

# Why I remember that: The influence of contextual factors on beliefs about everyday memory

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In the present study, we examined the role of contextual factors in beliefs about remembering personal experiences. Specifically, we examined why individuals think that they remember experiences in everyday life and whether the reasons for remembering varied as a function of recall context, memory theme, and culture. In Experiment 1, we examined young adults' reported memories in two hypothetical contexts. In Experiment 2, memories were reported in response to cue words in European American and Chinese young adults. The results indicated that social sharing contexts appeared to favor social functions, whereas private reminiscence contexts tended to favor nonfunctional reasons for remembering and, to a lesser extent, directive functions. The European Americans reported more functional reasons for remembering, whereas the Chinese were more likely to report external cues as a reason for remembering. Finally, self functions were rarely reported. The results are interpreted in light of theories of memory functions and the role of contextual factors on remembering.

Remembering personal experiences—from recalling a particularly delicious meal when planning a dinner out to commiserating about frustrating experiences with a colleague over coffee to reminiscing about a childhood family vacation while reviewing old photos—is a ubiquitous part of human experience. Given the ubiquity of these autobiographical memories, theorists have assumed that such memories must be functional; that is, they must be adaptive and serve goals in everyday life (e.g., Baddeley, 1988; Bluck, 2009; Bruce, 1985, 1989; Nelson, 1993; Pillemer, 1992). Theorists from a variety of domains, including clinical, developmental, social, and cognitive psychology, have suggested a number of potential functions of autobiographical memory. In general, the various functions of autobiographical memory can be classified into three broad classes (for a review, see Bluck & Alea, 2002). *Social* functions include using autobiographical memories as a conversational tool and a means of building and maintaining relationships with others. *Directive* functions include using autobiographical memories to solve problems, plan future actions, and learn lessons. *Self* functions include using autobiographical memories for identity building, maintaining self-continuity, positive self-evaluation, and self-regulation.

Empirical investigations of the functions of autobiographical remembering often examine the consequences

of remembering events in particular ways. For example, adults who report more specific and self-focused narratives of past experiences also report more self-focused and positive self-concepts (Gur-Yaish & Wang, 2006; Wang, 2001, 2008), suggesting that autobiographical memory may be important for defining the self. Another approach to studying the functions of remembering is to examine narratives of past events or memories discussed in conversational contexts or told to researchers and then to utilize content analysis to identify functional themes in the narratives (e.g., Pasupathi, Lucas, & Coombs, 2002; Pillemer, 1998; Wang, 2004; Wong & Watt, 1991). For example, Pasupathi et al. (2002) examined conversations among married couples and coded functions—such as self-evaluation, planning, or explaining oneself—on the basis of the content of the conversations. For instance, the statement “I normally don't do things like that” would be coded as *self-explanation*.

Importantly, memory may be useful and adaptive in the manner in which theorists suggest, yet such adaptivity need not necessarily reflect memory's being used in a conscious, deliberate, and goal-directed way (see also Bluck & Alea, 2002; Bluck, Alea, Habermas, & Rubin, 2005; Bruce, 1989; Kulkofsky & Koh, 2009; and Pillemer, 2009, for similar arguments). Fewer direct examinations have been performed on individuals' beliefs about

the usefulness of remembering everyday experiences. Do individuals think of remembering everyday experiences as a goal-directed activity? If so, to what extent do the goals that they employ reflect the three functions outlined in the autobiographical memory literature?

There has been some empirical work in which reported functions of autobiographical remembering utilizing psychometric measures have been examined, including the TALE (Bluck & Alea, 2009; Bluck et al., 2005) and the RFS (Webster, 1993, 2002). These measures largely support the notion of three broad uses of remembering, although the RFS includes functions that seem to go beyond these functions, including bitterness revival and boredom reduction (see Bluck & Alea, 2002). However, both of these scales focus on the process of recalling over one's life, rather than focusing on recalling specific events and, as such, may reflect a focus on life periods or the life story, rather than on episodic recall. As Bluck and Alea (2002) noted, the uses of remembering may vary, depending on the level of memory (episodes vs. larger life events), and as such, these findings may not be applicable to the recall of events.

In only three studies, to our knowledge, have adults' beliefs about remembering specific events in everyday life been examined. Hyman and Faries (1992) examined adults' reports of memories that had been frequently talked about (their Experiment 1) or memories elicited through cue words (their Experiment 2). For both types of memory, the participants were asked to describe when and why they had previously talked about (Experiments 1 and 2) or thought about the events (Experiment 2). On the basis of participants' open-ended responses, Hyman and Faries identified a number of reasons for remembering the events. Some of these were clearly functional, such as providing entertainment or describing oneself to others, and can be mapped onto the three basic functions of reminiscence (i.e., social and self functions). Other categories were less functional, such as memories being cued by associative thinking or when a participant told someone about an event that was recent, emotional, or memorable. Social functions tended to be the most commonly reported function across the two experiments, although nonfunctional categories were also frequently represented.

In a more recent study, Kulkofsky, Wang, and Koh (2009) asked European American and Chinese mothers to report why they share memories with their preschool-aged children. The mothers provided both functional and nonfunctional explanations (although the nonfunctional explanations were not analyzed). The functional explanations largely overlapped the three functions outlined in the theoretical literature. Like in Hyman and Faries (1992), social functions—including both conversation and intimacy building—were the most commonly reported.

Finally, Rasmussen and Berntsen (2009) asked participants to rate the frequency with which they used social (sharing the memory with others), directive (using the memory to handle present or future situations), and self (the memory tells another individual about themselves) functions for their most positive and most negative memory. Their results indicated that the social and self

functions had higher ratings for positive than for negative memories, whereas the directive function had higher ratings for negative than for positive memories.

Together, these studies suggest that adults may view remembering in everyday life as a functional activity that can serve a variety of goals and that these goals may largely map onto social, directive, and self functions. However, adults' beliefs about why they remember in everyday life are not entirely functional in nature. In the studies by Hyman and Faries (1992) and Kulkofsky et al. (2009), in which open-ended measures of reporting reasons for remembering were used, adults reported that they remember for a variety of nonfunctional reasons. In particular, both external cues and aspects of the event itself (recency, emotionality, etc.) may have influenced memory recall. Our goal in the present study was to add to this literature by investigating individuals' beliefs about why they remember by taking into account contextual factors that may influence the recall of events.

