Infantile amnesia reconsidered: A cross-cultural analysis

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A number of theories have been offered over the past hundred years to explain the phenomenon of infantile amnesia, the common inability to remember autobiographical experiences from the first years of life. Recent comparative studies that examine autobiographical memories in different populations, particularly populations in North America and East Asia, have yielded intriguing findings that provide a unique opportunity to revisit some of the major theoretical views and to propose new accounts. In light of these findings, this article discusses five theoretical explanations for infantile amnesia, including cognitive and social discontinuity, the emergence of the self, early parent–child memory sharing, functions of autobiographical memory, and the complexity of life experience. The reconsideration of infantile amnesia from a cross-cultural perspective suggests that while the basic mechanisms and contributing factors may be universal, the specific ways in which these mechanisms and factors are manifested differ qualitatively across cultures. A theoretical approach that takes the larger cultural context into account can help us understand this long-standing puzzle.

Infantile amnesia, the common inability to recall autobiographical events from the early years of life, was first discussed by Freud (1949) who asserted that it “turns everyone’s childhood into something like a prehistoric epoch” (p. 54). Freud claimed that such amnesia results from the repression of sexual impulses, with a blockage separating childhood memories from adult consciousness. Since Freud’s time, the phenomenon of infantile amnesia has been a puzzle that continues to intrigue psychologists. A number of explanations have been offered over the past hundred years, and the topic remains the focus of theoretical debate (e.g., Conway & Pleydell-Pearce, 2000; Fivush & Hamond, 1990; Howe & Courage, 1993, 1997; Neisser, 1962; Nelson, 1996; Pillemer & White, 1989; Schachtel, 1947; Wang, Leichtman, & White, 1998).

Recent cross-cultural studies on adults’ childhood recollections and children’s autobiographical reports have provided new insight into this phenomenon. Infantile amnesia seems to be universal and is, in fact, even more prominent in some non-Western societies. On average, European and Caucasian-American adults can consciously remember events they experienced at about age 3.5 (Pillemer & White, 1989), which is more than 6 months earlier than native Koreans and Chinese and overseas Asians (MacDonald, Uesiliana, & Hayne, 2000; Mullen, 1994; Wang, 2001a). The content of earliest memories also shows marked differences across cultures. Childhood memories reported by American adults tend to be voluminous, specific, self-focused, and emotionally elaborate, whereas memories provided by Chinese are often skeletal, generic, centred on relationships, and emotionally unexpressive (Wang, 2001a). Even at preschool age, American children tend to have autobiographical accounts that are more elaborate, more specific, more self-focused, and less socially oriented than do their Korean and Chinese peers (Han, Leichtman, & Wang, 1998; Wang, 2002; Wang & Leichtman, 2000).

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Thanks to Ulric Neisser whose inspiration and help made this article possible. Also thanks to Robyn Fivush, Michael Owren, Michael Ross, and the anonymous reviewers for their insightful comments and critiques on earlier versions of this article. Special thanks go to the author’s Harvard mentors and collaborators Michelle D. Leichtman and Sheldon H. White.
These cross-cultural data raise a challenging question: Are traditional theoretical views rooted in Western conceptions of memory, self, and human development able to account for the phenomenon of infantile amnesia (Wang & Brockmeier, 2002)? It is time to revisit existing theories and to propose new ones, in light of the new data. Here I draw upon findings from different cultures, particularly North-American and East-Asian cultures, to discuss five cognitive-social accounts, aiming at a more comprehensive understanding of infantile amnesia in a comparative context. I choose to discuss the five theories because they are particularly relevant to the studies reviewed here that set forth to test cultural explanations of infantile amnesia. Some of the theories (e.g., Fivush, 1994; Neisser, 1962) have indeed motivated empirical cross-cultural work. These theoretical views focus on both the loss of early childhood memory and the remembrance later on, with an increasing emphasis on the establishment and/or enrichment of a new memory system and its functions. Together, they constitute a pluralistic account of infantile amnesia. Through a cross-cultural analysis, I examine whether and how various mechanisms and factors proposed in these theories are manifest in different cultures. My ultimate goal is to demonstrate that it is in the process of cultural symbolic, material, and discursive interactions that autobiographical memory emerges as both an individual expression and a cultural product.

Let me first outline some characteristics of the present analysis. First, I adopt Pillemer and White's (1989) definition of autobiographical memory, which refers to memory for self-pertaining information and events that can be transformed into linguistic form, written or spoken (overtly or covertly), through intentional recollective efforts. It does not include memories that are only enacted through behaviour and only reinstated automatically by affective or contextual cues. In this view, infantile amnesia occurs when memories from the earliest years of life are no longer accessible to adult recall through conscious, language-based probes. Whether these memories are lost, blocked, or not encoded (properly) in the first place is a question of debate, (for reviews, see Howe & Courage, 1993; Nelson, 1993a; Pillemer & White, 1989), and the theoretical views discussed here do seem to hold different opinions on this issue. I shall offer my comments as the analysis comes along.

Second, most cross-cultural studies to date have focused on North-American and East-Asian populations. I therefore base my analysis mainly on findings from these cultures, while incorporating data from other cultures wherever available. On the other hand, comparisons between North-American and East-Asian cultures are of particular interest due to the drastic differences in cognition, emotion, and social behaviour among the peoples, which derive from centuries of differences in religious, philosophical, and political traditions (Hsu, 1970; Markus & Kitayama, 1991; Shweder et al., 1998). I will provide descriptive accounts of different beliefs and practices in these cultures in relation to remembering and forgetting when discussing each theory of infantile amnesia. Note, however, that this cross-cultural analysis is conducted on a considerable degree of within-culture variation among individuals and sub-culture groups (e.g., Miller & Sperry, 1987; Wang et al., 1998).

