



I can see it both ways: First- and third-person visual perspectives at retrieval

Heather J. Rice^{a,*}, David C. Rubin^b

^a Washington University in St. Louis, St. Louis, MO 63130, USA

^b Duke University, Durham, NC, 27701, USA

ARTICLE INFO

Article history:

Received 15 December 2008

Available online 18 August 2009

Keywords:

Autobiographical memory

Imagery

Visual perspective

Field perspective

Observer perspective

ABSTRACT

The number of studies examining visual perspective during retrieval has recently grown. However, the way in which perspective has been conceptualized differs across studies. Some studies have suggested perspective is experienced as either a first-person or a third-person perspective, whereas others have suggested both perspectives can be experienced during a single retrieval attempt. This aspect of perspective was examined across three studies, which used different measurement techniques commonly used in studies of perspective. Results suggest that individuals can experience more than one perspective when recalling events. Furthermore, the experience of the two perspectives correlated differentially with ratings of vividness, suggesting that the two perspectives should not be considered in opposition of one another. We also found evidence of a gender effect in the experience of perspective, with females experiencing third-person perspectives more often than males. Future studies should allow for the experience of more than one perspective during retrieval.

© 2009 Elsevier Inc. Open access under [CC BY-NC-ND license](https://creativecommons.org/licenses/by-nc-nd/4.0/).

1. Introduction

When remembering an event, such as a childhood beachside vacation, individuals often report re-experiencing images related to the event. For example, an individual might visualize him- or herself sitting on the beach, watching as the waves lap over their feet and the sun shines on their head. Although this imagery can be experienced in several sensory modalities (e.g., the sound of the waves or the warmth of the sun), visual images are more commonly reported than other modalities (Rubin, Schrauf, & Greenberg, 2003). Rather than simply being frequent, it has been argued that these visual images are integral to the retrieval of autobiographical memories (e.g., Brewer, 1986; Brewer, 1996; Greenberg & Rubin, 2003; Rubin, 2005; Rubin & Greenberg, 1998). Thus, to understand autobiographical memory retrieval, we must understand the role of the visual imagery accompanying retrieval.

One aspect of visual images that has drawn growing attention in recent years is the perspective from which an image is viewed. In the scenario above, the event is recalled from a third-person perspective; the image originates from an external viewpoint as though observing the original event as an onlooker. Conversely, an event might be recalled from a first-person perspective, which is an image that originates from the same viewpoint experienced at encoding. These perspectives have also been referred to as observer and field perspectives, respectively (Nigro & Neisser, 1983).

Although the distinction between first- and third-person perspectives was first introduced over 100 years ago (Freud, 1899/1953; Henri & Henri, 1896), this aspect of imagery was largely ignored until Nigro and Neisser (1983) experimentally

* Corresponding author. Address: Washington University in St. Louis, Department of Psychology, Campus Box 1125, St. Louis, MO 63130, USA.
E-mail address: hrice@wustl.edu (H.J. Rice).

examined it. Since this first study, the examination of perspective's role in autobiographical memory retrieval has grown slowly. Ten years later, a total of eight studies had included a measure of perspective, with only one focusing specifically on the role of perspective in retrieval (Robinson & Swanson, 1993). Five years after that, the number had only grown to 18. However, in the past 10 years over 50 additional studies have included a measure of perspective. For example, visual perspective has been examined in studies of emotion (Berntsen & Rubin, 2006; D'Argembeau, Comblain, & Van Der Linden, 2003; Gollnisch & Averill, 1993; Robinson & Swanson, 1993; Strongman & Kemp, 1991; Talarico, LaBar, & Rubin, 2004), flashbulb memories (Bohn & Berntsen, 2007; Talarico & Rubin, 2003; Talarico & Rubin, 2007), gender differences (Huebner & Fredrickson, 1999), cultural differences (Cohen & Gunz, 2002), remember/know judgments of childhood memories (Crawley & French, 2005), true and false memories (Heaps & Nash, 2001), imagination inflation (Libby, 2003; Sharman, Garry, & Hunt, 2005), projecting one's self into the past and future (D'Argembeau & Van der Linden, 2004) and the effect of aging and traumatic brain injury on autobiographical memory retrieval (Piolino et al., 2006; Piolino et al., 2007; Piolino et al., 2007).

This growing literature has shown that perspective is not simply an aspect of phenomenology that "comes along for the ride" during retrieval, but rather can affect how we think and feel about memories. For example, perspective can affect the emotional intensity experienced during recall (Berntsen & Rubin, 2006; Robinson & Swanson, 1993), the type of information individuals recall (McIsaac & Eich, 2002), and how similarly individuals rate current selves compared to past selves (Libby & Eibach, 2002; Libby, Eibach, & Gilovich, 2005). In addition, perspective seems to play a role in several clinical disorders, such as depression (Kuyken & Howell, 2006; Lemogne et al., 2006; Williams & Moulds, 2007), social anxiety (e.g., Coles, Turk, & Heimberg, 2002; Coles, Turk, Heimberg, & Fresco, 2001; Hackmann, Surway, & Clark, 1998; Spurr & Stopa, 2003; Stopa & Bryant, 2004; Wells, Clark, & Ahmad, 1998; Wells & Papageorgiou, 1999), agoraphobia (Day, Holmes, & Hackmann, 2004; Wells & Papageorgiou, 1999), body dysmorphic disorder (Osman, Cooper, Hackmann, & Veale, 2004), obsessive-compulsive disorder (Terry & Barwick, 1995; Terry & Barwick, 1998/1999), and post-traumatic stress disorder (Berntsen, Willert, & Rubin, 2003; Kenny & Bryant, 2007; McIsaac & Eich, 2004; Porter & Birt, 2001).

However, as this literature grows, fundamental questions about the construct still remain unanswered. For example, a review of the literature reveals that the way perspective has been conceptualized differs substantially across studies. Consider Nigro and Neisser's (1983) study in which they used the "terms observer memory and field memory for... two kinds of recollection (p. 468)." This terminology, an "observer memory" or a "field memory," suggests that a memory is recalled using only one perspective. For example, when recalling a childhood beach vacation, one would use *either* a first-person perspective or a third-person perspective. The response alternatives provided to participants by Nigro and Neisser support this characterization; participants could respond "field," "observer," or "neither." Many investigations have adopted a similar methodology (e.g., Brewer & Pani, 1996; Crawley & French, 2005; D'Argembeau et al., 2003; Frank & Gilovich, 1989; Kihlstrom & Harackiewicz, 1982; Kuyken & Howell, 2006; Libby, 2003; McNamara, Benson, McGenny, Brown, & Albert, 2005; Robinson & Swanson, 1993; Strongman & Kemp, 1991), which corresponds with the notion that a memory is *either* first-person or third-person.

Others seem to take a similar standpoint but use a different methodology in which participants respond using a continuous scale. For example, Wells and colleagues (1998) used a continuous scale anchored at -3 (first-person) and $+3$ (third-person) to test the hypothesis that individuals with social phobia would remember social events using a third-person perspective when compared to a control group. The mean perspective rating was positive for the social phobia group and negative for the control group. The authors concluded that "social phobics took a markedly observer perspective, whereas controls generally took a field perspective" (p. 633). This implies that perspective ratings above the median value of their scale corresponded to a third-person perspective; those below the median value corresponded to first-person perspective. Thus, memories were experienced as *either* first-person or third-person perspective.

However, two pieces of evidence suggest this is not an accurate characterization of perspective. First, Robinson and Swanson (1993) demonstrated that individuals were able to shift the perspective they used during retrieval. That is, if an event was initially remembered using a first-person perspective, individuals could then change their image to a third-person perspective after a short delay (see also Berntsen & Rubin, 2006). This suggests a memory is not a "first-person memory" or a "third-person memory," but rather perspective can change, along with other aspects of an event, during retrieval.