Two distinctly different recall contexts may directly influence the functions of memory—namely, private reminiscence and social sharing. In past research, these two contexts have not been directly compared. Hyman and Faries (1992) looked explicitly at social sharing in their Experiment 1, and although their Experiment 2 included both private reminiscence and social sharing, the results were not compared across contexts. Kulkofsky et al. (2009) also only examined the social sharing context. Rasmussen and Berntsen (2009) compared deliberate and involuntary recall but did not specifically compare talking and thinking about memories. It seems reasonable to expect that beliefs about remembering may differ when considering privately thinking versus talking with others about past events. For example, research on disclosure of past events suggests that memories that tend to be socially shared differ in a number of ways from those that are kept private (Pasupathi, McLean, & Weeks, 2009). Thus, the goals of sharing memories in social situations may be quite different from the goals of privately reminiscing about events. Given their self-reflective nature, directive and self functions may be emphasized to a greater extent when one is thinking about the past. In contrast, given that talking about the past is a social activity, social functions may be emphasized in this context. Furthermore, research on memories that are not deliberately recalled by an individual has shown that these types of memories are more common when one's mind is unoccupied (Berntsen, 1998; Kvavilashvili & Mandler, 2004). Thus, nonfunctional reasons for remembering, which might reflect less deliberate recall, may be more common in the context of privately thinking about an event.

Another influential factor for autobiographical memory is the larger cultural milieu in which remembering occurs. Cultural factors have been shown to be important in shaping the frequency, style, and content of remembering past experiences, as well as the meaningfulness that individuals place on autobiographical memory (for reviews, see Leichtman & Wang, 2005; Wang & Brockmeier, 2002; Wang & Ross, 2007). Cultural beliefs also likely shape the functions of remembering such that the goal of the rememberer is consistent with larger cultural goals (Nelson,

2003; Wang, 2001; Wang & Conway, 2004; Wang & Ross, 2007; Webster, 2002).

Research has suggested that in European–American culture, cultural goals favor building a unique and autonomous personal identity; thus, a greater focus is placed on the individual. In contrast, East Asian cultures place a strong emphasis on maintaining conformity and group harmony; thus, less emphasis is placed on the individual and his or her own experiences (e.g., Markus & Kitayama, 1991). As such, autobiographical memories may be valued more in the European American context than in the context of East Asian cultures (Wang & Ross, 2007). Consistent with this viewpoint on the deemphasis of personal experiences in East Asian cultures, research has shown that relative to European Americans, individuals from East Asian cultures tend to report fewer and less elaborate memories across the life span (e.g., Mullen, 1994; Wang, 2001; Wang, Conway, & Hou, 2004). Furthermore, Wang and Conway (2004) showed that compared with their American counterparts, middle-aged Chinese participants rated their personal memories as less important. The importance that individuals place on autobiographical memories may influence the degree to which they believe that autobiographical memory may be used in a goal-directed way. In the only study in which culture was directly examined in relation to beliefs about remembering, Kulkofsky et al. (2009) showed that overall, European American mothers reported a greater number of functions of joint reminiscing than did Chinese mothers. Thus, we expect that Americans may be more likely to report functional reasons for remembering, whereas East Asians may be more likely to report nonfunctional reasons for remembering.

In addition to factors that may influence the context of recall, it is also important to consider the context of the event itself. As Bluck and Alea (2002) noted, the functions that memories serve may vary on the basis of the content of the memory. Specifically, memories dealing with different aspects of an individual's life may serve different functions for the individual. Rasmussen and Berntsen's (2009) findings support this viewpoint by showing that memories with different emotional valences are associated with different functions. In addition to considering emotional valence, Wang and Conway (2004) further suggested that the functions that memories serve may be reflective of the memory theme, whereby an emphasis on socially oriented memories may reflect goals of interdependence and relatedness (i.e., social functions), whereas an emphasis on personal memories may reflect the goal of building individual identity (i.e., self functions). In the present study, we tested this assumption by investigating the theme of the event. Individuals may believe that memories that are largely about personal experiences are more useful for self purposes, and also potentially for directive purposes, whereas memories that center on social interactions with others are more useful for social purposes.

In the present study, we examined young adults' beliefs about why they remember in everyday contexts. We utilized an open-ended prompt to elicit memory narratives, as well as responses about the reasons for remembering each event. The use of an open-ended prompt allows for

the assessment of salient participant beliefs in an unbiased manner (Benenson & Dweck, 1986) and also allows for new reasons for remembering to emerge that have not previously been outlined in the literature (see also Kulkofsky et al., 2009, for similar methodology). Furthermore, we recognize that participants might not accurately remember their previous uses of memories (e.g., Arnold & Lindsay, 2005; Merkelbach et al., 2006). Our method may therefore reflect more of how participants *think* about the reasons for which they remember their everyday experiences and, as such, may tap *beliefs* about remembering rather than tapping an accurate representation of the participants' behavior. The participants' responses were coded for the three broad functions of remembering, as well as for non-functional reasons for remembering, such as external cues or aspects of the memory event, that may induce recall.

In Experiment 1, we focused on comparing recall contexts and memory theme. Participants responded to two hypothetical contexts in which they would either think about or talk about a past event. They were asked to describe the event that they would think or talk about and were then asked to describe why they would think or talk about the event. We expected that the think-about context would favor "nonfunctional" responses, as well as directive and self functions, whereas the talk-about context would favor social functions. We expected that personal memories would favor directive and self functions, whereas social memories would favor social functions. Experiment 2 was focused on both recall and cultural contexts. We expected the participants' beliefs to reflect the larger cultural milieu of the communities in which they lived; thus, our cultural comparisons were made between participant groups from the United States and China. In Experiment 2, participants described personal experiences in response to cue words. They were then asked to rate the frequency with which they had previously thought about and talked about the event and to describe why they thought about and talked about the event. We expected the Chinese participants to report more nonfunctional reasons than would the U.S. participants. With regard to the three functions, we expected directive functions to be emphasized to a greater extent in the Chinese sample, whereas social and self functions would be emphasized in the U.S. sample.

## EXPERIMENT 1

### Method

#### Participants

The participants were 111 undergraduate students (75 female) at Cornell University. The sample was racially diverse, although a majority of the participants self-identified as Caucasian ( $n = 61$ ).<sup>1</sup> The average age was 20.24 years ( $SD = 1.50$ ; range = 18.30–27.10). The participants were recruited in various psychology and human development classes and received course credit for their participation.

#### Memory Questionnaire

The participants completed an open-ended memory questionnaire that prompted for two separate memories: one memory that was a typically thought-about memory and one memory that was a typically talked-about memory. The prompts required the participants to take the perspective of another student of the same sex.

This method assimilates self-projection techniques that allow participants to freely express their thoughts and feelings when reporting their memories (Li & Wang, 2004; Wang & Leichtman, 2000). The thought-about prompt stated, "At night Heather (Tom) is in her (his) dorm alone. She (He) is thinking about an event she (he) recently experienced. Suppose you were Heather (Tom). What event would you be thinking about?" Following this prompt, the participants were asked to describe why they would think about this event. The talked-about prompt stated, "At a party, Heather (Tom) is chatting with her (his) friends, Frank and Jenn. She (He) is telling them about an event she recently experienced. Suppose you were Heather (Tom). What event would you be telling about?" Again, following this prompt, the participants were asked to describe why they would talk about this event. Presentation of the thought-about and talked-about prompts was counterbalanced. The final page of the questionnaire asked for demographic information.

The participants completed the questionnaire in small groups of 1–6 in the research lab. Completion of the questionnaire took approximately 15 min.