Third, the analysis of memory content helps to identify factors that operate to maintain early childhood memories. Although some theorists have attributed the loss of memories of early experiences to the particular content of these memories (Freud, 1949; Neisser, 1962; Schachtel, 1947), research on infantile amnesia to date has mostly focused on the age and accessibility of earliest memories among adults and the ability to recall past events among preschool children. No systematic consideration has been given to the characteristics of memory content that may facilitate or hinder memory retention. Here I will show that the analysis of memory content integrates the functional, cultural, and historical dimensions of early memories and therefore, is crucial for our understanding of the timing and degree of infantile amnesia. Table 1 summarises the aspects of memory content examined in past cross-cultural studies.

Finally, empirical studies on infantile amnesia have focused on either adults’ retrospective recollections of childhood events or preschoolers’ early event memories. These two suites of work tend to be isolated or treated as parallel during theorisation. Although we have to wait for longitudinal investigations to directly examine the link between early memory development and the later inability of adults to access earliest memories, cross-cultural studies make it possible to look into this link at a group level. By systematically examining cultural variations in adults’ childhood recollections, children’s autobiographical reports,
and parent–child reminiscing about shared past, I will show various social and cognitive factors that affect children’s personal remembering early on and continue to operate on the content and accessibility of adults’ memories of the earliest years of life.

**COGNITIVE AND SOCIAL DISCONTINUITY**

The cognitive-social discontinuity explanation of infantile amnesia was presented by Schachtel (1947) and Neisser (1962), who attributed it to the shifts in cognitive functioning that are concomitant with development towards adult modes of thought. In conformity with societal conventions that impose different responsibilities, values, and mores on adults than on children, early memory schemata must accommodate to adult modes of thought as the child grows up. This discontinuity in the “mental tools” required for processing, representing, organising, and retrieving event information makes the reconstruction of early childhood memories almost impossible. Consequently, early memories are blocked or obscured, as adults do not have the “suitable receptacles” to access them. The shifts of cognitive schemata occur not only in the realm of sensation, perception, and language, but in the domain of emotion as well.

Wang’s (in press) recent study of the schematic knowledge of emotion in American and Chinese 3- to 6-year-olds provides support for this “discontinuity account”. It has already been established that American adults show an earlier offset of infantile amnesia than do Chinese (Wang, 2001a). If the development of adult-like emotion knowledge contributes to that offset, it would not be surprising to find that American children acquire such knowledge earlier than their Chinese peers. To test this hypothesis, 154 Caucasian-American and Chinese children were interviewed individually once at school. Children were presented 20 short stories with a protagonist of their age, gender, and ethnicity, and were asked to identify the feeling states of the protagonist by choosing among faces showing happy, sad, scared, or angry emotions. Children’s mothers and a second group of adults read the same stories and judged the protagonist’s emotions in the same fashion. Based on the proportion of concordant judgements between children and adults in each culture, findings showed that American children ($M = 0.66$, $SD = 0.14$) had a better grasp of emotion knowledge and made more rapid progress in such knowledge than their Chinese peers ($M = 0.55$, $SD = 0.13$). This earlier acquisition of adult emotion schemata in American children should help them to understand the emotional meanings of events in a more mature way, and hence to organise their personal memories more efficiently for long-term retention.

In addition to describing the overall forgetting that results from cognitive change, Neisser (1962) specified the different consequences of various accommodative processes. In absorption and displacement, later forms of cognitive schemata either absorb the earlier ones completely or push them into the unconscious, leading to total amnesia for infancy. In contrast, integration (where the older structures become part of the more comprehensive new ones) leads to only partial loss of early memories or to changes of

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**TABLE 1**

Aspects of memory content examined in empirical cross-cultural studies

<table>
<thead>
<tr>
<th>Memory content</th>
<th>Description</th>
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<tbody>
<tr>
<td>Elaborativeness</td>
<td>Volume, details, and descriptive texture of memories (e.g., adjectives, adverbs, and modifiers)</td>
</tr>
<tr>
<td>Specificity</td>
<td>Two distinct categories of memory, one of “specific” events that happened at a particular point in time (“When I was about 4, I got stung by a bee”) and the other of “generic” events that took place regularly or on multiple occasions (“My mom took me to school every day”)</td>
</tr>
<tr>
<td>Autonomous orientation</td>
<td>Expressions of personal predilections (“I preferred not to go to class”), opinions (“That trip was really fun”), emotions (“I was mad at my brother”), and self-determination (“My mom didn’t want me to stay out late, but I did anyway”)</td>
</tr>
<tr>
<td>Social orientation</td>
<td>A group orientation as indexed by memory themes concerning collective activities of the family, school, or neighbourhood and focusing on an individual’s interactions/relations with others; an individual orientation as indexed by memory themes that concern exclusively personal experiences/feelings (e.g., success, frustration, nightmares) and focus on an individual’s own role in an event</td>
</tr>
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perspective. Neisser suggested that displacement is most likely to occur when a culture emphasises discontinuity between different phases of development, while integration tends to take place when transitions are gradual and consistent.

Let us consider this suggestion by looking at child-rearing beliefs and practices in US and China. To many American parents, particularly among the middle class, the child is, from birth, a full agent who has certain needs and potentialities to be fulfilled and encouraged into full development (Fiske, Kitayama, Markus, & Nisbett, 1998; Ochs & Schieffelin, 1984; Sunley, 1955). It is also believed that socialisation should start immediately, “since an empty mind and the absence of conflicting patterns are highly conductive to suggestibility” (Bernard, 1973, p. 273). In line with these beliefs, socialisation in the American family often starts early and changes gradually, in accordance with age-related social-cognitive requirements and disciplinary demands (Gralinski & Kopp, 1993; Ochs & Schieffelin, 1984). To many Chinese parents, in contrast, early childhood is divided into discrete periods: first of innocence and then of reason (Ho, 1986; Stevenson, Chen, & Lee, 1992; Wolf, 1970; Wu, 1996). A young child at the age of innocence is regarded as an incomplete individual who requires no parental input beyond the necessities of food, clothing, and shelter, and who cannot take responsibility for any wrongdoing or failure. Children at the age of reason (starting from about 4 to 6 years of age), however, are expected to obey their parents while preparing to eventually fulfil both societal and filial obligations. Although disagreement exists over the timing of the two periods (Chao, 1994; Miller, Wiley, Fung, & Liang, 1997), socialisation in the Chinese family tends to be characterised by a dramatic shift, changing abruptly from little systematic training to strict, even harsh discipline.