Second, several studies have demonstrated that the perspective experienced during retrieval can change within a single retrieval attempt. For example, when remembering a childhood beach vacation, a third-person perspective image may initially come to mind followed by a first-person perspective. The earliest study to hint at this possibility provided two scales to participants, one corresponding to first-person perspective and the other to third-person perspective (Gollnisch & Averill, 1993). This type of measurement suggests the experience of first-person and third-person perspectives is independent of one another; analogous methods have been used by others (Berntsen et al., 2003; Bohn & Berntsen, 2007). Similarly, others have provided participants with a "field/observer" response in addition to the standard "field" and "observer" responses (Piolino, Chetelat et al., 2007; Piolino, Desgranges et al., 2007; Piolino et al., 2004; Piolino et al., 2006; Viard et al., 2007). In these studies, individuals did make responses consistent with the experience of more than one perspective. However, these responses were less common than responses indicating the experience of a single perspective. Others have used single scales that allow for the experience of more than one perspective per retrieval attempt. For example, Porter and Birt (2001) used a 3-point scale whose values corresponded to "never seeing one's self," "seeing one's self sometimes," and "always seeing one's self in their image" (see also Huebner & Fredrickson, 1999). These findings suggest that the experience of one perspective does not prohibit the experience of the other, contrary to the notion of "first-person memories" and "third-person memories".

Another standpoint is that the two perspectives are complementary to one another; a greater experience of one perspective corresponds to a lesser experience of the other. An example of this is provided by a study examining social phobia and recall of social situations (Coles et al., 2002). Participants responded using a single scale anchored at “field” and “observer.” The authors conclude that individuals with social phobias recalled social situations “from a more observer/less field perspective” than control participants (p. 422). This same characterization is used by the Memory Experiences Questionnaire (Sutin & Robins, 2007), which measures perspective using 6 questions. Three of the questions pertain to participants’ experience of a first-person perspective questions and the remaining three pertain to third-person perspective. The third-person perspective ratings are then reverse coded in order to create a perspective score. Thus, a high rating on a third-person perspective measure is equated with a low rating on a first-person perspective scale.

It should be noted that reviewing the manner in which perspective has been discussed and measured is not presented as a critique, but as a means of illustrating that our understanding of perspective is still rather vague and even conflicts across studies. Furthermore, issues of measurement are raised because they should reflect the underlying representation of the construct they measure. For example, using a measure in which participants can respond *either* “first-person” or “third-person” reflects a different phenomenological experience from a measure that allows for a mix of perspectives.

Based on this review, there are three common ways of characterizing the experience of perspective. First, memories can be either first-person or third-person, but not both; only one perspective can be experienced during a particular retrieval attempt. This will be referred to as the “mutually exclusive framework.” Second, the two perspectives are two ends of a continuum and are complementary. An individual may be able to experience both perspectives during a single retrieval episode, but the experience of more of one necessitates the experience of less of the other. This will be referred to as the “complementary framework.” Third, individuals can experience both a first- and third-person perspective during recall and they are not dependent on one another; individuals can experience a strong first-person perspective and strong third-person perspective during the same retrieval attempt. This will be referred to as the “independent framework.”

The current study examines the feasibility of these three frameworks by observing the response patterns provided by individuals using two measurement techniques favored by perspective studies, as well as a novel technique. If the mutually exclusive framework is correct, participants’ responses should be consistent with the experience of either a first-person or a third-person perspective, but not both perspectives, regardless of the format of response options. If the complementary framework is correct, participants should respond in a way that indicates they can experience more than one perspective during a single retrieval episode; yet, memories that are more third-person should also be less first-person, and vice versa. Finally, if the independent framework is correct, participants should respond in a way that indicates they can experience more than one perspective during a retrieval episode regardless of the response options they are given. In all three frameworks, it is possible for participants to respond that they have a very weak experience of both first-person and third-person perspective. However, only in the independent framework can participants respond that they have a very strong experience of both experiences.

These alternatives were examined in three studies that varied the response options provided to participants. Studies 1 and 2 used response options common to perspective studies. In Study 1, participants responded using a single continuous scale, anchored at first-person and third-person perspective. In Study 2, participants responded using two continuous scales, one corresponding to first-person and the other to third-person. Study 3 used a novel technique in which participants were asked to describe as many perspectives as they experienced.

In all three studies, participants recalled events from five specific time periods spread across their lifetimes. Time periods were used for two reasons, both of which relate to the finding that remote memories are more often remembered using a third-person rather than first-person perspective (Frank & Gilovich, 1989; Nigro & Neisser, 1983; Piolino, Desgranges et al., 2007; Piolino et al., 2006; Robinson & Swanson, 1993; Pronin & Ross, 2006; cf., Brewer & Pani, 1996; Sutin & Robins, 2007; Viard, et al., 2007). First, asking for memories from a range of time periods helped ensure that participants would experience both first- and third-person perspectives. Second, the relationship between perspective and memory age is one of the most consistent findings within the perspective literature, which we used to our advantage. Given this finding is reliable across studies, we should find similar effects with any valid measure of perspective. In addition, if we find responses consistent with the complementary or independent frameworks, a reassessment of previous studies using a dichotomous response option may be necessary.

Based on previous findings showing that, when given the option, individuals respond in a way that indicates the experience of more than one perspective for a particular memory (e.g., Huebner & Fredrickson, 1999; Piolino et al., 2004; Piolino et al., 2006; Piolino, Chetelat et al., 2007; Piolino, Desgranges et al., 2007), it was predicted that participants’ responses would support the independent framework. It was also predicted that the effect of memory age would be observed as in previous studies. This was based primarily on a study that adopted the “complementary framework” and found a correlation between perspective and memory age similar to other studies (Sutin & Robins, 2007). Thus, it was expected that the effect would be robust enough to hold across measurement techniques.

Finally, given that evidence exists to support the independent framework, one may wonder why an examination of these frameworks is necessary. The primary motivation is that even though evidence for the independent framework has been presented, techniques that correspond to the mutually exclusive and complementary frameworks are still most commonly used. To understand perspective and how it operates in autobiographical memory, there must be agreement about how individuals experience perspective and the way in which perspective is measured should reflect this experience. This is particularly important given the growing number of studies examining perspective. Moreover, a series of three studies using different

measures, but the same participant population and event cues, will allow a more direct comparison of the common response measures.

2. Study 1: Are first- and third-person perspectives mutually exclusive?

Individuals were asked to recall memories from five specific time periods and rate the perspective they experienced using a single continuous scale anchored at first- and third-person perspectives. If perspective is mutually exclusive (i.e., only first-person or third-person perspective can be experienced during a single retrieval episode), intermediate values on the scale should rarely be endorsed. The use of intermediate values will provide support for either the complementary or independent frameworks, although it will not be possible to distinguish between the two in this study.

After rating the perspective they experienced for all five events, participants were then asked to reinstate each memory, change the perspective they used as much as possible, and then re-rate their perspective. If the experience of perspectives is mutually exclusive, individuals should shift their rating from one extreme on the scale to the other. However, if intermediate values are used after shifting perspective, this will provide support for either the complementary or independent framework.

Finally, we examined how perspective ratings changed across time periods to determine if using a single scale would replicate previous studies. We predicted that more remote memories would be rated as more third-person perspective than recent memories. We also examined gender differences in the experience of perspective; previous studies suggest females experience third-person perspectives more often than males (Huebner & Fredrickson, 1999).

2.1. Method

2.1.1. Participants

1191 Duke University undergraduates (706 females; mean age = 18.75) were tested in large group settings for partial class credit.

2.1.2. Materials and procedure

Participants read a short description of the distinction between remembering an event through one's own eyes (first-person) or from an observer's perspective (third-person; see Appendix for full description). They were then asked to recall one event from each of the following five time periods: before first grade, during elementary school, during middle school/junior high, during high school, during college. Approximately half of the participants ($n = 694$) recalled the events in chronological order (i.e., before first grade to during college), whereas the remaining participants recalled events in the reverse order (i.e., during college to before first grade). Participants indicated the perspective they used when imagining the event using the following scale, "When remembering the event, do you see the event through *your own eyes* or as an *outside observer*?" Responses were anchored at "own eyes" and "observer" (1 = own eyes; 7 = observer).