### Coding

A few participants did not actually report a past event; for example, some reported a future event (e.g., "I'd be thinking about how summer break is coming up soon, and all the things I want to do while I'm at home") or a current state (e.g., "I'd be thinking about how I'm really hungry right now"). These nonmemories were rare and were only reported in response to the thought-about prompt ( $n = 16$  responses). Only actual memory responses were coded and analyzed.

**Memory theme.** Each memory was coded as personal or social following Wang and Ross (2005). *Personal* memories described events about personal experiences, accomplishments, or failures. Although other people may be mentioned, personal memories were centrally focused on the participant. For example, taking an exam, giving a presentation in class, or getting into a traffic accident would be coded as personal. *Social* memories described events in which the rememberer interacted with other people in a meaningful way or events that took place in society at large. For example, fighting with a romantic partner, having a family member visit, or a favorite sports team winning a national title would be coded as social.<sup>2</sup>

**Reasons for remembering.** Each *distinct idea*, defined as a statement that is not interchangeable with any other statement, was first identified (Li & Wang, 2004; Shaver, Schwartz, Kirson, & O'Connor, 1987). For example, "To give us something to talk about" and "My friends would think it would be funny" would be each coded as a distinct idea. Each distinct idea was then coded once and only once into one of five categories. Although the coding scheme was exhaustive and exclusive, multiple distinct ideas could be reported for each memory; thus, each memory could receive multiple codes. The coding scheme was established by the first two authors on the basis of both top-down and bottom-up processes (Kulkofsky et al., 2009; Li & Wang, 2004). Specifically, we first approached the data on the basis of the literature on the three broad memory functions, including more fine-grained distinctions among the three broad classes. Then, a subset of the data was coded to revise and refine the coding categories to more accurately reflect the responses given in our sample (e.g., we added nonfunctional categories and collapsed the fine-grained categories into the three broad classes).

*External cues* refers to the participants' reports that they thought about or talked about an event because external cues or aspects of the recall context caused them to remember the event. Examples of external cues include "The books on my desk might remind me of that class" or "It's the type of thing I normally would talk about in that situation."

*Aspects of the event* refers to the participants' reports that they thought about or talked about an event because some aspect of the memory event, such as its recency, emotionality, or novelty, made it memorable. This also included statements that the event was memorable or not easily forgotten. Examples of aspects of memory event include "It just happened earlier today," "The performance was a big

deal for me, so I'd want to share it," or "It's an event that's been on my mind a lot lately."

*Social functions* refers to the participants' reports that thinking about or talking about a memory would serve the function of relating with other people. This included sharing memories for the sake of sharing, providing amusement or entertainment to others, promoting intimacy or relatedness to others, or influencing or manipulating another's behavior. Examples of social functions include "My friends would think it was a funny story," "Others may relate to my story," and "I would tell them how my girlfriend broke up with me so they would find me a date."

*Directive functions* refers to memories that were thought about or talked about because the event was related to a future action or helps make sense of a current situation. This included thinking about or talking about a memory in a critical way in order to do better in the future, using information from a memory to inform future decisions, thinking about or talking about an event in the past because a similar future event is happening soon, making sense of an uncertain situation in the present, and gaining advice from others. Examples of directive functions include "I did poorly on my last exam, and I don't want to fail the next one," "I need to figure out my feelings for my ex-boyfriend," and "I'd like to know how others would handle this situation."

*Self functions* refers to instances in which the memory was thought about or talked about because it was related to one's self view. This included thinking about or talking about memories in order to reassure an individual that he or she was correct or okay in his or her thoughts or emotions, to promote positive emotions in the present, to explain oneself to others, or to promote the self in a positive light. Examples of self functions include "My friends would tell me that I am right," "I felt bad for failing the exam so I would think of other times I did well," and "I would like to impress others."

**Reliability.** Two coders independently coded 20% of the data for interrater reliability. Their agreement for identifying nonmemories and distinct ideas was 100%. Cohen's kappa was .78 for memory theme and .92 for reasons for remembering. Disagreements were resolved through discussion. One coder then coded the remaining data.

### Results

Preliminary analyses revealed no effects of recall context or theme on the total number of reasons given. Furthermore, there were no significant effects for gender. The frequencies for each reason for remembering were generally low and were therefore dichotomously coded as present or absent and analyzed as categorical variables. On the basis of the theme coding, 34.5% of the memories were categorized as personal, whereas 65.5% were categorized as social. The analyses revealed no difference in the frequency of reporting personal versus social events as a function of recall context.

Given that multiple codes could be applied to each memory, we investigated the degree to which the participants reported nonfunctions only, reported nonfunctions in combination with functions (i.e., a memory was cued and then used for a specific goal), and reported only functions. Collapsed across contexts, 26% of the memories were associated only with nonfunctional reasons, 65% were associated with both nonfunctional and functional reasons, and 9% were associated only with functional reasons.

Our main analyses were focused on two basic questions. First, we compared across the five reasons for remembering to examine whether some reasons were more likely to be reported than other reasons in a given context or for memories of a given theme. For example, this analysis would



determine whether social functions were more likely to be reported than were directive and self functions in the talk-about context. Second, we examined each reason individually, to see whether reporting that reason changed as a result of context or theme. For example, this analysis would determine whether directive functions would be more likely to be reported for personal or for social memories.

### Comparing Across Reasons

To examine the likelihood of reporting each reason for remembering, we performed a generalized estimated equation (GEE) analysis. The GEE method is a repeated measures logistic regression approach that takes into account the nonindependence of data (Liang & Zeger, 1986). A 5 (reason for remembering: external cues vs. aspects of the event vs. social functions vs. directive functions vs. self functions)  $\times$  2 (recall context: think about vs. talk about)  $\times$  2 (memory theme: personal vs. social) GEE predicting response (present vs. absence) was conducted. The analysis revealed a main effect of reason [Wald  $\chi^2(4,111) = 139.18, p < .001$ ], qualified by a significant reason  $\times$  recall context interaction [Wald  $\chi^2(1,111) = 59.24, p < .001$ ].

Figure 1 presents the frequency of reporting each reason for remembering by recall context. There was a significant effect of reason in both the think-about context [Wald  $\chi^2(4,111) = 122.90, p < .001$ ] and the talk-about context [Wald  $\chi^2(4,111) = 101.67, p < .001$ ]. Follow-up planned contrasts (Wald  $\chi^2, p < .005$ , to control for multiple tests) revealed that in the think-about context, aspects of the event were more likely to be reported than any other reason. There was no difference in the likelihood of reporting cues, social functions, or directive functions. Self functions were the least likely to be reported. In the talk-about context, aspects of the event and social functions were equally likely to be reported and more likely to be reported than external cues, directive functions, or self functions. External cues, directive functions, and self functions were equally likely to be reported. Thus, to

summarize the different patterns across recall contexts, in both contexts, aspects of the event were the most common reason for remembering. However, in the think-about context, self functions were less likely to be reported than the other reasons for remembering, whereas in the talk-about context, social functions were more likely to be reported than the other reasons for remembering.