Thus, according to Neisser’s (1962) proposal, the drastic discontinuity in Chinese socialisation is likely to induce absorption or displacement of cognitive schemata and produce massive amnesia for early childhood. In contrast, the gradual transition in American socialisation should lead to integration, resulting in relatively minor amnesia. This is, indeed, echoed in the differences in the age and elaborativeness of the earliest memories between Americans and Chinese (Wang, 2001a), suggesting that early environments may create different degrees of discontinuity in cognitive growth, which may, in turn, cause different degrees of discontinuity in memory.

The cognitive-social shift explanation of infantile amnesia (Neisser, 1962; Schachter, 1947) further suggests that language acquisition plays a primary role in the loss of early memories. The shift from pre-verbal to linguistic functioning produces new modes of cognitive activity that do not allow full integration of earlier representations. As a result, very few memories of infancy are preserved. Other theorists have also discussed the overwhelming effect of acquiring a language on the offset of infantile amnesia (Fivush, 1994; Nelson, 1993a, 1996; Pliler & White, 1989), emphasising both cognitive and social functions of language in representing memories in linguistic form and in sharing memories with others. The acquisition of language is universal; so is the phenomenon of infantile amnesia. However, modes of memory sharing are specific to cultures and have varied consequences for memory, a theoretical view that I will turn to later.

The effect of culture is also noted. Neisser (1962) stressed that acculturation, or any substantial change in culture, requires a cognitive reorganisation. As a result, memories of autobiographical events occurring before the culture change may be largely cut off from personal history or altered to suit the present attitudes of the individual. To test this hypothesis, Otoya (1987) compared early childhood memories of bilinguals proficient in English and Spanish, who had either grown up entirely in the US or moved there after age 6. The earliest memories reported by bicultural participants (61.2 months) were from more than 1 year later than those of monicultural participants (45.6 months). Similarly, Leichtman, Davies, and Wang (2000) gave bilingual Chinese-American middle-school students open-ended memory interviews about early childhood events in either Chinese or English. Participants who were more acculturated (e.g., having switched their inner voice entirely to English and being less fluent in Chinese) had earliest memories 17 month later than their less “Americanised” peers (44.9 and 27.6 months, respectively), regardless of the language in which they were interviewed (Michelle Leichtman, personal communication, 2000). Other studies have shown that bilingual immigrants recall more childhood events (occurring in the country of origin) in their mother tongue than in their adopted language. As a “context” or “state” at encoding and retrieval, language plays an important role in determining the accessibility of auto-
biographical memories (Marian & Neisser, 2000; Schrauf, 2000; Schrauf & Rubin, 1998). Findings of Otoya (1987) and Leichtman, Davies, & Wang (2000) further suggest that, independent from language, cultural transitions may produce changes of cognitive structure, which further influence the accessibility of early memories. The more substantial or abrupt the cultural shift, the greater is the infantile amnesia that an individual is likely to experience.

Although dramatic changes in social circumstances during the early years of life make retrieval of childhood memories more difficult, such an effect cannot be generalised to all life transitions occurring in this period, such as entry to school or a family move, as the cognitive-social shift theory would predict. Indeed, Wang et al.’s (1998) study of native Chinese high-school and college students showed that individuals who had attended preschool (41.5 months) reported childhood memories dating from 11 months earlier than those who had not (52.5 months). Moreover, individuals who began preschool earlier exhibited earlier autobiographical memories. Mullen (1994) found a similar positive relation between the timing of a family move and the age of earliest memory in her Caucasian-American and Asian-American samples. Notably, among the individuals who had attended preschool or experienced an early family move, only a small percentage provided earliest memories that were actually about the school entry (5%) or the move (3%). In other words, these changes themselves are not likely memorable events so much as providing potentially datable milestones that help to locate an earlier event in time, thereby facilitating retrieval of earlier memories (Mullen, 1994; Wang et al., 1998). On the other hand, it is equally arguable that, instead of making some memories more accessible, school entry or family move may induce the adult subjects to assign earlier dates to the events they remember (Ulric Neisser, personal communication, 2001). Nevertheless, the cognitive and social discontinuity created by such life transitions does not seem to have detrimental consequences for memory, a finding that challenges the Schachtel-Neisser model.

THE EMERGENCE OF THE SELF

Another proposed cognitive mechanism is the development of self-concept, which is thought to be a critical precursor to the offset of infantile amnesia.¹ According to Howe and Courage (1993, 1997), the onset of a cognitive self at about 18 to 24 months, as indicated by mirror self-recognition, provides “a knowledge structure whose features serve to organize memories of experiences that happened to ‘me’” (Howe & Courage, 1997, p. 499). It is a rudimentary form of the conceptual self (Neisser, 1988) that continues to evolve with age and experiences. Other researchers argue that the onset of autobiographical memory requires a more sophisticated self-conceptual system emerging at about 2½ to 4 years, the same age period from which American adults on average retrieve earliest childhood memories. Nuanced versions of the advanced self-concept include a temporally extended self (Povinelli, 1995), a conscious self-identity (Foulkes, 1999), and an evaluative self-awareness (Welch-Ross, 2000). In spite of the disagreement over the nature and timing of the self required, there is a consensus among the theories that, as autobiographical memory is “memory for information related to the self” (Brewer, 1986, p. 26), a functioning self is a prerequisite to the emergence of such memories. Once established, the self serves to organise autobiographical information in a structured fashion, which facilitates the retention of the information in long-term memory. This theoretical view suggests that early event memories become inaccessible later on because they are not linked to the newly established self-concept and therefore are not made autobiographical, although it is not clear in the theories whether these memories are lost or remain intact.²

