few months to over 20 years; see Christian et al., 2013; Pronin & Ross, 2006; Wakslak et al., 2008). Given the implications of self-construal for a range of psychological outcomes (e.g., affective forecasts, task completion times), it will be important to establish when and for whom shifts in imagery perspective take place. Similarly, through the use of questionnaires and thought-listing techniques (e.g., Marks, 1973; McIsaac & Eich, 2002), consideration should also be given to the contents of mental imagery during prospection (see Christian et al., 2015). One prediction of CLT is that imagery should be richer and more detailed for events in the near than distant future (Liberman & Trope, 2008; Trope & Liberman, 2010). However, quite how the vividness of imaginary

experiences relates to the vantage point adopted during prospection requires further investigation and clarification.

Aside from obvious theoretical significance, vantage-point differences in visual imagery also have important practical implications for a raft of everyday phenomena (e.g., Libby & Eibach, 2011; Libby et al., 2007; Macrae et al., 2013, 2014; Miles et al., 2014). For example, spontaneous differences in the visual perspective adopted during mental imagery (i.e., first-person vs. third-person) may contribute to errant views of one's future self (Libby & Eibach, 2011). According to an extensive literature on affective forecasting, people make inaccurate judgments about their future selves because they focus too closely on target events and fail to consider other factors that shape their behavior and reactions (e.g., Gilbert & Wilson, 2007; Wilson & Gilbert, 2003). Adoption of a third-person vantage point for the simulation of distant events may exacerbate this tendency. Stripped of experiential detail and comprising simplified schematic representations (Christian et al., 2015; Wakslak et al., 2008), third-person simulations provide only an abstract synopsis of future events; it is therefore little wonder that people's judgments go awry. Switching to a first-person vantage point, at least for certain types of forecast, may remedy this situation (Libby & Eibach, 2011). Future research should explore this possibility.

While potentially leading emotional predictions astray (Wilson & Gilbert, 2003), there are nevertheless occasions on which adoption of a third-person vantage point is the optimal way to preview the future (Buehler, Griffin, Lam, & Deslauriers, 2012; Libby & Eibach, 2011). For example, a lack of experiential detail is beneficial when unpleasant or undesirable events are the to-be-imagined episodes. Simulating a life-threatening scenario can leave a residue of negative affect long after the imaginary episode has ended (Sutherland & Harrell, 1986; Roberts & Weerts, 1982). In addition, visceral reactions to imaginary events have the capacity to fuel the symptoms of a range of psychological disorders, including anxiety, social phobia, and PTSD (see Holmes & Mathews, 2010). One way to minimize these reactions, however, is to distance one's self from disagreeable or

stressful events through the adoption of a third-person vantage point during mental imagery (Kross, 2009; Williams & Moulds, 2008).

Taking distancing to an extreme, it has been suggested that people sometimes consider their future self like a stranger, making self-relevant judgments and decisions much as they would for another person (e.g., Pronin et al., 2008; Pronin & Ross, 2006; Wakslak et al., 2008). What this suggests is that when self-relevant episodes are simulated from a third-person vantage point (e.g., distant-future events), the imagined version of the self may be stripped of the experiential components that produce the corporeal feeling of personal identity, hence blurring the boundary between the self and others (Hershfield, 2011; Mitchell, Schirmer, Ames, & Gilbert, 2011; Pronin & Ross, 2006). In this way, shifts in vantage point have important implications for the temporal continuity of self. Connectedness with future me depends on the extent to which conceptions of one's current and future self are deemed to be similar (Parfit, 1971, 1987). As such, if distant simulations trigger adoption of third-person (cf. first-person) imagery in which similarity is reduced, this likely exerts considerable influence on a raft of judgments and behaviors in the here and now (Hershfield, 2011).