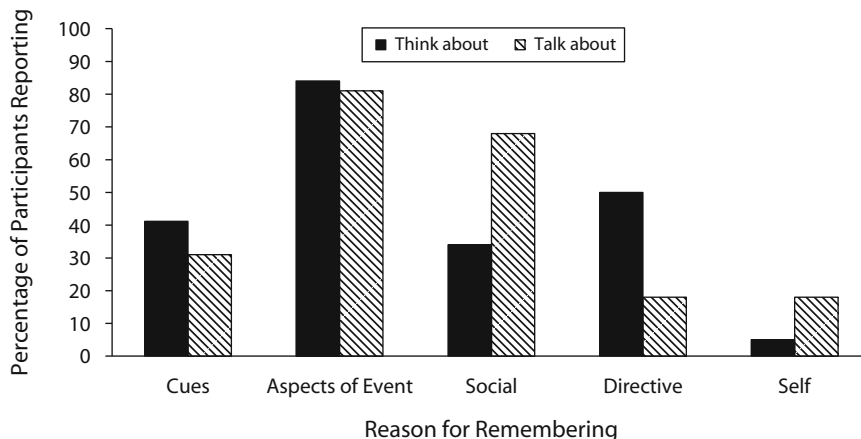
### Examining Individual Reasons

To further examine the effects of reminiscing context and memory theme on each of the five reasons for remembering, a series of 2 (recall context)  $\times$  2 (theme) GEE analyses were conducted on each of the five reasons for remembering.

For both external cues and aspects of the event, there were no main effects or interactions for any of the variables. For social functions, there was a main effect of recall context [Wald  $\chi^2(1,111) = 22.56, p < .001$ ], whereby social functions were more likely to be reported in the talk-about context than in the think-about context. In addition, there was a main effect of theme [Wald  $\chi^2(1,111) = 5.05, p < .05$ ], showing that social functions were more likely to be reported for social memories (57%) than for personal memories (41%). For directive functions, there was a main effect of recall context [Wald  $\chi^2(1,111) = 26.26, p < .001$ ], indicating that directive functions were more likely to be reported in the think-about context than in the talk-about context. There was no main effect of theme or significant interaction. For self functions, there was a main effect of context [Wald  $\chi^2(1,111) = 6.04, p < .05$ ], indicating that self functions were more likely to be reported in the talk-about context (18%) than in the think-about context (5%). There was no main effect of theme or significant interaction.

### Discussion

Two important findings emerged from Experiment 1. The participants reported a variety of reasons for remembering past experiences. In addition to providing reasons



**Figure 1.** Percentage of participants reporting each reason for remembering by context. In the think-about context, aspects of the event were more likely and self functions were less likely to be reported than any other reason. In the talk-about context, aspects of the event and social functions were more likely to be reported than any other reason (all  $ps < .005$ ).

that represented the three broad functions for remembering the past (social, directive, self), they frequently reported other reasons for remembering that were not functional in nature. In almost a quarter of the cases, the participants reported no function at all. In fact, the most common reason for remembering that was reported by the participants was aspects of the memory event. The participants often reported that an event would be recalled because it was recent, novel, emotional, or otherwise memorable. This appears to reflect an intuitive belief that some events are simply more memorable than others. Notably, this intuitive belief is consistent with the empirical literature showing that emotional, novel, and recent events are more likely to be remembered (e.g., Baddeley, 1988; Schmidt, 2007; Schroots, van Dijkum, & Assink, 2004).

Furthermore, consistent with our predictions, the reasons for remembering varied by recall context and, to a lesser extent, by theme. Private reminiscence contexts (i.e., thinking about a memory alone) seemed to favor directive functions. More directive functions were reported in the think-about than in the talk-about context. In contrast, social contexts (i.e., talking about a memory with friends at a party) seemed to favor social functions. Social functions were more likely to be reported than directive or self functions in this context, and social functions were more commonly reported in the talk-about than in the think-about context. In addition, social functions were more likely to be reported for memories about social events than for memories about personal events. Overall, self functions were rarely reported. Interestingly, contrary to our expectation, self functions were more likely to be reported in the talk-about than in the think-about context. Further examination of the data suggested that the self functions reported by our participants often involved self-enhancement or bragging, which would be more common in social contexts. Such self functions as identity building or self-continuity, which are often emphasized in the literature (e.g., Bluck et al., 2005; McLean, 2005), seemed generally absent.

These results highlight the importance of context in remembering events. However, the participants responded to two very specific situational prompts: recalling an event in their dorm room and to friends at a party. Certainly these two settings do not represent the entire range of private reminiscence versus social-memory-sharing contexts, and the present results may thus be influenced by the specific settings in which the participants thought about remembering. In addition, the prompts cued the participants to think about an event that was recently experienced. Given that the recency of the event was captured under the aspects-of-the-event coding, this may have artificially inflated the frequency of reporting this reason.

In Experiment 2, we addressed these issues using a more unconstrained method, where participants were asked to report the reasons for which they thought about and talked about different memories that were elicited with a standard word-cue technique (e.g., Crovitz & Schiffman, 1974; Galton, 1879; Hyman & Faries, 1992; Robinson, 1976). As Rubin (2002) noted, the word-cue technique allows for a greater sample of memories. Furthermore,

by utilizing this method, the participants were able to nominate a wider variety of recall settings in which they talked about or thought about past events. In addition, in Experiment 2, we address the effects of the larger cultural context by examining the reports of young adults in the U.S. and in China.

## EXPERIMENT 2

### Method

#### Participants

The participants were 176 undergraduate students (121 female), including 91 from Texas Tech University in Lubbock, Texas (all European American), and 85 from Peking University in Beijing, China. The average age was 22.44 years ( $SD = 4.35$ , range = 18.0–46.2), and there was no age difference between the U.S. and Chinese groups. At both sites, the participants were recruited from various psychology and human development classes and received extra course credit for participating in the research.

#### Memory Questionnaire

The participants completed a memory questionnaire. The first page instructed the participants to think of a single, one-moment-in-time event in response to each of the cue words, which have been used in prior research to elicit memories (Hyman & Faries, 1992). A translation/back-translation procedure was used to ensure literal and sense meaning across the English and Mandarin versions of the questionnaire. Each cue word was presented separately on its own page. The six cue words, presented in random order, were *flower* (花), *important* (重要), *happy* (高兴), *car* (汽车), *nervous* (紧张), and *letter* (信). For each cue word, the participants were asked to describe a memory. They were then asked to estimate how frequently they had ever thought about the memory on a scale of 0–3 (0, *never*; 3, *more than seven times*). They were then asked to describe when and why they had previously thought about the memory. The participants were then asked to estimate how frequently they had ever talked about the memory on a scale of 0–3 and to provide a description of when and why they talked about the memory. The participants were also asked to report their estimated age at the time of the memory. On the final page, the participants completed a demographic questionnaire. Completion of the questionnaire took 20–30 min.