After recalling all five events and rating their perspective, participants were asked to change their perspective and re-rate their perspective. Participants were given the following instructions: "Now that you have rated your memory on whether it came to you through your own eyes or as an outside observer, we would like you to try to *switch your perspective*. In other words, if the last memory you remembered was through your own eyes, we would like you to try and switch your perspective, so that you now see the scene as though you were observing it, and vice versa. After you try to change your perspective we would like you to *re-rate the memory* on the same scale that you used before. For example, if you rated the memory as a 2 before and when you try to change your perspective you can't, we want you to rate your memory as a 2 again. If you can change your perspective so that you see it a little bit more as an observer, but not completely you might rate it as a 4 or 5. If you can completely change your perspective and see your memory completely as an observer, then you might rate it as a 7 now."

2.2. Results

2.2.1. Original perspective ratings – distribution of responses

The distribution of responses for each time period were examined to determine whether individuals used all available responses or primarily endorsed extremes on the scale. Table 1 displays the number of times each response on the

Table 1

Frequency of initial rating responses (on scale from 1–7) for each time period in Study 1.

Initial response	Before elementary	Elementary school	Middle school	High school	College
1 – First-person	252 (21%)	237 (20%)	287 (24%)	426 (36%)	550 (47%)
2	139 (12%)	188 (16%)	199 (17%)	211 (18%)	209 (18%)
3	98 (8%)	165 (14%)	139 (12%)	142 (12%)	98 (8%)
4	69 (6%)	98 (8%)	126 (11%)	72 (6%)	72 (6%)
5	135 (11%)	165 (14%)	172 (14%)	128 (11%)	84 (7%)
6	242 (21%)	197 (16%)	161 (13%)	129 (11%)	94 (8%)
7 – Third-person	242 (21%)	138 (12%)	103 (9%)	79 (6%)	71 (6%)

Note: Percentage of memories given each rating for each time period presented in parentheses.

seven-point scale was endorsed for each time period. The percentage of memories rated not using the extremes of the scales (i.e., 1 or 7) were as follows: before first grade – 58.03%, elementary school – 68.43%, middle school – 67.14%, high school – 57.46%, college – 47.28%. Thus, participants used intermediate values and responses were not limited to the two extremes, contrary to the mutually exclusive framework.

2.2.2. Original perspective ratings – effect of time, gender, and questionnaire order

To examine the relationship between perspective and memory age, participants' perspective ratings were subjected to a five (time period: before first grade, elementary school, middle school, high school and college) \times 2 (questionnaire order: chronological or reverse chronological) \times 2 (gender: female or male) mixed model ANOVA treating time period as a within-subject factor and all other variables as between-subjects factors. Unless otherwise stated, statistical significance was set at $p < .05$.

As expected from previous literature, there was a main effect of time period, $F(4, 4608) = 131.48$, in which remote memories were rated as more third-person than recent memories (see Fig. 1, Panel A). Post-hoc comparisons indicated all time periods were significantly different from each another, smallest $t(1152) = 14.51$. There was a significant main effect of questionnaire order, $F(1, 1152) = 37.15$, such that remembering a college memory first (i.e., reverse chronological order) led to a greater experience of third-person perspective regardless of time period. There was a significant effect of gender, $F(1, 1152) = 8.20$, with females rating their memories as more third-person than males (see Table 2 for summary). All interactions were nonsignificant. Thus, we were able to replicate previous findings using a continuous scale; more remote memories were remembered using a third-person perspective more often than recent memories (see Fig. 1, Panel A). In addition, we found that females were more likely to use a third-person perspective than males, similar to previous findings (Huebner & Fredrickson, 1999).

2.2.3. Change perspective ratings – distribution of responses

In order to examine whether or not individuals shifted their perspective ratings in a continuous manner, responses were examined as a function of participants' initial ratings and change ratings. For example, the number of memories given an initial rating of 1 and a change rating of 1 across all time periods was determined, as well as the number of memories given an initial rating of 2 and change rating of 1, an initial rating of 3 and change rating of 1, etc., regardless of time period. From Fig. 2, it is clear that participants made their change ratings in a continuous manner. That is, rather than beginning at, or near, a 1 and then shifting to a 7, or vice versa, it was common to begin at an intermediate value and shift to an intermediate value. Table 3 presents the frequency counts for each change rating separately for each time period, which also makes clear that intermediate values were commonly used for change ratings.

2.2.4. Change perspective ratings – effect of time

In addition, we examined how time affected the ability to shift perspective by examining how much ratings changed from the initial retrieval to the second retrieval. To do this, we must consider that the amount of change possible was limited by individuals' initial ratings. For example, a rating of 1 or 7 could move 6 points, whereas a rating of 3 or 5 could only move 4 points. Because of this, a proportion change score was calculated (i.e., actual change/maximum possible change) to examine perspective change normalized by total change possible. For example, if an individual first rated their perspective as a 1 and then changed to a 5, their proportion change would be $-4/-6$, or .67. If an individual started at a 6 and changed to 3, their proportion change score would be $3/5$ or .60. Analyses were limited to participants with both original and change ratings for all five time periods ($n = 996$, females = 598). The means are presented in Table 4.

To examine the effect of time period, questionnaire order, and gender on proportion change, data were subjected to a $5 \times 2 \times 2$ ANOVA. There was a significant main effect of time period, $F(4, 3968) = 46.34$. Post-hoc t -tests revealed no difference between high school and college time periods, $t(992) = 0.78$, but all other time periods were different from each other, smallest $t(992) = 4.06$. There was no main effect of questionnaire order, $F(1, 992) = 2.74$, or gender, $F(1, 992) = 1.76$. The

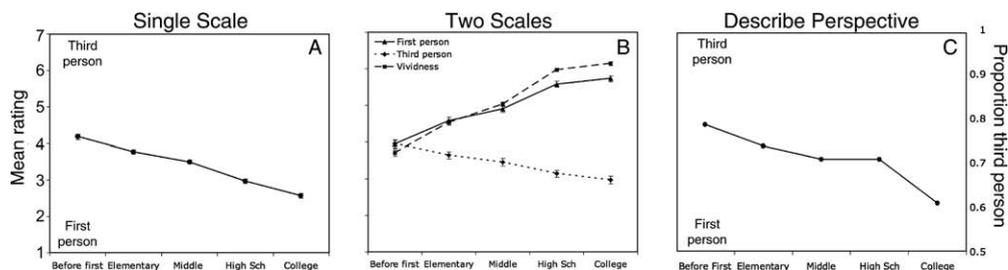


Fig. 1. Perspective responses from Study 1 (Panel A), Study 2 (Panel B), and Study 3 (Panel C). Panel A shows participants' mean perspective ratings using a single scale to rate memories from five different time periods. Panel B shows mean responses on two perspective scales, one referring to first-person perspective and the other to third-person perspective, for the same five time periods. Mean responses on a vividness scale are also depicted. Panel C shows the proportion of third-person perspective reported by participants for the same five time periods. Standard errors are shown in Panels A and B.

Table 2

Means and standard deviations of visual perspective ratings by gender and questionnaire order across time in Study 1.

Time period	Female		Male	
	Chron.	Reverse chron.	Chron.	Reverse chron.
Before first grade	4.23 (2.27)	4.44 (2.31)	3.82 (2.27)	4.27 (2.31)
Elementary school	3.73 (2.08)	4.10 (2.31)	3.44 (2.14)	3.83 (1.97)
Middle school	3.35 (2.01)	3.98 (2.09)	3.05 (2.01)	3.71 (1.94)
High school	2.74 (1.97)	3.42 (2.13)	2.71 (1.94)	3.22 (2.10)
College	2.36 (1.83)	3.01 (2.17)	2.37 (1.92)	2.66 (1.95)

Note: Significant main effects of gender and questionnaire order were observed. Chron. = Questionnaire order beginning at "Before first grade" and ending with "College"; reverse chron. = questionnaire order beginning at "College" and ending with "Before first grade." SD presented in parentheses.

		Change rating						
		1	2	3	4	5	6	7
Initial rating	1	149	115	137	176	297	254	360
	2	13	42	80	130	190	243	112
	3	9	6	36	70	127	174	124
	4	31	26	22	57	49	73	82
	5	101	140	163	103	46	73	82
	6	80	163	169	136	74	58	10
	7	91	98	98	65	61	60	52

Fig. 2. The number of memories given all combination of initial perspective ratings and ratings after participants were asked to change their perspective. Numbers represent raw frequencies.