Evidence for the self-concept account is mixed. Reese and colleagues have conducted longitudinal studies to empirically test the ontogenetic connection between the emergence of the cognitive self suggested by Howe and Courage (1993) and the acquisition of personal event memory. They found that individual differences in self-recognition skill at 19 months predicted the abilities of 2½-year-olds to report autobiographical events and to share memories with others (Harley & Reese, 1999). However, findings from a follow-up study

¹“Self” in this article pertains to the conceptual self. Theorists have referred to this aspect of self variously as self-concept, self-knowledge, self-cognition, self-understanding, self-representation, conceptual representation of the self, etc.
²Howe and Courage (1997) later argue that failures to recall early life experiences result from a failure to maintain information in memory storage, rather than a problem of finding the right retrieval cue. This view suggests that early memories are indeed lost.
(Reese, 2002) indicated that this effect was in fact moderated by other factors such as maternal reminiscing style and children’s initial language skill. Reese suggests that self-recognition may be only an indirect contributor to later verbal memory of children. Studies by Welch-Ross (2000) have yielded preliminary findings showing that the development of an organised self-concept facilitates children’s recall of past events.

To date there is no evidence that the onset of self-concept (of primitive or advanced forms) varies as a function of culture or prior experiences (e.g., with mirror) (Priel & de Schonen, 1986). The self-concept account is therefore unable to explain the pervasive cultural differences in the age and content of earliest memories. Indeed, given that both memory and self are socially formulated (Bruner, 1990; Fivush, 1994), the emergence and development of memory and self must be understood in the social context. To address this issue, Wang and colleagues examined childhood recollection and self-description in young Chinese adults who came from either only-child or multiple-child families (Wang et al., 1998). Compared with sibling adults, only-child Chinese showed a greater “individual-orientation”, where they described themselves in more self-focused terms (e.g., “I am short, smart, and ambitious”), provided earliest memories that were from almost 9 months earlier (39.0 months), and were more focused on their personal roles and experiences. These findings are consistent with previous observations that the copious adult attention paid to only-children in Chinese families tends to produce egotistical offspring (e.g., Lee, 1992). Early upbringing thus appears to shape how the self is organised and, further, how personal experiences are remembered. In addition to requiring that a conceptual self be in place, the offset of infantile amnesia may be facilitated or hindered by particular characteristics of self sustained by divergent socialisation practices.

The influence of the self on autobiographical memory becomes more potent when examined in a broader comparative context. As anthropological and psychological studies indicate, a variety of cultural stances are embodied in the conception of selfhood. In Western cultures that emphasise the inherent separateness of distinct persons, the self is perceived as individuated, self-contained, and well-bounded. In contrast, many East-Asian cultures emphasise the web of human relatedness, and view the self as realised through bilateral connections with significant others (Markus & Kitayama, 1991). These self-conceptions generally remain constant in a particular culture in spite of substantial individual and subgroup variations. They affect the way people sample, process, and retain information (Fiske et al., 1998; Markus & Kitayama, 1991; Shweder & Bourne, 1984; Triandis, 1989). Specifically, “independent” selves are sensitive and responsive to self-focused information that is elaborately represented in their memory system. In contrast, “interdependent” selves are attuned to information about social interactions and collective activities, with exclusively self-focused information being less salient.

This selectivity in information processing and representation may affect the content and accessibility of memory for autobiographical events over the long term. To test this hypothesis, Wang (2001a) conducted a study where 256 Caucasian-American and Chinese college students reported their earliest childhood memory on a memory questionnaire and provided self-descriptions on a shortened Twenty Statements Test (TST) (Kuhn & McPartland, 1954). The average age at earliest memory of Americans (41.9 months) was almost 6 months earlier than that of Chinese (47.5 months). Americans reported voluminous, specific, self-focused, and emotionally elaborate memories; they also placed emphasis on individual attributes in describing themselves (e.g., “I am honest, happy, intelligent”). In comparison, Chinese provided relatively brief accounts of earliest experiences centring on collective activities, general routines, and emotionally neutral events; they also included a great number of social roles and group memberships in their self-descriptions (e.g., “I am a Buddhist, a son, a student”). Across the entire sample, individuals who described themselves in more self-focused and positive terms provided more specific and self-focused memories. It appears that an independent self is linked with the early establishment of an elaborate, specific, emotionally charged, self-focused autobiographical history, whereas an interdependent self is linked with the later establishment of a skeletal, generic, emotionally unexpressive, relation-centred autobiographical history.

Thus, autobiographical memory varies in content, form, style, and timing of emergence, depending on whether the culture views the self as essentially separated from or bonded to other selves. Focusing on the self as an autonomous agent seems to increase the chances of encoding durable, consciously accessible, self-focused
memories for later retrieval. Focusing on the self as part of larger groups engaged in collective activities, on the other hand, may discourage remembering detailed, individual-centred autobiographical information. These cross-cultural data also suggest that the cultural construct of the self acquired through early socialisation may affect every stage of remembering. The content and accessibility of early childhood memories may reflect not only the characteristics of the child’s self at the time of the remembered experience, but also the cultured schemata constituting the adult’s self and personality at recollection.

**EARLY PARENT–CHILD MEMORY-SHARING**

According to the social-interactionist account of infantile amnesia, children acquire autobiographical memory through learning to converse about their experiences with significant others (Fivush, Haden, & Adam, 1995; Nelson, 1993a, b; Pillemer & White, 1989; Tessler & Nelson, 1994). Early narrative interactions, especially parent–child conversations about shared experiences, teach children appropriate forms of personal reminiscing (i.e., what to remember, how to remember, and why to remember it), reinstate past experiences through linguistic representation, and highlight the social function of autobiographical memory. Studies conducted in North-American culture have demonstrated that children participate in memory conversations with adults early in life, and by age 3 to 4—the average onset of autobiographical memory in American adults—children can independently contribute to discussions of the shared past (Fivush & Hamond, 1990). The social-interactionist account views the offset of infantile amnesia as a direct result of children’s developing narrative skills (Fivush et al., 1995; Fivush & Schwarzmueller, 1998) or the establishment of a narrative-based, socially accessible, new memory system (Nelson, 1993a; Pillemer & White, 1989). Events occurring before the acquisition of such skills or the new memory system are either eventually lost or remain inaccessible to intentional verbal recall.