#### Coding

The coding scheme was identical to that used in Experiment 1. Native coders in each country, trained by the first author, coded the questionnaires in their original language. A few participants did not report an actual memory or simply could not think of a memory for a given cue word. The reasons for remembering were only coded when a memory was recalled and when the participants reported that they had previously thought about or talked about the memory.

**Reliability.** In each culture, one individual coded all of the surveys, and 20% of the surveys were coded by a second independent coder to assess reliability. Cohen's kappa for theme was .73 and .65 for the U.S. and Chinese groups, respectively. Cohen's kappa for the reasons for remembering was .80 and .75 for the U.S. and Chinese groups, respectively. Disagreements were resolved through discussion.

### Results

There were a total of 961 memories reported by the participants. All analyses were conducted at the level of the memory, with participant and cue word treated as random factors. In all analyses comparing contexts, each memory was entered twice, once for the talk-about context and once for the think-about context. Seven Chinese participants did not report sufficient information for coding the

theme of their responses and were therefore dropped from all analyses involving memory theme. In addition, some participants did not answer every question, so the degrees of freedom and  $n$  varied slightly across tests. Preliminary analyses found no effects for gender.

On average, memories were dated to have occurred when the participants were 16.14 years old ( $SD = 5.79$ ). To analyze whether there was a cultural effect on memory dating, a mixed-model ANOVA was run with participant and cue word as random effects, utilizing SAS PROC MIXED (Littell, Milliken, Stroup, Wolfinger, & Schabenberger, 2006). There was a significant effect of culture [ $F(1,174) = 11.2, p < .001$ ]. On average, the U.S. participants reported later memories ( $M = 17.05$  years,  $SD = 5.21$ ) than the Chinese participants ( $M = 15.01$  years,  $SD = 6.24$ ).<sup>3</sup>

On the basis of memory theme coding, 49% of the memories were classified as personal, whereas 51% were classified as social. The analyses revealed no difference in the frequency of reporting personal versus social memories as a function of culture or recall context. Collapsed across contexts, 53% of the responses reflected only nonfunctions, 13% reflected both nonfunctions and functions, and 34% reflected only functions.

### Frequency of Previous Recall

Figure 2 presents the mean ratings of frequency of recall (on a scale 0–3) as a function of recall context and culture. A 2 (culture: U.S. vs. Chinese)  $\times$  2 (context: think about vs. talk about) mixed-model ANOVA with participant and cue word as random effects was run on the frequency rating. There was a main effect of context [ $F(1,1762) = 187.29, p < .001$ ], qualified by a culture  $\times$  context interaction [ $F(1,1762) = 17.39, p < .001$ ]. Although the U.S. and Chinese participants did not differ in the frequency of thinking about their memories, the U.S. participants reported talking about their memories more frequently than did the Chinese [ $F(1,166) = 8.06, p < .01$ ]. Among the Chinese participants, 6% (28) of the memories were reported as never having been thought about before, whereas 34% (170) of the memories had never been talked about before. Among the U.S. participants, 11% (58) of the memories had never been thought

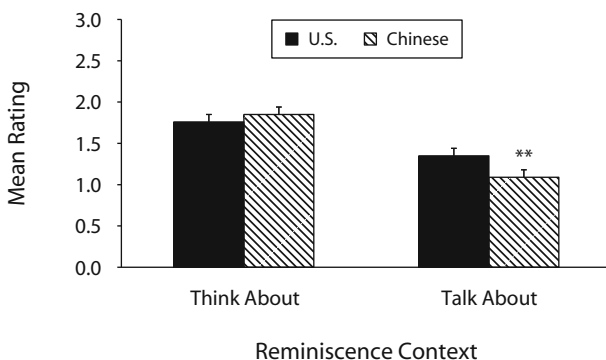
about before, whereas 27% (138) of the memories had never been talked about before. These memories are thus not reported in the analyses of reasons for remembering.

### Comparing Across Reasons

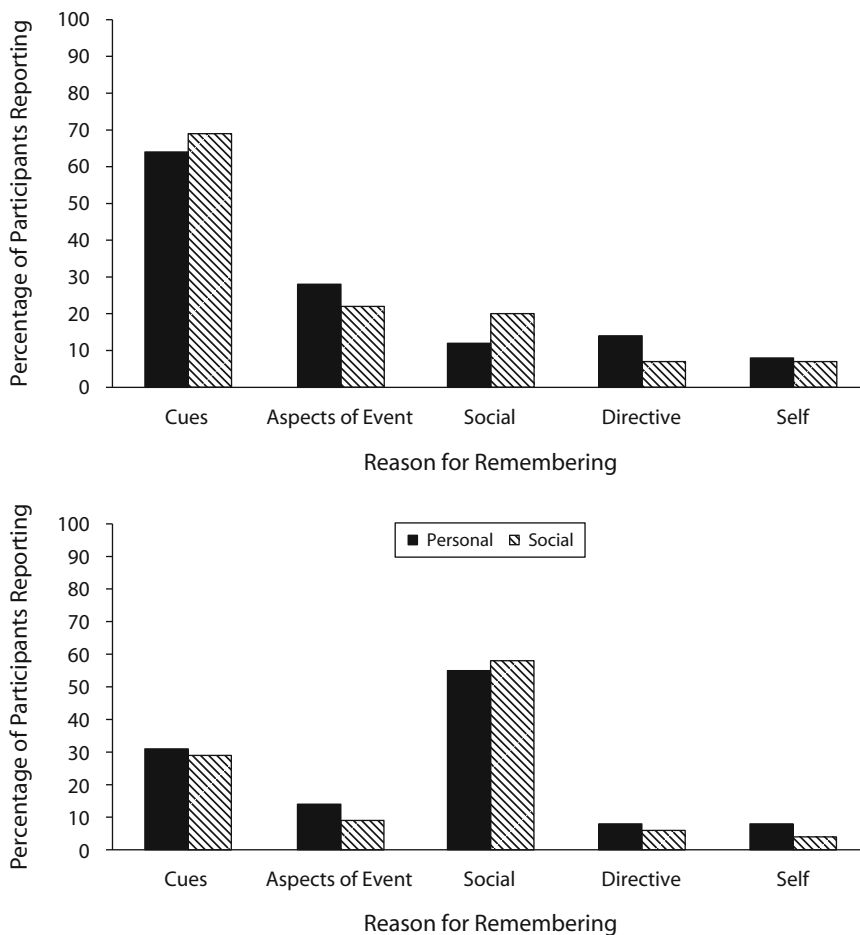
As in Experiment 1, the reasons for remembering were dichotomously coded as present or absent and analyzed as categorical variables. A 5 (reason for remembering)  $\times$  2 (culture)  $\times$  2 (recall context)  $\times$  2 (theme) GEE model predicting usage (present or absent) was conducted. There was a main effect of reason for remembering [Wald  $\chi^2(4,169) = 640.36, p < .001$ ], a main effect of context [Wald  $\chi^2(1,169) = 45.61, p < .001$ ], and a main effect of culture [Wald  $\chi^2(1,169) = 9.08, p < .01$ ]. These main effects were qualified by a significant three-way reason for remembering  $\times$  context  $\times$  theme interaction [Wald  $\chi^2(4,169) = 12.23, p < .05$ ], as well as a significant three-way reason for remembering  $\times$  context  $\times$  culture interaction [Wald  $\chi^2(4,169) = 39.50, p < .001$ ].