5. Conclusions

Exploring the natural properties of mental imagery, here we demonstrated that temporal projection is characterized by natural shifts in visual perspective (Duval & Wicklund, 1972; Pronin & Ross, 2006; Wicklund, 1975). When simulating an event in the distant future, participants adopt an experiential vantage point in which they view themselves from an outside perspective (i.e., third-person perspective). In contrast, first-person imagery (i.e., actor perspective) dominates the simulation of a near-future event. These shifts in vantage point — hence self-awareness — likely serve a pivotal function in social cognition, the precise nature of which has yet to be elucidated (Libby & Eibach, 2011). What is apparent, however, is that important insights into this phenomenon can be garnered from a simple drawing task. As Haas (1984, p. 797) observed,

“Drawing letters on one’s forehead is not a behavior that is important in its own right. But it may be a useful technique for studying those various aspects of perspective taking that have served as the ground beneath many psychological theories.”

References

- Addis, D.R., Wong, A.T., & Schacter, D.L. (2007). Remembering the past and imagining the future: Common and distinct neural substrates during event construction and elaboration. *Neuropsychologia*, *45*, 1363-1377.
- Barsalou, L.W. (1999). Perceptual symbol systems. *Behavioral and Brain Sciences*, *22*, 577-660.
- Boyer, P. (2008). Evolutionary economics of mental time travel? *Trends in Cognitive Sciences*, *12*, 219-224.
- Buckner, R.L., & Carroll, D.C. (2007). Self-projection and the brain. *Trends in Cognitive Science*, *11*, 49-57.
- Buehler, R., Griffin, D., Lam, K.C.H., & Deslauriers, J. (2012). Perspectives on prediction: Does third-person imagery improve task completion estimates? *Organizational Behavior and Human Decision Processes*, *117*, 138-149.
- Christian, B.M., Miles, L.K., Fung, F.H.K., Best, S., & Macrae, C.N. (2013). The shape of things to come: Exploring goal-directed prospection. *Consciousness and Cognition*, *22*, 471-478.
- Christian, B.M., Miles, L.K., Parkinson, C., & Macrae, C.N. (2013). Visual perspective and the characteristics of mind wandering. *Frontiers in Psychology*, *4*, 699.
- Christian, B.M., Parkinson, C., Macrae, C.N., Miles, L.K., & Wheatley, T.P. (2015). When imagining yourself in pain, visual perspective matters: The neural and behavioral correlates of simulated sensory experiences. *Journal of Cognitive Neuroscience*, *27*, 866-875.
- Cohen, D., Hoshino-Browne, E., & Leung, A.K. (2007). Culture and the structure of personal experience: Insider and outsider phenomenologies of the self and social world. *Advances in Experimental Social Psychology*, *39*, 1-67.
- Cooley, C.H. (1902). *Human nature and social order*. New York: Scribner's.

- D'Argembeau, A., Comblain, C., & Van der Linden, M. (2003). Phenomenal characteristics of autobiographical memories for positive, negative, and neutral events. *Applied Cognitive Psychology, 17*, 281-294.
- Duval, S., & Wicklund, R.A. (1972). *A theory of objective self-awareness*. New York: Academic press.
- Eichstaedt, J., & Silvia, P.J. (2003). Noting the self: Implicit assessment of self-focused attention using word recognition latencies. *Social Cognition, 21*, 349-361.
- Freitas, A.L., Salovey, P., & Liberman, N. (2001). Abstract and concrete self-evaluative goals. *Journal of Personality and Social Psychology, 80*, 410-424.
- Frank, M.G., & Gilovich, T. (1989). Effect of memory perspective on retrospective memory causal attributions. *Journal of Personality and Social Psychology, 57*, 399-403.
- Galinsky, A.D., Magee, J.C., Inesi, M.E., & Gruenfeld, D.H. (2006). Power and perspectives not taken. *Psychological Science, 17*, 1068-1074.
- Gilbert, D.T., & Wilson, T.D. (2007). Prospection: Experiencing the future. *Science, 317*, 1351-1354.
- Haas, R.G. (1984). Perspective taking and self-awareness: Drawing an E on your forehead. *Journal of Personality and Social Psychology, 46*, 788-798.
- Heller, D., Stephan, E., Kifer, Y., & Sedikides, C. (2011). What will I be? The role of temporal perspective in predictions of affect, traits, and self-narratives. *Journal of Experimental Social Psychology, 47*, 610-615.
- Hershfield, H.E. (2011). Future self-continuity: How conceptions of the future self transform intertemporal choice. *Annals New York Academy of Sciences, 1235*, 30-43.
- Holmes, E.A., & Mathews, A. (2010). Mental imagery in emotion and emotional disorders. *Clinical Psychology Review, 30*, 349-362.
- James, W. (1890). *The principles of psychology (Vol. 1)*. Cambridge, MA: Harvard University Press.