Researchers have identified two markedly different conversational styles among North-American parents and their children that show long-term effects on children’s autobiographical memory (Leichtman, Pillemer, Wang, Koreishi, & Han, 2000; Peterson & McCabe, 1994; Reese, Haden, & Fivush, 1993; Tessler & Nelson, 1994). Elaborative parents tend to have lengthy memory talks with their children, provide rich and embellished information about the events under discussion, and invite children to co-construct stories about shared experiences. In comparison, pragmatic parents tend to have short and directive conversations with their children about past events, provide very little embellishment about what happened, and often try to elicit correct answers in a way that resembles a memory test. Compared with the children of pragmatic parents, the children of elaborative parents typically remember more details and come to discuss past experiences in a more coherent and elaborative way. Harley and Reese’s (1999) longitudinal study with New Zealand Europeans showed similar long-term effects of parental reminiscing style on children’s verbal memory skills.

Do early narrative environments differ across cultures in ways that may account for the systematic cultural differences in adults’ earliest recollections? Against the backdrop of the social-interactionist hypothesis, comparative studies have revealed frequency, stylistic, and thematic differences between parent–child memory conversations in North-American and East-Asian cultures. Mullen and Yi (1995) found during a 1-day observation that Caucasian-American mothers engaged their 3-year-old children in talking about past events three times as often as Korean mothers. Studies by Wang and colleagues (Wang, 2001b; Wang, Leichtman, & Davies, 2000) showed that when American and Chinese mothers talked with their 3-year-old children at home about shared past events, American mothers used an elaborative conversational style in which mother and child co-constructed their memories by elaborating on and supplementing each other’s responses, together keeping the conversation going. In contrast, Chinese mothers employed a pragmatic conversational style where they frequently posed and repeated factual questions without providing embellished information. The Chinese children often simply replied to their mothers’ inquiries without giving any new information. Choi (1992) also found that Korean mothers tended to be more directive and less supportive than Canadian mothers when conversing about the past with their young children.

The content of parent–child conversations further reveals different focuses of early socialisation. American parents often comment on children’s personal roles, preferences, feelings,
and opinions, focusing on the child as the central character of the co-narrated story. Taiwanese, Korean, and Chinese parents, in contrast, frequently refer to social norms and behavioural expectations, conveying to children collective values such as obedience to authority, appropriate conduct, and a sense of shame (Miller et al., 1997; Mullen & Yi, 1995; Wang, 2001b; Wang et al., 2000). This didactic attitude of Asian parents accords with Confucian ethics shared in these cultures that emphasises discipline, moral rectitude, and filial piety (Ho, 1986; Wu, 1996). In short, the narrative interactions between American parents and their children reflect the cultural emphasis on autonomy and self-affirmation.

In studies where Caucasian-American and Asian preschool children were asked to recount their personal experiences independently, the style and content of their narratives reflected these cultural variations in parent–child reminiscing (Han et al., 1998; Wang, 2002; Wang & Leichtman, 2000). During individual interviews, American, Korean, and Chinese 4-, 6-, and 8-year-olds were asked open-ended questions about autobiographical events, such as how they spent their last birthday or what happened at a recent time when they felt a particular emotion. American children provided elaborative, self-focused memory narratives and placed a great emphasis on personal predilection and autonomy. In comparison, Asian children’s narratives were often skeletal, relation-oriented, and exhibited a great concern with social engagement, authority, and moral rectitude. Notably, these structural and thematic differences between personal memories of American and Asian children well correspond with the cultural differences in adults’ childhood recollections (Wang, 2001a).

Thus, different conversational styles employed by American and Asian parents provide different models of autobiographical remembering to their children. The highly elaborative, child-centred conversational style of American mother–child pairs is well suited to the goal of facilitating the development of children’s autonomy and autobiographical remembering. The pragmatic, mother-centred conversational style of Asian mother–child pairs situates children within a larger social hierarchy and downplays the use of memory to construct one’s unique personal history. Growing up in different narrative environments, children gradually internalise different values and styles from their parents in talking about personal experiences, which further influence the content and long-term accessibility of their memories. These cross-cultural findings extend the social-interactionist theory of memory development, highlighting the importance of early narrative environments in shaping the timing and degree of infantile amnesia.

**FUNCTIONS OF AUTOBIOGRAPHICAL MEMORY**

Memory is functional. People remember events that are personally significant and forget those that seem trivial, at least within the normal range of human experiences. This functional approach to memory is implied in the accounts elaborated by Freud (1949) and Schachtel (1947), as well as in contemporary cognitive theories of memory. Both Freud and Schachtel believed that very early memories contain elements, sexual or psychosomatic, that are not acceptable to the adult world and therefore are not socially and psychologically functional as the child grows older. As a result, these memories are repressed. In addition, Schachtel (1947) suggested that memories preserved are reconstructed from past experiences in the service of present needs, fears, and interests. Similarly, a number of contemporary theorists have posited that both encoding and retrieval of personal information strongly depend on the structures of mental schema containing an individual’s implicit self-theories, attitudes, and beliefs. Memories that are not consistent with or functional to current goals, as memories from early childhood may not be, tend to be either reconstructed or forgotten (e.g., Conway & Pleydell-Pearce, 2000; Ross, 1989; Singer & Salovey, 1993).

The functional view of memory emphasises both initial selective encoding and later retrospective reconstruction in determining memory retention, seemingly open to the possibility that memory “loss” may result from any encoding, storage, or retrieval failures.