Table 3

Frequency of change rating responses (on scale from 1–7) for each time period in Study 1.

Change response	Before elementary	Elementary school	Middle school	High school	College
1	79 (8%)	68 (7%)	84 (8%)	130 (13%)	113 (11%)
2	103 (10%)	119 (12%)	140 (14%)	112 (11%)	116 (12%)
3	182 (18%)	156 (16%)	146 (15%)	114 (12%)	107 (11%)
4	169 (17%)	190 (19%)	141 (14%)	110 (11%)	127 (13%)
5	183 (18%)	172 (17%)	169 (17%)	159 (16%)	161 (16%)
6	164 (17%)	175 (17%)	186 (19%)	178 (18%)	172 (17%)
7	116 (12%)	116 (12%)	130 (13%)	193 (19%)	200 (20%)

Note: Percentage of memories with each change rating response for each time period presented in parentheses.

interaction between time period and questionnaire order was significant, $F(4, 3968) = 2.82$, and as shown in Table 4 was caused by minor differences that have no clear theoretical interpretation. No other interaction was significant.

3. Study 2: First- and third-person perspective as independent

In Study 1, individuals did use intermediate values to rate their perspective when given a continuous scale, as well as when they were asked to change their perspective. These types of responses are inconsistent with the mutually exclusive framework, and are consistent with both the complementary or separate-by-related frameworks. However, it is unclear which of these two is a more appropriate representation based on this study. Furthermore, a potential critique of the study

Table 4

Means and standard deviations of change ratings across time periods and questionnaire order in Study 1.

Time period	Chron.	Reverse chron.
Before first grade	0.50 (0.32)	0.43 (0.37)
Elementary school	0.56 (0.35)	0.50 (0.36)
Middle school	0.51 (0.43)	0.50 (0.41)
High school	0.62 (0.39)	0.63 (0.33)
College	0.61 (0.39)	0.62 (0.32)

Note: Significant main effect of time period was observed, as well as an interaction between time period and questionnaire order. Chron. = Questionnaire order beginning at "Before first grade" and ending with "College"; Reverse Chron. = Questionnaire order beginning at "College" and ending with "Before first grade." SD presented in parentheses.

is that it is unclear to what the intermediate values refer. That is, does the endorsement of an intermediate value necessarily represent a mixture of first- and third-person perspectives? Or it is possible that a 5, for example, represents a less vivid third-person perspective? If the latter is true, the endorsement of intermediate values may not be inconsistent with the mutually exclusive framework.

Thus, to further investigate the underlying representation of perspective, in Study 2 participants were asked to rate their perspective using two scales, one referring to the experience of first-person perspective and the other to the experience of third-person perspective. If the experience of the two perspectives is mutually exclusive, participants should rate their experience of one perspective as very high on one scale and very low on the other. If the experience of perspective is complementary, as ratings move closer to one extreme on one scale, they should move closer to the opposite extreme on the other scale. If the two perspectives are independent, ratings on the two scales should be independent of one another.

In addition, participants were asked to rate the vividness of their imagery. This was done to examine the distinction between the complementary and independent frameworks. Previous studies have found first-person perspectives to be associated with more vivid imagery than third-person perspectives (Nigro & Neisser, 1983; Robinson & Swanson, 1993). Given this, there are several possible relationships that could be observed between vividness and the two perspective scales, and that would be interpretable within our frameworks. First, first-person ratings will correlate positively with vividness ratings, whereas third-person ratings will correlate negatively with vividness ratings. This pattern would suggest that perspective is complementary. Second, ratings of one perspective will correlate with vividness, whereas the other perspective will not. This pattern would suggest that perspective is independent. Third, neither perspective will correlate with vividness, which would suggest that the relationship observed in previous studies may have been a function of the measurement method used.

The effect of time was also examined with the expectation that more remote memories would be rated as more third-person and less first-person than recent memories. In addition, gender differences and the effect of questionnaire order were examined given the effects observed in Study 1.

3.1. Method

3.1.1. Participants

405 Duke University undergraduates (258 females; mean age = 18.84) were tested in large group settings for partial class credit.

3.1.2. Materials and procedure

Participants first read a description of the distinction between first- and third-person perspectives in memory and recalled an event from five time periods as in Experiment 1 (see Appendix for exact instructions). Approximately half of the participants ($n = 212$) recalled the events in chronological order (i.e., before first grade to during college), whereas the remaining participants recalled events in the reverse order (i.e., during college to before first grade). First, participants rated the vividness of each memory on a 7-point scale (1 = not vivid at all, 7 = as vivid as if it were happening now). Then they rated perspective using two separate 7-point scales. One scale referred to the degree the participant experienced the memory from their own eyes (1 = not at all, 7 = completely) and the other to the experience of an observer's perspective (1 = not at all, 7 = completely).

3.2. Results

3.2.1. Distribution of responses

To examine which of the three frameworks participant responses were most consistent with, the distribution of first- and third-person perspective ratings were examined by plotting the total number of memories given all combination of the two ratings. Fig. 3A depicts the meaning of different response types, while the right panel presents the total number of memories given each response combination. If perspective is mutually exclusive, ratings should be limited to three response types: not

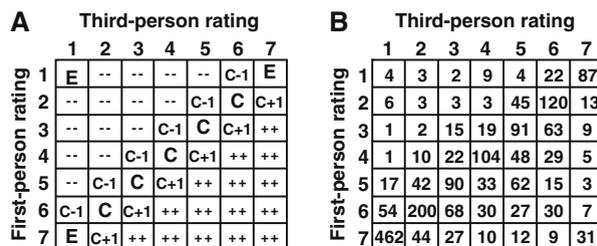


Fig. 3. The number of memories given all combination of first- and third-person perspective ratings. The panel to the left shows the hypothetical location of memory counts based on whether perspective is considered mutually exclusive (E), complementary (C & E), or using a more lenient criterion that allows for noise above (+) or below (–) the complementary characterization. The panel to the right shows the total number of memories given each particular rating by participants.

at all first-person and completely third-person (i.e., endorsed as “1” and “7”), completely first-person and not at all third-person (i.e., “7” and “1”), or no perspective (i.e., “1” and “1”). These are labeled in Panel A with an “E” for exclusive. If first- and third-person perspectives are complementary, responses should fall on the rightward leaning diagonal (cells labeled “C” and “E” in Panel A). For example, a rating of 3 on the first-person scale should result in a rating of 5 on the third-person scale (i.e., the reverse coding of 5 would be 8–5, or 3). Some noise in this type of judgment is expected; thus, a complimentary framework would likely produce responses within cells labeled C + 1 and C – 1 in Panel A. If first- and third-person perspectives are experienced independently, data points should fall across all cells.

Examining the actual data points (in Panel B), responses consistent with a mutually exclusive framework account for only 27.44% of the data. In addition, 22.60% of all memories were given a rating of 4 or higher on both scales. This suggests that, when given the opportunity, individuals will report finer distinctions in perspective than “first-person,” “third-person,” or “neither.” Taking the complementary framework by turning to the diagonal reveals that 57.24% of the data are accounted for by a single-scale approach. This increases the amount of data accounted for by the model; however, approximately half of the data still lie outside of this area. Examining the distribution of responses, much of the data fall near the diagonal or below with the majority of memories falling in a somewhat Gaussian distribution around the main diagonal. If we extend our area of interest to one cell above and below the diagonal in line with a more lenient complementary framework (labeled C + 1 and C – 1 cells in Fig. 3A), 80.64% of the data are accounted for; two cells above and below the diagonal accounts for 90.82% of the data.

Although this lenient complementary approach accounts for much of the data, it is clear that a substantial amount of the data lies below the diagonal in the area representing the experience of more than one perspective. Using a hybrid of the complementary and independent frameworks, in which data points one cell above the single-scale diagonal and all cells below are considered, accounts for 95.80% of the data. Examining the time periods separately reveals that using this hybrid approach accounts for more data for recent memories. For example, 87.65% and 88.25% of the data for high school and college memories are accounted for, respectively, using the lenient complementary approach. Using the hybrid of the complementary and independent frameworks account for 99.26% and 97.75% of the data. Thus, while the complementary framework does an adequate job of predicting participant responses, the independent framework is more inclusive. This is primarily because individuals do, in fact, report a strong experience of more than one perspective, particularly for recent memories.