- Killingsworth, M. A., & Gilbert, D. T. (2010). A wandering mind is an unhappy mind. *Science*, 932.
- Kross, E. (2009). When the self becomes other. *Annals of the New York Academy of Sciences*, 1167, 35-40.
- Libby, L.K., & Eibach, R.P. (2002). Looking back in time: Self-concept change affects visual perspective in autobiographical memory. *Journal of Personality and Social Psychology*, 82, 167-179.
- Libby, L.K., & Eibach, R.P. (2011). Visual perspective in mental imagery: A representational tool that functions in judgment, emotion, and self-insight. *Advances in Experimental Social Psychology*, 44, 185-245.
- Libby, L.K., Valenti, G., Hines, K.A., & Eibach, R.P. (2014). Using imagery perspective to access two distinct forms of self-knowledge: Associative evaluations versus propositional self-beliefs. *Journal of Experimental Psychology: General*, 143, 492-497.
- Libby, L.K., Shaeffer, E.M., Eibach, R.P., & Slemmer, J.A. (2007). Picture yourself at the polls: Visual perspective in mental imagery affects self-perception and behavior. *Psychological Science*, 18, 199-203.
- Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology*, 75, 5-18.
- Liberman, N., & Trope, Y. (2008). The psychology of transcending the here and now. *Science*, 322, 1201-1205.
- Liberman, N., Trope, Y., McCreary, S.M., & Sherman, S.J. (2007). The effect of level of construal on the temporal distance of activity enhancement. *Journal of Experimental Social Psychology*, 43, 143-149.
- Lorenz, C., & Neisser, U. (1985). Factors of imagery and event recall. *Memory & Cognition*, 13, 494-500.

- Macrae, C.N., Christian, B.M., Golubickis, M., Karanasiou, M., Troksiarova, L., McNamara, D.L., & Miles, L.K. (2014). When do I wear me out? Mental simulation and the diminution of self-control. *Journal of Experimental Psychology: General*, *143*, 1755-1764.
- Macrae, C.N., Sunder Raj, R., Best, S.B., Christian, B.M., & Miles, L.K. (2013). Imagined sensory experiences can shape person perception: It's a matter of visual perspective. *Journal of Experimental Social Psychology*, *49*, 595-598.
- Marks, D.F. (1973). Visual imagery differences in the recall of pictures. *British Journal of Psychology*, *64*, 17-24.
- McIsaac, H.K., & Eich, E. (2002). Vantage point in episodic memory. *Psychonomic Bulletin and Review*, *9*, 146-150.
- Mead, G.H. (1934). *Mind, self and society*. Chicago: University of Chicago Press.
- Miles, L.K., Christian, B.M., Masilamani, N., Volpi, L., & Macrae, C.N. (2014). Not so close encounters of the third kind: Visual Perspective and Imagined Social Interaction. *Social Psychological and Personality Science*, *5*, 558-565.
- Mitchell, J.P., Schirmer, J., Ames, D.L., & Gilbert, D.T. (2011). Medial prefrontal cortex predicts intertemporal choice. *Journal of Cognitive Neuroscience*, *23*, 1-10.
- Morin, A. (2011). Self-awareness part 1: Definition, measures, effect, functions, and antecedents. *Social and Personality Psychology Compass*, *10*, 807-823.
- Moulton, S.T., & Kosslyn, S.M. (2009). Imagining predictions: Mental imagery as mental emulation. *Philosophical Transactions of the Royal Society B*, *364*, 1273-1280.
- Nigro, G., & Neisser, U. (1983). Point of view in personal memories. *Cognitive Psychology*, *15*, 467-482.
- Oyserman, D., Coon, H.M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin*, *128*, 3-72.
- Parfit, D. (1971). Personal Identity. *Philosophical Review*, *80*, 3-27.