Nelson (1993a, 1996) puts forward an adaptive evolutionary perspective in which all memory is considered as a functional system with adaptational value. She makes an explicit distinction between the function of autobiographical memory and other earlier-established (in development and evolution) memory systems. She contends that shared memory talk gives rise to an autobiographical memory system, which, once established, serves both social and personal functions, i.e., an important device for social solidarity and a
necessary ingredient in the human concept of the self. Pillemer (1998) further elaborates on the various functions—adaptive, emotional, directive, and communicative—of remembering personal event memories. These theoretical approaches, however, do not directly attribute the offset of infantile amnesia to the function of autobiographical memory, both of which are viewed as being achieved through sharing memory narratives (Nelson, 1993a). The suggestion here is that memory function may not only be an outcome of but also a contributor to the retention of early event memory.

The functional account of infantile amnesia can best be understood in a cross-cultural context, particularly in relation to different self-conceptions. In Western cultures that advocate an independent, autonomous self, personal event memories with specific details and elaboration are an important way for people to distinguish themselves as unique individuals. In contrast, in many East-Asian cultures that inculcate an interdependent, relational self, there may be less need for elaborated, detailed autobiographical memories. Also, representing the self as a collection of unique individual attributes may result in encoding and recollecting self-focused information that reflects and expresses such individuality, whereas representing the self as part of on-going relationships may facilitate remembering events about significant others or about the self in relation to others that further reinforce such collectivity. The different functions of autobiographical memory pertinent to cultural construct of the self have direct implications for the different degrees of elaborativeness and social orientation identified in both adults’ and children’s personal narratives in American and Asian cultures (Han et al., 1998; Mullen, 1994; Wang, 2001a, 2002; Wang & Leichtman, 2000).

The same account can be further applied to explain the different degrees to which people report specific (e.g., “the time I fell in a pond”) versus generic memories (e.g., “going to school”). Research has shown that depressed patients tend to recall a larger proportion of generic memories than do normal controls (Williams & Scott, 1988), and younger children are less capable of reporting specific memories than older children (Fivush et al., 1995; Nelson, 1996). Substantial individual variations have also been documented within the US (Pillemer, 1998; Singer & Salovey, 1993). The mechanisms underlying such differences are yet to be fully explicated. In their study on autobiographical memory in American, Korean, and Chinese 4- and 6-year-olds, Han et al. (1998) found that older children in all cultures provided more specific memories than younger children (US: \( M = 4.16 \) and 4.47; Korea: \( M = 3.00 \) and 4.20; China: \( M = 2.85 \) and 3.68). However, by age 6, Asian children’s narratives were similar to those of American 4-year-olds in the degree of specificity. Such cultural difference in memory specificity, apparent early in preschool years and persisting into adulthood, may reflect the functions of specific versus generic memories emphasised in different cultures (Wang, 2001a). Specific episodic memories (e.g., a memory about having a birthday party with Chelsea Clinton) are unique to the individual and therefore help to differentiate the self from others. Generic script memories (e.g., a memory about going to church every Sunday) form the knowledge base of social conventions that is necessary for successful participation in human activities.

Whether and how early memories are preserved for later retrieval may also be influenced by their perceived importance (function) in constituting one’s self and identity. Western cultures place a great value on the accumulated history of an individual. As Hume (1739/1882, p. 542) stated, “Had we no memory, we never shou’d have any notion . . . of that chain of causes and effects, which constitute our self or person.” In this view, a coherent, elaborate, well-integrated life history with the individual cast as the central character is indispensable for psychological integrity and well-being. In other words, “the sureness of ‘I was’ is a necessary component of the sureness of ‘I am’” (Wyatt, 1963, p. 319). In many Asian cultures, in contrast, the construction of identity is less dependent on a unique autobiographical history but more on a web of relationships (Markus & Kitayama, 1991; Triandis, 1989). Social status and roles, be it as a member of a family, a profession, a group, or a nation, are regarded as crucial elements in defining one’s self. Sankaranarayanan and Leichtman (2000) found that, when asked about memories of childhood events, their rural Indian informants appeared puzzled and even annoyed, “Why would one want to remember such things?” This devaluation of early memory in forming one’s self and identity may have contributed to the greater degree of infantile amnesia among Asians. A recent study by MacDonald et al. (2000) with New Zealanders also lends support for the functional account. Consonant with their cultural emphasis on the importance of the past,
Maori adults (32.6 months) reported earliest memories from 10 months earlier than participants of European descent (42.9 months) and more than 2 years earlier than Asian immigrants (57.8 months).

Finally, the functional approach provides a new perspective to understanding different cultural attitudes towards memory sharing. As a common social practice, memory sharing in North-American culture not only helps to construct a unique autobiographical self (Fivush, 1994; Nelson, 1996), but also serves important interpersonal functions. It brings closer the narrator and the listener by demanding from both parties trust, effort, and a sense of involvement and commitment, thereby creating a context of co-constructed and further, shared, thoughts and feelings. As Pierre Janet once commented, “The essential goal of retention and remembering is not limited to recounting actions; rather, it is to bring hearers to an experience of the sentiments they themselves would have had if they had been present at the events” (cited in Ross, 1991, p. 148). Such co-construction of the past is not fostered in the same way among Asians, whose interconnectedness can often be effectively achieved through existing social orders such as kinship and relational hierarchy. Purposeful recounting of one’s past with others appears unnecessary or even improper in this respect. On the other hand, talking about the past is regarded as instrumental in educating the young and reinforcing the collective (Hsu, 1970; Miller et al., 1997). The different functional views of memory sharing contribute to different narrative environments both within the immediate family circle and in the larger cultural milieu (Mullen & Yi, 1995; Pillemer, 1998; Röttger-Rössler, 1993; Wang et al., 2000), which in turn give rise to different personal remembering.