3.2.2. Relationship between perspective and vividness

The distribution of responses provided support for the independent framework, although it could be argued that the complementary framework predicted participant responses adequately. To further investigate these two frameworks, the relationship between perspective ratings and vividness were examined. Correlation coefficients were calculated between these three ratings (i.e., first-person perspective, third-person perspective, imagery vividness) for each time period separately.

Across all five time periods first- and third-person perspective ratings were highly negatively correlated, $r = -.75, -.79, -.78, -.68, -.62$, in order from remote to recent, all $ps < .0001$ (degrees of freedom for the time periods were 404, 402, 405, 405, 400, respectively). First-person ratings were positively correlated with vividness ratings, $r = .29, .33, .24, .24, .20$, all $ps < .0001$. However, the only time period in which third-person perspective ratings correlated with vividness ratings was the “elementary school time period,” $r(402) = -.13, p = .007$. All other time periods were nonsignificant, $r = -.05, -.10, -.06, -.02$, all $ps > .07$. Although first- and third-person perspectives were strongly negatively related, only first-person perspective ratings were related to vividness ratings. This provides additional evidence that the experience of the two perspectives is independent rather than complementary.

To further examine the relationship between the experience of perspective and vividness ratings, participants’ vividness ratings were examined as a function of their perspective ratings. More specifically, four categories were created based on perspective ratings: primarily first-person perspective (i.e., first-person rating greater than 4 and third-person less than 5), primarily third-person perspective (i.e., third-person greater than 4 and first-person less than 5), strong experience of both perspectives (i.e., both perspectives rated greater than 4), and no distinct experience of perspective (both perspectives rated less than 5). Vividness ratings were compared across these groups using a four-level between-subjects ANOVAs for each time period. All ANOVAs were significant, $F = 8.03, 14.81, 6.24, 4.76, \text{ and } 3.80$ (in order from before first grade to college memories). Means are presented in Table 5, along with pairwise comparisons using Tukey’s HSD correction. The four most

Table 5
Vividness ratings as a function of perspective experience when measuring with 2 scales in Study 2.

Time period	Multiple	First-person	Third-person	No distinct
Before first grade	4.31 (1.92) ^a	4.06 (1.48) ^{bc}	3.57 (1.55) ^b	3.05 (1.44) ^{ac}
Elementary school	5.26 (1.06) ^{ad}	4.87 (1.35) ^{bc}	4.14 (1.31) ^{bd}	3.88 (1.33) ^{ac}
Middle school	5.39 (1.15) ^{ad}	5.20 (1.20) ^{bc}	4.74 (1.23) ^{bd}	4.61 (1.32) ^{ac}
High school	6.22 (0.92) ^d	6.04 (1.01) ^b	5.59 (1.40) ^{bd}	5.67 (1.15)
College	6.42 (0.78) ^{ad}	6.16 (1.06)	5.88 (1.06) ^d	5.74 (1.26) ^a

Note: Within each time period, matching letters indicate significant pairwise comparisons.

consistent findings across the time periods were: (1) memories with multiple perspectives were more vivid than memories rated low on both perspective scales, (2) memories with multiple perspectives were more vivid than those with a primarily third-person perspective, (3) memories accompanied by a primarily first-person perspective were rated as more vivid than memories rated low on both perspective scales, and (4) memories accompanied by a primarily first-person perspective were more vivid than memories accompanied by a primarily third-person perspective.

To summarize, vividness ratings correlated with first-person perspective ratings, but not with third-person perspective ratings, providing support for the independent framework. Generally, memories with a strong experience of both perspectives and memories with a strong experience of a first-person perspective were more vivid than memories with a strong experience of third-person perspective or a weak experience of both perspectives. These findings are consistent with previous studies, but extend them, finding that memories associated with more than one perspective are more similar to memories experienced with a first-person perspective when considering the vividness of the memory.

3.2.3. Effect of time, gender, and questionnaire order

To investigate changes in perspective and vividness across time, participants' ratings of first-person, third-person, and vividness were each subjected to a 5 (time period: before first grade, elementary school, middle school, high school and college) \times 2 (gender: female or male) ANOVA with time period treated as a within-subject factor. Means from each time period for the three ANOVAs are summarized in Fig. 1 (Panel B).

First-person perspective ratings showed a significant main effect of time period, $F(4, 1568) = 86.81$, with post-hoc comparisons revealing all time periods different from one another, smallest $t(392) = 5.78$. There was also a main effect of gender, $F(1, 392) = 6.72$, such that females rated their memories as less first-person than males (females: $M_{\text{before first}} = 3.90$, $M_{\text{elementary}} = 4.41$, $M_{\text{middle school}} = 4.71$, $M_{\text{high school}} = 5.49$, $M_{\text{college}} = 5.59$; males: $M_{\text{before first}} = 4.05$, $M_{\text{elementary}} = 4.91$, $M_{\text{middle school}} = 5.19$, $M_{\text{high school}} = 5.70$, $M_{\text{college}} = 5.96$). There was no effect of questionnaire order, $F(1, 392) = 1.05$. All interactions were nonsignificant.

Third-person ratings also showed a significant main effect of time period, $F(4, 1564) = 22.52$. Post-hoc comparisons revealed the comparisons between "elementary school" and "middle school," and "high school" and college" ratings were not significant, $t(391) = 2.87$ and 3.73 , respectively. All other comparisons were significant, smallest $t(391) = 7.90$. The effect of gender was also significant, $F(1, 391) = 8.71$, such that females rated their memories as more third-person perspective than males (females: $M_{\text{before first}} = 4.06$, $M_{\text{elementary}} = 3.84$, $M_{\text{middle school}} = 3.67$, $M_{\text{high school}} = 3.30$, $M_{\text{college}} = 3.14$; males: $M_{\text{before first}} = 3.71$, $M_{\text{elementary}} = 3.30$, $M_{\text{middle school}} = 3.15$, $M_{\text{high school}} = 2.89$, $M_{\text{college}} = 2.68$). There was no effect of questionnaire order, $F(1, 391) = 1.10$. All interactions were nonsignificant.

Finally, vividness ratings showed a significant main effect of time period, $F(4, 1564) = 341.31$. Post-hoc comparisons revealed all time periods were different from each other, $t(391) = 6.70$. The main effect of gender was not significant, $F(1, 391) = 2.09$. The effect of questionnaire order was significant, $F(1, 391) = 68.90$, such that participants given the chronological questionnaire order rated their memories as more vivid (chronological: $M_{\text{before first}} = 3.91$, $M_{\text{elementary}} = 4.89$, $M_{\text{middle school}} = 5.42$, $M_{\text{high school}} = 6.27$, $M_{\text{college}} = 6.44$; reverse chronological: $M_{\text{before first}} = 3.43$, $M_{\text{elementary}} = 4.10$, $M_{\text{middle school}} = 4.56$, $M_{\text{high school}} = 5.62$, $M_{\text{college}} = 5.75$). Interactions were all nonsignificant.

Thus, the experience of perspective changes in a similar manner to that observed in Study 1. Remote memories were experienced with less first-person perspective and more third-person perspective than recent memories. Females reported less first-person perspective and more third-person perspective than males in agreement with the gender effect observed in Study 1. In addition, remote memories were less vivid. Similarly to Study 1, there was an effect of questionnaire order; remembering events in chronological order resulted in more vivid memories.

Taken as a whole, the analyses of vividness and perspective suggest that it might take more information to form a strongly first-person perspective than a strongly third-person perspective, or conversely that a strong first-person perspective is accompanied by more vivid information.

4. Study 3: Experiencing more than one perspective during retrieval

Results from Study 2 provide additional support for the assertion that individuals can experience more than one perspective when remembering an event and that the independent framework is the most accurate characterization of perspective. In addition, a gender effect was observed; females rated their memories as more third-person and less first-person than males. An effect of questionnaire order was also observed, but only for vividness ratings.