Figure 3 presents the likelihood of reporting each reason for remembering as a function of recall context and memory theme. For the think-about context, there was a main effect of reason for remembering for both personal memories [Wald  $\chi^2(4,162) = 190.10, p < .001$ ] and social memories [Wald  $\chi^2(4,161) = 272.37, p < .001$ ].<sup>4</sup> Follow-up planned contrasts (Wald  $\chi^2, p < .005$ , to control for multiple tests) revealed that for personal memories, external cues were more likely to be reported than any other reason for remembering. Aspects of the memory event were more likely to be reported than social, directive, or self functions. The likelihood of social, directive, and self functions ratings did not differ from one another. For social memories, external cues were also more likely to be reported than any other reason for remembering. Aspects of the memory event and social functions were equally likely to be reported and were both more likely to be reported than directive and self functions. Directive and self functions did not differ significantly from one another in their likelihood of being reported. For the talk-about context, there was also a significant effect of reason for remembering for both personal memories [Wald  $\chi^2(4,162) = 241.56, p < .001$ ] and social memories [Wald  $\chi^2(4,161) = 370.31, p < .001$ ]. For personal memories, social functions were more likely to be reported than any other reason. External cues were more likely to be reported than aspects of the memory event, directive functions, or self functions. Aspects of the event, directive functions, and self functions did not differ from one another in their likelihood of being reported. For social memories, social functions were more likely to be reported than any other reasons, and external cues were more likely to be reported than aspects of the event, directive, or self functions. Aspects of the event and directive functions were equally likely to be recalled; aspects of the event were also more likely to be reported than self functions, whereas directive functions and self functions were equally likely to be reported.

Thus, to summarize the three-way reason  $\times$  context  $\times$  theme interaction, the think-about context tended to favor external cues and aspects of the event, although social



**Figure 2.** Mean frequency ratings by context and culture. Frequency ratings ranged from 0 (never thought/talked about) to 3 (thought/talked about more than seven times). Error bars represent 1 SE. \*\* $p < .01$ .



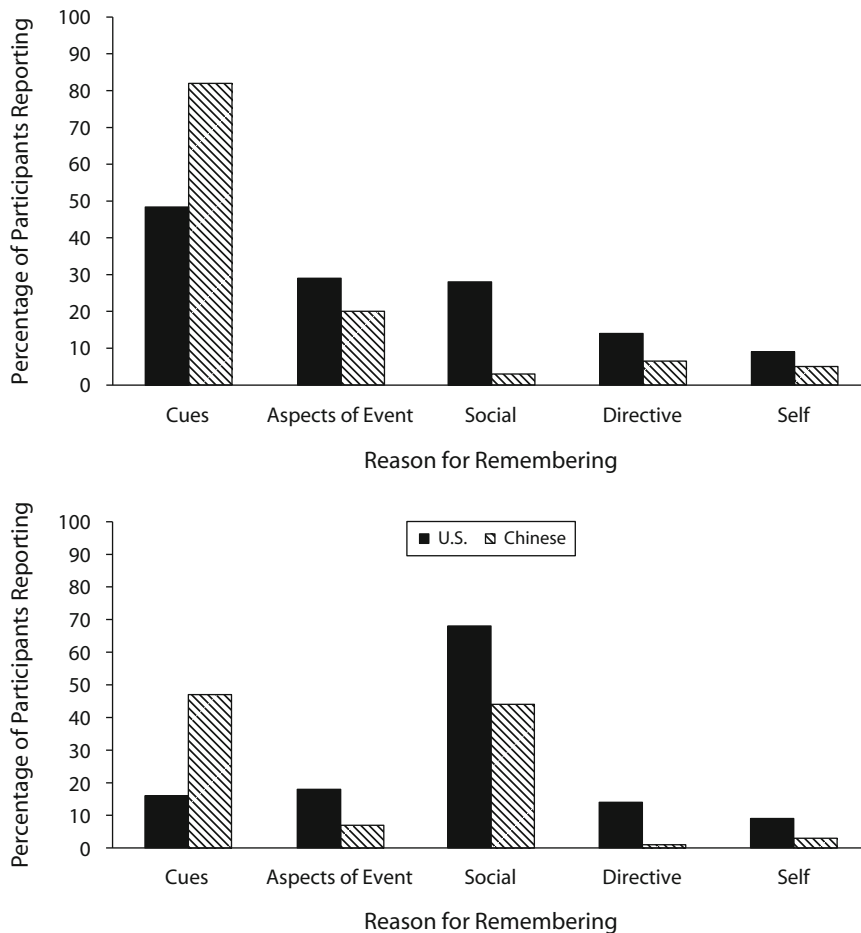
**Figure 3.** Percentage of participants reporting each reason for remembering by recall context and theme. The top panel shows responses for the think-about context, and the bottom panel shows responses for the talk-about context. In the think-about context, cues were more likely to be reported than any other reason. For social memories only in the think-about context, directive and self functions were less likely to be reported than any other reason. For the talk-about context, social functions were more likely to be reported than any other reason. For personal memories only in the talk-about context, cues were more likely to be reported than any other reason, and aspects of the event were more likely to be reported than self functions (all  $p$ s < .005).

functions were more likely to be reported for social memories than for personal memories. In contrast, in the talk-about context, social functions were more often reported than any other reason for remembering, and the pattern was consistent across memory themes.

Figure 4 displays the reasons for remembering as a function of context and culture. For the U.S. participants, there was a main effect of reason for remembering in both the think-about context [Wald  $\chi^2(4,91) = 221.36$ ,  $p < .001$ ] and the talk-about context [Wald  $\chi^2(4,91) = 156.85$ ,  $p < .001$ ]. In the think-about context, follow-up planned contrasts revealed that external cues were more likely to be reported than any other reasons for remembering. Aspects of the memory event and social functions were equally likely to be reported and were both more likely to be reported than directive and self functions. Directive and self functions were equally likely to be reported. In the talk-about context, social functions

were more likely to be reported than any other reason for remembering. Aspects of the memory event were more likely to be reported than self functions but were as likely to be reported as cues and directive functions. External cues, directive functions, and self functions were equally likely to be reported. For the Chinese participants, there was also a main effect of reason for remembering in both the think-about context [Wald  $\chi^2(4,78) = 275.74$ ,  $p < .001$ ], and the talk-about context [Wald  $\chi^2(4,78) = 594.77$ ,  $p < .001$ ]. In the think-about context, external cues were more likely to be reported than any other reason. Aspects of the memory event were more likely to be reported than social, directive, or self functions. Social, directive, and self functions were all equally likely to be reported. In the talk about context, external cues were equal to social functions in their likelihood of being reported, and both were more likely to be reported than any other reason for remembering. Aspects of the memory





**Figure 4. Percentage of participants reporting each reason for remembering by recall context and culture. The top panel shows responses for the think-about context, and the bottom panel shows responses for the talk-about context. In the think-about context, cues were more likely to be reported than any other reason in either culture. For the U.S. participants in the think-about context, aspects of the event and social functions were more likely to be reported than directive and self functions. For the Chinese participants in the think-about context, aspects of the event were more likely to be reported than any reason except cues. For the U.S. participants in the talk-about context, social functions were more likely to be reported than any other reason, and aspects of the event were more likely to be reported than self functions. For the Chinese participants in the talk-about context, social functions and cues were more likely to be reported than any other reason, and aspects of the event were more likely to be reported than directive and self functions (all  $p$ s < .005).**

event were more likely to be reported than directive or self functions. Directive and self functions were equally likely to be reported.