THE COMPLEXITY OF LIFE EXPERIENCE

A life with adventures, dramas, and changes comprises momentous and significant events that are both memorable for their own sake and likely to be often told and retold with interested others. A life with stability and repetition, on the other hand, gives little chance for an individual to sample meaningful, consequential events out of his or her memory and to “brag” about them with others. As Scheibe (1986) claims, the construction, development, and maintenance of life narratives require adventure, be it manifesting in sport, in gambling, or in risking oneself in physical danger. It is these variations that provide the stuff of life stories. Depending on the lifestyle of an individual, the availability of landmark events and the likelihood of recounting these events vary accordingly and have direct consequences on the richness and elaborativeness of his or her autobiographical history. In this view, the lack of memory may be originated from the lack of memorable experiences in the first place, rather than an inability to encode, maintain, or retrieve information in long-term memory.

This approach to memory has not been directly applied to explain infantile amnesia. Nevertheless, current data have provided some evidence. When comparing earliest childhood memories among Chinese young adults who grew up in either urban or rural environments, Wang et al. (1998) found that the former group was able to report memories from more than 1 year earlier than the latter (42.7 and 55.7 months, respectively). This finding is unlikely to be due to a global cognitive factor associated with socio-economic differences, because both samples were from highly selective schools. Leichtman (1996) found similar rural–urban differences among Indian children in access to early autobiographical memories. It is possible that, compared with the simple and stable life of rural areas, the relatively rich and complex lifestyle of the city could have contributed to the greater accessibility to early childhood events in the urban samples. Change and novelty associated with the city life produce the material out of which autobiographical memories are developed and sustained. Repose and redundancy associated with the countryside, on the other hand, render a life with boredom and no story. This account is closely related to the functional approach, where the value of experiencing and remembering unique life events varies according to one’s living environment.

The life variation account for infantile amnesia can be further applied to the world context. As revealed in anthropological studies (Hsu, 1970), Western cultures, especially in the US, tend to promote changes and variations, “where change is desired because it is equated with progress, and where neither the physical nor the human scene is constant” (p. xiii). In contrast, Asian cultures value stability and continuity; they are “wholly steadfast … where life for a majority was almost fully predictable” (p. xiii). Accordingly, a culture of change may create a variable, “exciting” life-
style for its individuals and, as a result, abundant memorable events to dwell upon, whereas a culture of constancy may create a life of repetition and “ordinariness” and therefore, few notable events to live by. This suggestion agrees with cross-cultural findings where Asians show a more extensive and pervasive amnesia for their early childhood than do Europeans and Caucasian-Americans (MacDonald et al., 2000; Mullen, 1994; Wang, 2001a). Interestingly, in light of contemporary societal changes, a prediction from this explanation would be that in future years we should see less difference in early memories between Asian and Western cultures.

The different attitudes towards variation versus certainty are also reflected in child-rearing practices. In many American families, young children are allowed a great deal of autonomy and are encouraged to explore their environment. Parents often believe that the young child’s spontaneity and curiosity are benevolent rather than dangerous and, therefore, should be encouraged (Wolfenstein, 1955). In contrast, Asian parents emphasise the inhibition of explorative behaviour and risk-taking among children (Wu, 1996). They often discourage, or even prevent, their young children from actively exploring or manipulating much of their accessible environment because it is thought to be “dirty” or dangerous. Kagan, Kearsley, and Zelazo (1980) reported that while Chinese mothers believed that staying close to the mother was the trait most characteristic of their children, American mothers gave their top ranks to laughing easily, being active, and being talkative. A childhood full of trials, uncertainties, and adventures, as well as the associated fear, anticipation, and excitement, is more likely to engender elaborative, vivid, self-focused memories that an individual can reflect upon over the lifetime, compared with a childhood of predictability. MacDonald et al.’s (2000) data with Maori adults also support the claim that the nature of children’s early experiences may play a role in the age and content of earliest memories. Growing up in an environment where funerals are an important part of community life and often involve active participation of young children, many Maori adults recalled in their earliest memories funerals that occurred when they were only 3, whereas none of their European and Asian counterparts did so.

A culture of personal story telling also encourages adventure. Telling and retelling autobiographical events with interested others not only create enriched, elaborated, enduring life stories, but also give individuals motivations for future venturing. As discussed earlier, memory sharing is highly regarded in North-American culture where people are often inclined to talk about their personal dramas and are fascinated by those of others (Pasupathi, 2001; Pillemer, 1998). Even at preschools, it is a common practice that, every Monday morning, the youngsters sit in a circle each telling a story about the fun things he or she did over the past weekend. Sharing memories of oneself with others is not equally valued in many Asian cultures where people often show clumsiness and/or reluctance in discussing their own life experiences and do not encourage others to do so (Röttger-Rössler, 1993). Memory sharing underscores the psychosocial function of autobiographical memories and the adventures that create these memories, motivating individuals to venture further and remember more. It is not surprising, then, that Americans are often better than Asians at providing coherent and detailed accounts of life events.

**CULTURE, INDIVIDUAL, AND THE PHENOMENON OF INFANTILE AMNESIA: A SYNTHESIS**

Infantile amnesia, the lack of remembrance of early childhood, is a universal phenomenon. It differs across cultures, however, in timing and magnitude. Autobiographical memories of the early years of life show semantic and structural variations across cultures, which are apparent early among preschool children and persist into adulthood. In light of the available cross-cultural findings, I have revisited three major cognitive-social accounts of infantile amnesia and outlined two new explanations pertinent to memory functions and the complexity of life experience. These five theoretical views focus on different psycho-social processes related to the onset of infantile amnesia and the emergence of autobiographical memory. Given the nature of autobiographical memory, they are not independent from one another but interconnected through a thread—the “self”.