Study 3 examined the ability to experience more than one perspective during retrieval using a more direct method than the standard method of asking participants to rate their experience of perspective. Instead, individuals were asked to describe their experience of perspective. In addition, we examined the relationship between perspective and vividness by asking participants to rate several aspects of their visual images, as well as the effect of time and gender.

4.1. Method

4.1.1. Participants

Eighty-six Duke University undergraduates (49 females; mean age = 18.86) were tested individually or in small groups.

4.1.2. Materials and procedure

Participants were told they would be recalling several events from their lives. The experimenter then read aloud a description of perspective to participants as they read along. The description provided concrete examples of perspectives one might use when recalling an event, including first-person perspective and a few third-person perspectives. It also explained how to describe the location of these perspectives. Specifically, participants were asked to describe, in as much detail as possible, the relative location of their perspective in relation to their original location during the event. For example, remembering giving a presentation given in front of classmates from the perspective of the classmates perspective, one might report the perspective as being directly in front of the original location, approximately 20 feet away, and slightly below eye level. Participants were instructed that if they experienced multiple perspectives, they should describe them all and then demarcate their dominant perspective.

Participants were then presented with 15 cues, in a pseudo-randomized order, and asked to describe their perspectives. Five cues were the same time periods used in Studies 1 and 2. Ten additional cues were used, but not analyzed here in order to have the same five events for all analyses (see Rice, 2007). Participants also rated three aspects of their images on 7-point scales: how clear was their dominant perspective (1 = not clear at all, 7 = very clear and obvious), how integral was their dominant perspective to the memory (1 = not integral at all, 7 = very integral), and did they feel the memory came with a distinct perspective (1 = had to force perspective, 7 = came with a distinct perspective)?

4.2. Results

4.2.1. Experience of more than one perspective

A total of 429 memories were obtained due to one missing data point (i.e., 86 individuals each with five time periods). Participants described 65.67% of their dominant perspectives as third-person. Sixty-nine percent of participants reported more than one perspective for at least one memory. A total of 131 memories (30.54%) were accompanied by more than 1 perspective. Eight memories were accompanied by three different perspectives; given the small number these will not be discussed further. From this, it is clear that individuals do experience more than one perspective when remembering a single event.

Table 6 displays the perspectives reported for secondary memories as a function of dominant perspectives. When two perspectives were experienced, it was more common for participants to experience a first-person perspective *and* a third-person perspective rather than experience two third-person perspectives, even though third-person perspectives were more common overall. Interestingly, the percentage of memories accompanied by more than one perspective increased for more recent memories: before first grade = 20.93%, elementary school = 29.08%, middle school = 26.74%, high school = 37.21%, and college = 38.83%. A similar effect was observed in Study 2.

4.2.2. Relationship between perspective and vividness

To examine the relationship between the experience of multiple perspectives and imagery, three categories were created: (1) memories accompanied by only a first-person perspective, (2) memories accompanied by only a third-person perspective, and (3) memories accompanied by more than one perspective. The three imagery ratings (i.e., the clarity of the image, how integral the perspective was, and if the memory came with a distinct perspective) were each analyzed using a 3-level (perspective: first, third, or multiple) between-subjects ANOVA. Each question was examined separately for each of the five time periods. This resulted in 15 ANOVAs; thus, to correct for multiple comparisons, a *p*-value of .003 (i.e., .05/15) was used.

Examining image clarity, there were no significant differences. When comparing how integral their perspective was to the memory, differences were observed for elementary school, $F(2, 83) = 6.73$. When memories were accompanied by a first-person ($M = 5.85$, $SD = 0.99$) or third-person ($M = 5.06$, $SD = 1.62$) perspectives, the perspective was rated as more integral than when there were multiple perspectives ($M = 4.04$, $SD = 1.57$). A similar pattern was observed for the other time periods although the differences were not significant.

Examining if participants felt their memory came with a distinct perspective, there was a difference for elementary school, $F(2, 82) = 6.46$, and college memories, $F(2, 82) = 9.19$. For both of these comparisons, first-person perspectives ($M_{elementary} = 5.77$, $SD_{elementary} = 0.98$; $M_{college} = 6.29$, $SD_{college} = 1.05$) were considered to come with a more distinct perspective than both memories with a third-person perspective ($M_{elementary} = 5.19$, $SD_{elementary} = 1.51$; $M_{college} = 5.33$, $SD_{college} = 1.55$) and multiple perspectives ($M_{elementary} = 4.56$, $SD_{elementary} = 1.23$; $M_{college} = 4.88$, $SD_{college} = 1.27$).

Table 6

Percent of memories accompanied by a secondary perspective as a function of dominant perspective in Study 3.

Dominant perspective	Secondary perspective		
	First-person	Third-person	None
First-person (33.57%)	–	10.02	23.54
Third-person (66.43%)	13.52	6.99	45.92

4.2.3. Effect of time and gender

Across the five time periods, the percentage of dominant third-person perspective memories were as follows: before first grade = 77.65%, elementary school = 74.42%, middle school = 70.59%, high school = 71.43%, and college = 61.18%, with the percentage of third-person perspectives showing an increasing pattern as memories become more remote consistent with existing data.

Comparing the number of memories described with a dominant first- and third-person perspective across genders revealed only one difference. Females reported more dominant third-person perspectives only for memories from before first grade, $\chi^2 = (1, N = 37) = 4.54$. This was determined by comparing the number of first- and third-person perspectives provided by females and males using a separate chi-square test for each time period. Specifically, the proportions of first- and third-person dominant perspectives provided by females were treated as expected proportions. The frequencies of first- and third-person perspectives provided by males were treated as the observed frequencies and compared with the expected frequencies (based on data from females).

5. Discussion

Across three studies, using a range of methodologies, the preponderance of evidence supported the independent framework over the complementary and mutually exclusive frameworks. In Study 1, participants used the entire range of responses on a single, continuous scale and changed their perspective in a continuous manner. In Study 2, participants rated their memories as high on scales of both first- and third-person perspectives, supporting the notion that memories can be accompanied by more than one perspective. Moreover, ratings of first- and third-person perspectives correlated differentially with vividness ratings, which is inconsistent with a complementary framework. Evidence from Study 3, in which participants described their experience of perspective, further supported the independent framework; the majority of participants reported experiencing more than one perspective for at least one memory.

These findings are important for several reasons. First, they clarify the construct of perspective; the experience of perspective during a single retrieval attempt is not *either* first-person *or* third-person, it can be both. Although others have made this point (e.g., Huebner & Fredrickson, 1999), investigators still use methods that do not capture this type of experience. If we are to accurately characterize perspective in future studies, we must allow individuals to respond in a way that reflects their phenomenological experience. Second, our findings suggest that other phenomenological variables may relate differentially to the experience of the two perspectives. In Study 2, vividness ratings correlated with first-person perspective ratings, but not with third-person perspective ratings. It is possible that other variables that have been shown to relate to perspective, such as emotional intensity, relate differentially to the two perspectives. Third, knowing that individuals can experience more than one perspective during a single retrieval episode generates many new questions for investigation. For example, how do individuals experience multiple perspectives? One possibility is that individuals switch from one distinct perspective to another distinct perspective. However, it may be that they experience multiple perspectives simultaneously. Informal conversations with participants suggest it is the former, but future investigations should examine these alternatives. If individuals do, in fact, switch between perspectives, examining how often and how quickly these switches occur will further our understanding of the phenomenological experience of perspective. Furthermore, it will be important to explore how memories accompanied by multiple perspectives fit into previous findings, such as the finding that memories accompanied by first-person perspectives tend to be more emotionally intense than third-person perspectives.

Based on the current findings, it is recommended that future studies of perspective use methods that allow participants to report the experience of more than one perspective. Asking individuals to describe their perspective likely provides the most direct measurement of their experience. However, these responses can be difficult to code. A more generally feasible method would be to use two scales, which also allows the relationship between perspective and other variables to be examined in a straightforward way.

One drawback of the current set of investigations is that it is unclear exactly how participants are using intermediate values on the single scale used in Study 1. For example, in Study 1, it is unclear what the endorsement of 4 means; it is possible it reflects the experience of both perspectives, a weak experience of a particular perspective, or the lack of a clear perspective. In fact, it is possible that different participants endorse intermediate values for different reasons. Using two scales, one for first-person and one for third-person where participants indicate the strength of each separately, helps solve this problem. It must be noted that the question of what intermediate values indicate has not been addressed in previous investigations, so it is unclear exactly how individuals used these values in previous studies. However, the use of the single scales has produced reproducible findings, and we do not argue that previous findings are invalid.