Thus, to summarize the three-way reason  $\times$  context  $\times$  culture interaction, for the U.S. participants, the think-about context favored external cues the most, whereas the talk-about context favored social functions the most. For the Chinese participants, both the think-about and the talk-about contexts favored external cues the most, although social functions were also favored in the talk-about context.

### Examining Individual Reasons

To examine the effect of culture, recall context, and theme on reporting each reason for remembering, a series of 2 (culture)  $\times$  2 (context)  $\times$  2 (theme) GEE analyses were conducted on each of the five reasons for remembering.

The Chinese participants were more likely to report external cues (70%) than were the U.S. participants (34%) [Wald  $\chi^2(1,169) = 119.54, p < .001$ ]. In both groups, external cues were more likely to be reported in the think-about (67%) than in the talk-about context (30%) [Wald  $\chi^2(1,169) = 200.50, p < .001$ ]. There were no other main effects or interactions.

The U.S. participants were more likely to report aspects of the memory event (24%) than were the Chinese participants (14%) [Wald  $\chi^2(1,169) = 8.34, p < .01$ ], and aspects of the memory event were more likely to be reported in the think-about (25%) than in the talk-about context (14%) [Wald  $\chi^2(1,169) = 32.42, p < .001$ ]. There were no other main effects or interactions.

For social functions, there was a main effect of culture [Wald  $\chi^2(1,169) = 70.72, p < .001$ ], and a main effect

of recall context [Wald  $\chi^2(1,169) = 205.18, p < .001$ ], which were qualified by a significant three-way culture  $\times$  recall context  $\times$  theme interaction [Wald  $\chi^2(1,169) = 4.28, p < .05$ ]. Across all conditions, the U.S. participants were more likely to report social functions (overall, 45%) than were the Chinese participants (overall, 21%), and social functions were more likely to be reported in the talk-about context (overall, 56%) than in the think-about context (overall, 16%). The three-way interaction was explained by the fact that there was a significant effect of theme for the U.S. participants in the think-about context [Wald  $\chi^2(1,89) = 18.37, p < .001$ ], with social functions being more likely to be reported for social memories (20%) than for personal memories (12%). For the U.S. participants in the talk-about context and for the Chinese participants in either context, there was no effect of memory theme.

For directive functions, there was a main effect of culture [Wald  $\chi^2(1,169) = 23.69, p < .001$ ] and a main effect of recall context [Wald  $\chi^2(1,169) = 12.05, p < .01$ ], qualified by a significant culture  $\times$  recall context interaction [Wald  $\chi^2(1,169) = 10.27, p < .01$ ]. For both contexts, the U.S. participants were more likely to report directive functions (overall, 13%) than were the Chinese participants (overall, 4%). The interaction was explained by the fact that for the U.S. participants, there was no effect of context on directive functions, whereas for the Chinese participants, there was a significant effect of context [Wald  $\chi^2(1,78) = 12.13, p < .001$ ], whereby directive functions were more likely to be reported in the think-about context (7%) than in the talk-about context (1%).

Finally, for self functions, there was a significant main effect of culture [Wald  $\chi^2(1,169) = 9.97, p < .01$ ], whereby the U.S. participants were more likely to report self functions (9%) than were the Chinese participants (4%). There were also main effects for recall context [Wald  $\chi^2(1,169) = 4.58, p < .05$ ] and memory theme [Wald  $\chi^2(1,169) = 5.23, p < .05$ ], qualified by a significant recall context  $\times$  theme interaction [Wald  $\chi^2(1,169) = 4.59, p < .05$ ]. The interaction was explained by the fact that for personal memories, there was no effect of context, whereas for social memories, there was a significant effect of context [Wald  $\chi^2(1,161) = 5.68, p < .05$ ], whereby self functions were more likely to be reported in the think-about context (7%) than in the talk-about context (4%).

### Discussion

In Experiment 2, we examined the functions of autobiographical memory in a broader array of recall settings by asking participants to report why they thought about or talked about everyday memories that were elicited by cue words. In addition, we compared beliefs about remembering in Chinese and European American young adults. As in Experiment 1, the participants commonly reported reasons for remembering that were not functional in nature. However, unlike in Experiment 1, external cues were more likely to be reported than aspects of the memory event. This difference may reflect methodological differences: whereas Experiment 1 focused the participants on recent memories, which might have biased their responses toward

aspects of the memory event, Experiment 2 allowed the participants to report a wider variety of memory events. Indeed, the events reported had taken place, on average, 6 years prior to the recall. Overall, functional reasons were reported less frequently in Experiment 2 than in Experiment 1. This, again, may reflect methodological differences whereby in Experiment 1, the reminiscing (alone in a dorm room) and social sharing (at a party) situations might have oriented the participants more toward memory functions.<sup>5</sup>

As in Experiment 1, there appeared to be a greater emphasis on social functions in the talk-about context. This is consistent with our expectation, given that social functions often revolve around conversational contexts. Although directive functions were reported less frequently, the Chinese participants in Experiment 2 were still more likely to report directive functions in the think-about context than in the talk-about context. Also, as in Experiment 1, self functions were rarely reported. However, unlike in Experiment 1, self functions were more likely to be thought about rather than talked about, although this was only true for social memories. Finally, as in Experiment 1, social memories favored social functions as a reason for remembering, particularly in the think-about context. This may reflect the participants' desire to build relationships and foster intimacy by thinking about shared experiences with others.

A number of cultural differences emerged. As was expected, the U.S. participants reported more functions than did the Chinese across recall contexts. In contrast, the Chinese participants were more likely to report external cues as a reason for remembering. Together, these findings suggest that the U.S. participants may have been more consciously aware of the functions of remembering and may have used remembering in a more deliberate, goal-directed way than did the Chinese participants. In addition, we observed that the U.S. participants reported talking about memories more frequently than did the Chinese participants. This finding is consistent with the proposal that sharing one's past experiences with others is more socially valued in the U.S. than in the Chinese cultural context (Wang & Ross, 2007).