The cognitive-social discontinuity account emphasises the influence of mental changes that result from social demands when the child enters the adult world (Neisser, 1962; Schachtel, 1947). Such changes should indeed comprise a sophisticated, socially endorsed self-concept built upon
the earlier in-placed “cognitive self” (Howe & Courage, 1993, 1997), which is necessary but may not be sufficient for the remembering of personal experiences (Povinelli, 1995). The importance of the self is further reflected in social-interactionist and functional approaches to memory development. In these approaches, parent–child collaborative construction of the shared past facilitates the establishment of an autobiographical history that serves as a primary source for self-understanding and an enduring self-concept (Nelson, 1996; Pillemer, 1998). The complexity of life experience further affects the availability of self-relevant events for individuals to remember and to tell. The present cross-cultural analysis illustrates the connections among these theories, bringing into awareness the effects of different conceptualisations and structures of the self in shaping the degree of infantile amnesia. It further indicates that autobiographical memory emerges through the interplay among many intrapersonal, interpersonal, and sociocultural factors.

First of all, the cognitive discontinuity entailed by mental growth and societal demands makes it difficult or impossible to retrieve memories of events that took place before the change occurs. Such discontinuity, however, varies in nature and duration across cultures, which contributes to different degrees of forgetting.

Second, the emergence of the cognitive self and later more sophisticated self-concept in the course of development makes it possible that an event can be remembered as happening to “me”. Culture-specific construct of the self further shapes the timing, content, and style of early personal event memories.

Third, early parent–child memory sharing helps children encode memory information in linguistic form and, consequently, facilitates the retention and retrieval of the memories. Parents in different cultures do not engage their children in memory conversations equally or in the same manner, and these differences produce culture-specific personal reminiscing in children as young as age 3.

Fourth, the psychosocial function of autobiographical memory determines, ultimately, what, how, why, and when individuals remember their experiences and even whether they remember at all. Cultures hold different views of the functions of personal memory and memory sharing, which results in different degrees of elaborativeness, specificity, and social orientation in memory.

Finally, a life filled with varied experiences generates material out of which autobiographical memories are developed, remembered, and embellished. Cultural institutions and practices place different emphases on change versus continuity, thereby creating differences in the availability of enduring life stories that can be told and retold to oneself and with others.

Thus, the present analysis lends support to a pluralistic account of infantile amnesia. Many ideas developed using data from Western samples hold up well to close scrutiny with cross-cultural findings. Nevertheless, while more basic and abstract aspects of mechanisms and contributing factors may operate similarly in different cultures, the specific ways in which these mechanisms and factors are expressed or manifested differ qualitatively. For a personal event to be remembered and to persist over time, the child has to have a well-developed self-concept to provide a referential frame. She or he has to have “mature” schemata to understand and organise the event information. She or he has to have sufficient narrative skills to share the memory with others and to internalise others’ verbal representation into her or his own memory system. Yet cultures offer different affordances, requirements, and preferences—in terms of in what form, at what pace, and for what purpose—for self-concept, cognitive schemata, and narrative skills to develop and further play their roles. Cultures also create macro and micro contexts embodying different beliefs, institutions, tools, and symbols that shape the ways people live, experience, and remember. The offset of infantile amnesia is thus a result of a complex matrix of influences where “culture and the psyche ‘make each other up’” (Shweder et al., 1998, p. 867).

One may ask whether cultural differences in autobiographical memory reflect actual differences in memory representations or simply result from different narrative norms across cultures. My answer is “both!” Culturally shared systems of meaning or “cultural models” (Holland & Quinn, 1987) provide a behavioural foundation for individuals in participating in, interpreting, remembering, and recounting life events. Content and stylistic differences in memories among people from different cultures should therefore reflect the pervasive effect of cultural models on both memory representations (memory traces originally encoded and reconstructed over time) and memory narratives (at the very moment of retrieval). Wang and Ross (2001) recently con-
ducted a study to empirically test this question using a self-priming manipulation paradigm, and their results support this theoretical view. In addition, although memory researchers tend to focus on either representation or narrative due to their empirical and theoretical constructs, these two aspects of memory are often intertwined, given that each time of verbal recollection writes and rewrites the memory traces that originally may or may not be encoded in linguistic format.

“If memory is not talked about, to oneself or to others, should it persist?” (Nelson, 1993a, p. 378).

It should be noted that the present analysis of the five theoretical explanations of infantile amnesia is mainly built upon data from North-American and East-Asian cultures. There are an enormous range of differences among Western cultures (e.g., Dunn & Brown, 1991) and among Asian cultures (Han et al., 1998; Nakamura, 1964) in the degree of social engagement and the ways of interpersonal connection, just as there are substantial subgroup and individual variations within any single society (Fivush, 1994; Miller & Sperry, 1987; Wang et al., 1998). Also, many traditional beliefs and practices in Asian cultures are undergoing transformation with industrialisation and Western influences (e.g., Wang & Hsueh, 2000; Wang et al., 1998). Although normative differences do exist between particular Eastern and Western cultures (Fiske et al., 1998; Hsu, 1970; Markus & Kitayama, 1991), a further “thick description” of each culture (Geertz, 1973) will be necessary in future research to help reveal specific cultural elements that may affect the content, structure, function, and accessibility of early autobiographical memories. In addition, although most cross-cultural studies reviewed here are original and important research on infantile amnesia, some data are borrowed from other fields of inquiry. Relating theories to these data might seem post hoc or speculative. Clearly, building upon the basis of current knowledge, much more empirical work must be carried out to explore and test cultural explanations of infantile amnesia.

The re-examination of the phenomenon of infantile amnesia in light of new data and novel viewpoints indicates that any theoretical attempt to resolve this longstanding puzzle should take the cultural context into account. Autobiographical memory is not an isolated individual product; nor is it solely constrained by the individual’s immediate social context. The structural organisation of a society, and its moral, religious, and philosophical traditions as well as other aspects of the cultural system, play a crucial role in determining the emergence of autobiographical memory and the mode in which that memory is preserved. A comprehensive theory of infantile amnesia must encompass both individual and cultural sentiments, taking account of the psychosocial niche in which the phenomenon is taking shape and being shaped.

Manuscript received 26 June 2001
Manuscript accepted 13 December 2001

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