As shown in Study 2, a complementary approach does an adequate job of accounting for participants' experience of perspective. Approximately 80% of rating combinations were accounted for by using a lenient complementary approach. In addition, ratings of first-person perspective and third-person perspective were highly negatively correlated. This suggests that often, when a memory is accompanied by a strong experience of one perspective, there is less experience of the other. However, using the complementary approach does not account for the experience of multiple perspectives during a retrieval episode, as shown by the responses in the lower right hand corner of Fig. 3. Thus, we argue that the independent framework is a more accurate representation of the experience of perspective.

In addition, regardless of the method used, we were able to replicate the effect of memory age. This suggests that both the mutually exclusive and complementary frameworks allow investigators to find effects when they exist. However, these frameworks are likely less sensitive than using the independent framework.

Importantly, the current investigation highlights the robustness of the relationship between perspective and memory age. Regardless of the method used, remote memories were rated as more third-person perspective and less first-person perspective compared to recent memories. In addition, we found that first-person perspective ratings correlated with vividness ratings, whereas third-person perspective ratings did not. This suggests that constructing a first-person perspective may require more detailed visual information about the event. This assertion is supported by a study demonstrating that when participants were blindfolded while encoding events, they experienced third-person perspectives at retrieval more often than when they were permitted to encode visual information (Rubin, Burt, & Fifield, 2003). Therefore, one possible explanation for the effect of memory age may be the loss of visual and other sensory detail or a decrease in the vividness of the memory.

Finally, a gender effect was observed across two studies, with females experiencing more third-person perspective and less first-person perspective compared to males. This replicates and extends a previous study examining gender differences and perspective (Huebner & Fredrickson, 1999). This study found that when estimating how often they used first-person and third-person perspective during recall, females reported using third-person perspectives more often than males. In addition, females reported more third-person perspectives when recalling an event in which they were more likely to feel sexually objectified compared to males. Huebner and Fredrickson, (1999) predicted this pattern of results based on objectification theory (Fredrickson & Roberts, 1997), which posits that females, due to cultural influences that objectify the female body, learn to take a third-person perspective of their own body. Thus, they are more likely to use third-person perspectives when recalling events, particularly those in which they might have felt objectified. To our knowledge, the current investigation is the first to find a gender effect without directing participants to recall certain types of situations or to ask for an estimate of how often an individual uses a particular perspective. Although the current results are consistent with objectification theory, further investigation is necessary to explain gender differences in perspective.

Taken together, our results demonstrate that individuals can experience more than one perspective during a single retrieval attempt. Future studies should use techniques that capture this in order to accurately characterize the experience of perspective. First-person and third-person perspectives differentially correlated with vividness, further suggesting that the experience of the two perspectives is independent. In addition, the effect of memory age on perspective was found regardless of the method used to measure perspective, suggesting this is a robust and real effect that requires explanation.

Acknowledgments

We thank Jennifer Talarico and the Memory at Duke group for comments on the project and manuscript and Karen Burns, Alfredo Garcia, Ricky Green, and Tiffany Udoh for help with data collection. This work was supported in part by National Institute of Mental Health grant number R01 MH066079. Portions of this paper were presented at the North Carolina Cognition Group Conference. Please address all correspondences and requests for reprints to Dr. Heather Rice, Department of Psychology, Washington University in St. Louis, Campus Box 1125, St. Louis, MO 63130, USA. Email: hrice@wustl.edu.

Appendix A

A.1. Perspective description from Study 1

When remembering an event from their lives, most people imagine the scene in one of two ways. One way that people remember an event is *as an outside observer*, or onlooker, looking at the situation from an external vantage point (e.g. a bird's eye view), where the person remembering can see him or herself in the memory. Another way that people remember an event is *through their own eyes*, from roughly the same viewpoint that it was originally experienced.

On the following page is a list of five specific time periods. Please think of a memory for *one event from each time period* (making a one or two word note to yourself of what the memory is) and then rate whether the memory comes to you as though you were an outside observer or as though you were seeing it through your own eyes. We ask that you *circle one number* between one and seven on the rating scale to indicate the perspective. There are no correct answers; we are just trying to document the kinds of memories people have.

A.2. Perspective description from Study 2

When remembering an event from their lives, most people imagine the scene in one of two ways. One way that people remember an event is *as an outside observer*, or onlooker, looking at the situation from an external vantage point (e.g., a bird's eye view), where the person remembering can see him or herself in the memory. Another way that people remember an event is *through their own eyes*, from roughly the same viewpoint that it was originally experienced. For some memories, it may be that you remember it from only your own eyes and not at all from an observer's perspective or that you remember it from an observer's perspective and not all from your own eyes. It may also be that you experience both perspectives for a single memory, such that the image you experience oscillates between two or more perspectives while thinking about an event.

On the following page is a list of five specific time periods. Please think of a memory for *one event from each time period* (making a one or two word note to yourself of what the memory is) and rate how vivid your memory is. Then, rate the degree to which the memory comes to you as though you were an outside observer and the degree to which the memory comes to you from your own eyes. We ask that you *circle one number* between one and seven on the rating scale to indicate the vividness, degree of observer perspective, and degree of own eye perspective. There are no correct answers; we are just trying to document the kinds of memories people have.