### GENERAL DISCUSSION

The present study was the first in which individuals' beliefs about why they remember the experiences of their everyday lives were empirically examined, taking into account recall context, culture, and event theme. Although there has been much theorizing about the functions of remembering in everyday life (e.g., Bluck & Alea, 2002; Neisser, 1988; Nelson, 1993; Pillemer, 1992), there is much less empirical work that has investigated how people think about using their everyday memories. The present study adds to the literature first by providing additional evidence with regard to individuals' beliefs about how they use their memories and, second, by identifying the ways in which contextual factors influence these beliefs.

Our participants reported both functions and nonfunctions as reasons for remembering, and interestingly, across the experiments, these nonfunctions were more commonly

reported than functional reasons. When reflecting on why they remember, individuals appear to recognize that many events are simply more memorable and that remembering may occur without any particular goal in mind. Still, there was evidence from our data for beliefs reflecting all three major functions. Furthermore, social functions were more frequent than self and directive functions, especially in the talk-about context. This result is consistent with past research with adults' memories across the life span (Hyman & Faries, 1992) and with mother-child memory sharing (Kulkofsky et al., 2009). These findings support the social interactionist account that social functions are the primary function of autobiographical memory and that autobiographical memories only exist *because* they are socially sharable (Neisser, 1988; Nelson, 1993, 2003). On the other hand, directive functions were infrequent, and self functions were rare across the two experiments. The lack of self functions is particularly surprising, given the emphasis placed on self functions in the theoretical literature (e.g., Conway & Pleydell-Pearce, 2000; Greenwald, 1980; James, 1931; Wang, 2001). Thus, although we found evidence for the three broad functions of autobiographical remembering, the evidence for self functions (and to a lesser extent, directive functions) was far weaker, and the participants often believed that their remembering served no particular purpose.

How shall these findings inform current theorizing about the three broad functions of reminiscence? We contend that it is important to first distinguish between different meanings of functionality. As we noted in the introduction, *function* may entail how memories are deliberately used in everyday life—which is the focus of our methodology—as well as how memories serve adaptive purposes often without individuals' conscious effort or even awareness. Current theories have been focused on the three major categories of memory *uses* (e.g., Bluck & Alea, 2002), but the distinction between deliberate memory usage and somewhat automatic adaptive purpose has not been made explicit (but see Woike, 2008). It is possible that the three functions manifest both ways, although given their importance, they may often work without the individual's deliberate effort. Indeed, the low reporting of self functions in the present study and by Kulkofsky et al. (2009) suggests that self functions may be particularly less salient or consciously accessible. Individuals may believe that they are engaging in remembering for other purposes, such as engaging in conversation, and yet the act of remembering may still serve the purpose of building self or identity. In support of this view, there is a growing literature suggesting that self functions, such as identity building, may be embedded in social communicative functions of remembering such that even sharing memories for entertainment purposes may help individuals build identity (McLean, 2005; McLean & Thorne, 2006; Pasupathi, 2001). When cued to think about self or identity functions, as is the case when rating scales are used, these functions may become more evident, particularly in the context of thinking or talking about highly emotional events or life stories (e.g., Bluck & Alea, 2009; Bluck et al., 2005; Rasmussen & Berntsen, 2009); how-

ever, our findings suggest that they are not particularly salient functions in adults' everyday remembering. Furthermore, our results show that in many cases, individuals do not appear to believe that they are using memories at all. Rather, they believe that they are remembering because of external cues or some memorable aspects of the events that triggered the memories. These memories, however, are not necessarily unimportant to the individuals. Their functions may simply not be consciously available. Berntsen (2007) argued that involuntary memories serve important functions and often represent an individual's current goals and motivations. Thus, we propose that future theorists clearly delineate conscious uses of remembering and adaptive outcomes of remembering and consider the ways in which these types of function may differ.

Our results further suggest that contextual factors, including recall context, culture, and memory theme, influence individuals' beliefs about remembering. Thus, when answering the question "Why do people remember the events of their lives?" it is important to consider how they are remembering, what they are remembering, and the larger cultural context in which the remembering is taking place. The contexts and contents examined in the present study only represent a small sampling of potential areas of investigation. For example, it may be fruitful to consider the role of the social partner when determining the effect of social contexts on functions; certainly, events shared with friends at a party differ in their content and function from events shared with a significant other in a private setting. Thus, we strongly encourage future researchers to take a contextual approach to examining functions.

Our findings with regard to the effects of culture deserve additional discussion. In the Chinese context, where past research has indicated that remembering one's personal experiences is valued to a lesser extent, external cues—which might indicate more automatic, non-goal-directed retrieval—were more often reported, whereas each of the three functions was reported less frequently than by Americans. Together, these findings suggest that because personal experiences may be deemphasized in the Chinese context, Chinese individuals may rarely consciously recruit autobiographical memories to serve everyday goals. For Chinese individuals, remembering appears to be something that just happens without a deliberate purpose in mind. Importantly, however, this is not to say that autobiographical memory is not functional in the Chinese context. Examinations of the content of adults' autobiographical memories seem to suggest that they do fulfill particular cultural goals. For example, Wang and Conway (2004) found that autobiographical memory narratives of Chinese middle-aged adults were more likely to include themes indicating directive uses of memory than were European Americans' narratives, which may reflect the goals of self-improvement that are prominent in Chinese culture. These goals may simply be so deeply rooted that they are enacted in remembering without conscious awareness.

Remembering one's personal experiences is a context-dependent activity. The present results suggest that both recall and cultural contexts influence not only how or what

one remembers, but also *why* one remembers. In the present study, we add to the literature on understanding the functions of remembering by examining individuals' beliefs about why they remember. Our findings suggest that individuals do appear to believe that everyday remembering can serve everyday goals but that remembering may also occur because some events are more memorable and that external cues can also lead to recall. Importantly, both the immediate context in which remembering occurs and the larger cultural milieu influence beliefs about remembering. We encourage future research endeavors in this area in order to provide a complete understanding of the process of autobiographical remembering.

#### AUTHOR NOTE

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## NOTES

1. Preliminary analyses showed no effect of the participants' ethnicity for any of the variables of interest, in line with our theoretical assumption that beliefs about remembering reflect the larger shared cultural milieu. Thus, ethnicity is not considered further in the analyses.

2. Initially, we coded events that took place in society at large as a separate category. However, these events were rare (one memory in Experiment 1 and five memories in Experiment 2), and therefore these events were combined with other social memories.

3. Further investigation of the age distributions showed that the U.S. and Chinese participants recalled, respectively, 5% and 9% from 0-5 years, 10% and 21% from 6-10 years, 13% and 15% from 11-15 years, 48% and 41% from 16-20 years, and 24% and 14% from 21 years and later. Thus, the main reason for the age difference is that the Chinese participants recalled more memories from the 6- to 10-year period and fewer memories from the recent period than did the Americans. These differences were not due to any particular cue words. We analyzed the data by controlling for the age of memory and obtained an identical pattern of results.

4. Some participants recalled only social memories or only personal memories; thus, the sum of  $n$  for these subsamples is not equivalent to the total number of participants.

5. We thank an anonymous reviewer for suggesting this interpretation.

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