- Parfit, D. (1987). *Reasons and Persons*. Oxford: Clarendon Press.
- Petkova, V.I., Khoshnevis, M., & Ehrsson, H.H. (2011). The perspective matters!
Multisensory integration in ego-centric reference frames determines full-body ownership. *Frontiers in Psychology*, 2, 35.
- Pham, L.B., & Taylor, S.E. (1999). From thought to action: Effects of process- versus outcome-based mental simulations on performance. *Personality and Social Psychology Bulletin*, 25, 250-260.
- Piaget, J. (1926). *The child's conception of the world*. London: Routledge and Keegan Paul.
- Pronin, E., Olivola, C.Y., & Kennedy, K.A. (2008). Doing unto future selves as you would do unto others: Psychological distance and decision making. *Personality and Social Psychology Bulletin*, 34, 224-236.
- Pronin, E., & Ross, L. (2006). Temporal differences in trait self-ascription: When the self is seen as an other. *Journal of Personality and Social Psychology*, 90, 197-209.
- Rice, H.J., & Rubin, D.C. (2011). Remembering from any angle: The flexibility of visual perspective during retrieval. *Consciousness and Cognition*, 20, 568-577.
- Roberts, R.J., & Weerts, T.C. (1982). Cardiovascular responding during anger and fear imagery. *Psychological Reports*, 50, 2190-230.
- Robinson, J.A., & Swanson, K.L. (1993). Field and observer modes of remembering. *Memory*, 1, 169-184.
- Schacter, D.L., Addis, D.R., & Buckner, R.L. (2007). Remembering the past to imagine the future: The prospective brain. *Nature Reviews Neuroscience*, 8, 657-661.
- Smallwood, J., & Schooler, J.W. (2006). The restless mind. *Psychological Bulletin*, 132, 946-958.
- Suddendorf, T., & Corballis, M.C. (2007). The evolution of foresight: What is mental time travel and is it unique to humans? *Behavioral and Brain Sciences*, 30, 299-351.

- Sutherland, M.E., & Harrell, J.P. (1986). Individual differences in physiological responses to fearful, racially noxious, and neutral imagery. *Imagination, Cognition and Personality, 6*, 133-150.
- Szpunar, K.K. (2010). Episodic future thought: An emerging concept. *Perspectives on Psychological Science, 5*, 142-162.
- Taylor, S.E., Pham, L.B., Rivkin, I.D., & Armor, D.A. (1998). Harnessing the imagination. *American Psychologist, 53*, 429-439.
- Triandis, H.C. (1989). The self and behavior in different cultural contexts. *Psychological Review, 96*, 506-520.
- Trope, Y., Liberman, N. (2003). Construal level theory of psychological distance. *Psychological Review, 117*, 440-463.
- Trope, Y., Liberman, N. (2010). Temporal construal. *Psychological Review, 110*, 403-421.
- Updegraff, J.A., Emanuel, A.S., Suh, E.M., & Gallagher, K.M. (2010). Sheltering self from the self-construal abstractness and the stability of self-esteem. *Personality and Social Psychology Bulletin, 36*, 97-108.
- Updegraff, J.A., & Suh, E.M. (2007). Happiness is a warm abstract thought: Self-construal abstractness and subjective well-being. *Journal of Positive Psychology, 2*, 18-28.
- Vallacher, R.R., & Wegner, D.M. (1985). *A theory of action identification*. Hillsdale, NJ: Erlbaum.
- Vasquez, N.A., & Buehler, R. (2007). Seeing future success: Does imagery perspective influence achievement motivation? *Personality and Social Psychology Bulletin, 33*, 1392-1405.
- Wakslak, C.J., Nussbaum, S., Liberman, N., & Trope, Y. (2008). Representations of the self in the near and distant future. *Journal of Personality and Social Psychology, 95*, 757-773.
- Wegner, D.M., & Giuliano, T. (1980). Arousal-induced attention to self. *Journal of Personality and Social Psychology, 38*, 719-726.

- Wicklund, R.A. (1975). Objective self-awareness. *Advances in Experimental Social Psychology*, 8, 233-275.
- Wilson, T.D., & Gilbert, D.T. (2003). Affective forecasting. *Advances in Experimental Social Psychology*, 35, 345-411.
- Williams, A.D., & Moulds, M.L. (2008). Manipulating recall vantage perspective of intrusive memories in dysphoria. *Memory*, 16, 742-750.