References

- Berntsen, D., & Rubin, D. C. (2006). Emotion and vantage point in autobiographical memory. *Cognition and Emotion*, *20*, 1193–1215.
- Berntsen, D., Willert, M., & Rubin, D. C. (2003). Splintered memories or vivid landmarks? Qualities and organization of traumatic memories with and without PTSD. *Applied Cognitive Psychology*, *17*(6), 675–693.
- Bohn, A., & Berntsen, D. (2007). Pleasantness bias in flashbulb memories: Positive and negative flashbulb memories of the fall of the Berlin Wall among East and West Germans. *Memory & Cognition*, *35*, 565–577.
- Brewer, W. F. (1986). What is autobiographical memory? In D. C. Rubin (Ed.), *Autobiographical memory* (pp. 25–49). New York: Cambridge University Press.
- Brewer, W. F. (1996). What is recollective memory? In D. C. Rubin (Ed.), *Remembering our past* (pp. 19–66). Cambridge: Cambridge University Press.
- Brewer, W. F., & Pani, J. R. (1996). Reports of mental imagery in retrieval from long-term memory. *Consciousness and Cognition*, *5*(3), 265–287.
- Cohen, D., & Gunz, A. (2002). As seen by the other. Perspectives on the self in the memories and emotional perceptions of Easterners and Westerners. *Psychological Science*, *13*(1), 55–59.
- Coles, M. E., Turk, C. L., & Heimberg, R. G. (2002). The role of memory perspective in social phobia: Immediate and delayed memories for role-played situations. *Behavioural and Cognitive Psychotherapy*, *30*, 415–425.
- Coles, M. E., Turk, C. L., Heimberg, R. G., & Fresco, D. M. (2001). Effects of varying levels of anxiety within social situations: Relationship to memory perspective and attributions in social phobia. *Behaviour Research and Therapy*, *39*(6), 651–665.
- Crawley, S., & French, C. (2005). Field and observer viewpoint in remember-know memories of personal childhood events. *Memory*, *13*(7), 673–681.
- 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*(3), 281–294.
- D'Argembeau, A., & Van der Linden, M. (2004). Phenomenal characteristics associated with projecting oneself back into the past and forward into the future: Influence of valence and temporal distance. *Consciousness and Cognition*, *13*(4), 844–858.
- Day, S. J., Holmes, E. A., & Hackmann, A. (2004). Occurrence of imagery and its link with early memories in agoraphobia. *Memory*, *12*, 416–427.
- Frank, M. G., & Gilovich, T. (1989). Effect of memory perspective on retrospective causal attributions. *Journal of Personality and Social Psychology*, *57*(3), 399–403.
- Fredrickson, B. L., & Roberts, T. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly*, *21*, 172–206.
- Freud, S. (1899/1953). *The complete psychological works of Sigmund Freud*. London: The Hogarth Press Limited. Vol. 3.
- Gollnisch, G., & Averill, J. R. (1993). Emotional imagery: Strategies and correlates. *Cognition & Emotion*, *7*(5), 407–429.
- Greenberg, D. L., & Rubin, D. C. (2003). The neuropsychology of autobiographical memory. *Cortex*, *39*(4–5), 687–728.
- Hackmann, A., Surway, C., & Clark, D. M. (1998). Seeing yourself through others' eyes: A study of spontaneously occurring images in social phobia. *Behavioral and Cognitive Psychotherapy*, *26*, 3–12.
- Heaps, C. M., & Nash, M. (2001). Comparing recollective experience in true and false autobiographical memories. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *27*(4), 920–930.
- Henri, V., & Henri, C. (1896). Enquete sur les premier souvenirs de l'enfance. *L'Annee Psychologique*, *3*, 187–198.
- Huebner, D. M., & Fredrickson, B. L. (1999). Gender differences in memory perspectives: Evidence for self-objectification in women. *Sex Roles*, *41*(5–6), 459–467.
- Kenny, L. M., & Bryant, R. A. (2007). Keeping memories at an arm's length: Vantage point of trauma memories. *Behavior Research and Therapy*, *45*, 1915–1920.
- Kihlstrom, J. F., & Harackiewicz, J. M. (1982). The earliest recollection: A new survey. *Journal of Personality*, *50*(2), 134–148.
- Kuyken, W., & Howell, R. (2006). Facets of autobiographical memory in adolescents with major depressive disorder and never-depressed controls. *Cognition and Emotion*, *20*, 466–487.
- Lemogne, C., Piolino, P., Friszer, S., Claret, A., Girault, N., Jouvent, R., et al (2006). Episodic autobiographical memory in depression: Specificity, autoegetic consciousness, and self-perspective. *Consciousness and Cognition*, *15*(2), 258–268.
- Libby, L. K. (2003). Imagery perspective and source monitoring in imagination inflation. *Memory & Cognition*, *31*(7), 1072–1081.
- Libby, L. K., & Eibach, R. P. (2002). Looking back in time: Self-concept change affects visual perspective in autobiographical memory. *Journal of Personality & Social Psychology*, *82*(2), 167–179.
- Libby, L. K., Eibach, R. P., & Gilovich, T. (2005). Here's looking at me: The effect of memory perspective on assessments of personal change. *Journal of Personality & Social Psychology*, *88*(1), 50–62.
- Mclsaac, H. K., & Eich, E. (2002). Vantage point in episodic memory. *Psychonomic Bulletin & Review*, *9*(1), 146–150.
- Mclsaac, H. K., & Eich, E. (2004). Vantage point in traumatic memory. *Psychological Science*, *15*(4), 248–253.
- McNamara, P. M., Benson, E., McGenny, B., Brown, A., & Albert, M. L. (2005). Modes of remembering in patients with chronic pain: Relation to current pain. *Journal of Nervous & Mental Disease*, *193*, 53–57.
- Nigro, G., & Neisser, U. (1983). Point of view in personal memories. *Cognitive Psychology*, *15*(4), 467–482.
- Osman, S., Cooper, M., Hackmann, M., & Veale, D. (2004). Spontaneously occurring images and early memories in people with body dysmorphic disorder. *Memory*, *12*, 428–436.
- Piolino, P., Chetelat, G., Matuszewski, V., Landeau, B., Mezenge, F., Viader, F., et al (2007). In search of autobiographical memories: A PET study in the frontal variant of frontotemporal dementia. *Neuropsychologia*, *45*(12), 2730–2743.
- Piolino, P., Desgranges, B., Clarys, D., Guillery-Girard, B., Taconnat, L., Isingrini, M., et al (2006). Autobiographical memory, autoegetic consciousness, and self-perspective in aging. *Psychology & Aging*, *21*, 510–525.
- Piolino, P., Desgranges, B., Manning, L., North, P., Jokic, C., & Eustache, F. (2007). Autobiographical memory, the sense of recollection and executive functions after severe traumatic brain injury. *Cortex*, *43*, 176–195.
- Piolino, P., Giffard-Quillon, G., Desgranges, B., Chetelat, G., Baron, J. C., & Eustache, F. (2004). Re-experiencing old memories via hippocampus: A PET study of autobiographical memory. *Neuroimage*, *22*(3), 1371–1383.
- Porter, S., & Birt, A. R. (2001). Is traumatic memory special? A comparison of traumatic memory characteristics with memory for other emotional life experiences. *Applied Cognitive Psychology*, *15*(7), S101–S117.
- Pronin, E., & Ross, L. (2006). Temporal differences in trait self-ascription: When the self is seen as other. *Journal of Personality and Social Psychology*, *90*, 197–209.
- Robinson, J. A., & Swanson, K. L. (1993). Field and observer modes of remembering. *Memory*, *1*(3), 169–184.
- Rubin, D. C. (2005). A basic-systems approach to autobiographical memory. *Current Directions in Psychological Science*, *14*(2), 79–83.

- Rubin, D. C., & Greenberg, D. L. (1998). Visual memory-deficit amnesia: A distinct amnesic presentation and etiology. *Proceedings of the National Academy of Sciences USA*, 95, 5413–5416.
- Rubin, D. C., Schrauf, R. W., & Greenberg, D. L. (2003). Belief and recollection of autobiographical memories. *Memory & Cognition*, 31(6), 887–901.
- Sharman, S. J., Garry, M., & Hunt, M. (2005). Using source cues and familiarity cues to resist imagination inflation. *Acta Psychologica*, 120, 227–242.
- Spurr, J. M., & Stopa, L. (2003). The observer perspective: Effects on social anxiety and performance. *Behaviour Research and Therapy*, 41(9), 1009–1028.
- Stopa, L., & Bryant, T. (2004). Memory perspective and self-concept in social anxiety: An exploratory study. *Memory*, 12, 489–495.
- Strongman, K. T., & Kemp, S. (1991). Autobiographical memory for emotion. *Bulletin of the Psychonomic Society*, 29(3), 195–198.
- Sutin, A. R., & Robins, R. W. (2007). Phenomenology of autobiographical memories: The memory experiences questionnaire. *Memory*, 15(4), 390–411.
- Talarico, J. M., LaBar, K. S., & Rubin, D. C. (2004). Emotional intensity predicts autobiographical memory experience. *Memory & Cognition*, 32, 1118–1132.
- Talarico, J. M., & Rubin, D. C. (2003). Confidence, not consistency, characterizes flashbulb memories. *Psychological Science*, 14(5), 455–461.
- Talarico, J. M., & Rubin, D. C. (2007). Flashbulb memories are special after all; in phenomenology, not accuracy. *Applied Cognitive Psychology*, 21, 557–578.
- Terry, W. S., & Barwick, E. C. (1995). Observer versus field memories in repressive, low anxious, and obsessive-compulsive subjects. *Imagination, Cognition & Personality*, 15(2), 159–169.
- Terry, W. S., & Barwick, E. C. (1998/1999). Observing-self in memories of obsessive-compulsives. *Imagination, Cognition & Personality*, 18(1), 59–67.
- Viard, A., Piolino, P., Desgranges, B., Chetelat, G., Lebreton, K., Landeau, B., et al (2007). Hippocampal activation for autobiographical memories over the entire lifetime in healthy aged subjects: An fMRI study. *Cerebral Cortex*, 17(10), 2453–2467.
- Wells, A., Clark, D. M., & Ahmad, S. (1998). How do I look with my minds eye: Perspective taking in social phobic imagery. *Behaviour Research and Therapy*, 36(6), 631–634.
- Wells, A., & Papageorgiou, C. (1999). The observer perspective: Biased imagery in social phobia, agoraphobia, and blood injury phobia. *Behaviour Research and Therapy*, 37(7), 653–658.
- Williams, A. D., & Moulds, M. L. (2007). Cognitive avoidance of intrusive memories: Recall vantage perspective and associations with depression. *Behaviour Research and Therapy*, 45(6), 1141–1153.