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The Cultural Shaping of Autobiographical Memory: A Review of Developmental Theories and Empirical Evidence

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Abstract. Autobiographical memory (AM) represents a vital facet of human cognition, encompassing personal experiences and specific life events. This review traces AM development from infancy through childhood, beginning with episodic autobiographical memories (EAM) as AM's building blocks, leading to the emergence of AM. Neuroimaging studies are included to review the neurodevelopment of EAM and AM, highlighting the involvement of the frontal cortex and temporal lobes in these processes. The review extensively discusses three major theoretical models: the Social Cultural Developmental Theory, the Model of Culturally Situated Autobiographical Memory Development, and the Bio-Psycho-Social Model. These models are examined to understand cross-cultural differences in AM specificity, particularly focusing on the influence of social interactions, self-goals, language, emotion knowledge, and maternal reminiscing styles. The review also selects empirical studies from the last four years (2020-2024) that provide further support and evidence for these models. These studies underscore the influence of cultural contexts on AM development and highlight cultural differences in positive and negative memory recall, maternal reminiscing styles, and their impact on children's AM development, emphasizing the complex interplay of neural, cognitive, social, and cultural factors in shaping autobiographical memory.

Keywords: autobiographical memory, episodic autobiographical memories, memory development, cross-culture development

1. Introduction

Autobiographical memory (AM) is a vital aspect of human cognition that refers to the recollection of personal experiences and specific events from an individual's life [1]. AM is also a uniquely human ability that goes beyond simply recalling events. It integrates perspectives, interpretations, and evaluations across oneself, others, and time to construct a personal history [1]. Episodic autobiographical memories (EAM) are memories of specific personal events, containing sensory-perceptual details and a sense of re-experiencing the event, and they are considered to be important components and building blocks of AM [2]. To differentiate episodic autobiographical memories, current AM models include autonoetic consciousness (AC) as a major evaluating criterion [3, 4, 5]. AM has been identified as a memory that needs autonoetic awareness to link single, independent, and specific past events one by one, and to integrate them with personal identities, cultural characteristics, knowledge, and even religious experiences to form an ability that can mental time travel from past to future [4]. Compared with AM, EAM can be evoked without autonoetic consciousness and seems to also be displayed in animals [6].

On the level of neuroscience, the frontal cortex and temporal lobe have been observed to be involved in AM [7, 8]. In 2002, Conway et al. reported the activation of the prefrontal cortex in AM, and this finding is consistent with nearly all following studies' results [7]. More specifically, in the construction of AM, studies have reported predominantly left-lateralized activation, and activity in the ventrolateral prefrontal cortex has been linked to the strategic retrieval, verification, and selection of information from the posterior cortical association areas [8]. Nevertheless, the study also reported the activation of dorsolateral prefrontal cortices, the superior medial and lateral prefrontal cortex, and the dorsal component of the anterior cingulate and the frontopolar cortex in memory reconstruction [8]. Interestingly, the activation areas of AM show an overlap with the default mode network (DMN), which has been considered a prominent part of consciousness generation [9], and it indirectly supports the consciousness involved in AM and differentiates it from EAM. In the temporal lobe, studies have reported the activation of the medial temporal lobe region (MTL) which includes the hippocampus, parahippocampus, perirhinal, and entorhinal cortices [5, 10]. However, the specific role of the hippocampus in autobiographical memories is a topic of ongoing debate among researchers. Some evidence

suggests that the hippocampus is crucial for retrieving autobiographical memories [11], but in long-term retrieval, MTL activation is not consistently observed in AM imaging studies due to various factors [12, 13].

2. The development of Autobiographical Memory

In AM, the first part to be developed is episodic memory, and it can start to be observed in the first year [14]. In the first year, infants display the ability to imitate others' actions and behaviors, and this is strong evidence supporting that infants have formed episodic memories of specific past events, recalling the "what", "where", and "when" of events [15]. By the age of two, infants demonstrate the ability to reliably recall specific actions and characteristics of objects involved in events, even after significant delays. They also have the capacity to remember the spatial locations and the sequence of events [14]. At the same time, the hippocampus is also undergoing rapid development. From age one to age two, the hippocampus volume increased 13% [16], and it has also been found to be the largest volume increase structure at age two compared to other subcortical structures [17]. These studies results are also consistent with the correlation between the development mode of the hippocampus and episodic memory that hippocampus development lays the foundation for the emergence of EAM, and the large use of EAM keep activating hippocampus and increases its development due to the high neuroplasticity in infant [18]. As previously mentioned, the emergence of AM requires fully developed autonoetic consciousness. AM gradually starts to develop around age 5 [19]. In this year, children's language competence starts to grow and initially have the ability to use language to describe events as they occur. With this ability, children can start to construct their AM with the help of parents' lead. For instance, with cues of time, place, and emotion, children can retrieve the memory of a travel experience, construct preliminary personal AM with details and retain longer. At age 7, self-concept, subjective sense of self, AC, and spatial and temporal understanding are further developed to support the emergence of AM [20]. The frontal cortex, as a vital part of consciousness generation, has been found to be deeply involved in memory formation [21]. Since birth, the frontal cortex keep thickening rapidly and gray matter volumes reach their peak around the age of 11 in girls and 12 in boys; then the relatively useless connections are pruned [22]. Due to the development pattern of the frontal cortex is from back to front direction (primary motor cortex mature first) [23], AM and AC are gradually developing with the PFC grows. After the AM has emerged, it will continue to develop into adulthood and show more cross-culture differences [24].

Within the realm of AM studies, numerous models have been postulated to examine the intricate interplay between cultural dimensions and social development. This review will primarily explore several key culture and social development models, as well as relevant theories, with a particular emphasis on the factors that potentially contribute to cross-cultural variations in AM specificity.

3. The Social Cultural Developmental Theory

In this theory [19], the influence of social interactions, especially those based on language, is emphasized and considered an important pathway for such cultural differences. During the preschool years, children's narrative abilities are still in the nascent stages of development, rendering them incapable of providing comprehensive descriptions of past events, so adults need to provide most of the content and structure, with children participating by simply repeating or confirming what the adult says [25]. This adult-provided language scaffolding helps children organize their experiences in a coherent and meaningful way. Thus, adults' narrative styles have a significant influence on children's styles and may cause consistency in the reminiscing styles between maternal and children's. With the help of adults using language to help them organize their experiences, children gradually learn how to demonstrate an event in a context that includes when, where and what. More importantly, children learn to add evaluations such as personal view of events, mental activity, and emphasize the details that they think are important.

With the influence of maternal reminiscing style on AM, the cultural difference can be seen in AM by investigating the maternal style differences between East and West. A series of studies found that (1) Australian mothers demonstrated significantly greater elaborative and supportive reminiscing compared to Chinese mothers [26]; (2)Australian and American mothers give children more encouragement, support in reminiscence and greater autonomy during mother–child interactions than Chinese mothers [27, 26]; (3) Chinese families prefer using personal reminiscing to impart moral and social lessons, while American parents tend to use storytelling primarily for entertainment purposes [28]. One study more directly compared maternal reminiscing and narration and children's reminiscing [29]. The study found that Eastern-American (EA) mothers and their children are consistent in focusing more on the internal states, organizing information more in causal sequences and with unique elaborations. Chinese mothers more often mentioned their external behavior and general information [29]. The results are also consistent with previous studies showing that EA mothers view sharing memories as a fun activity compared to Chinese mothers' view of memory as an important cognitive skill for great performance.

4. Model of culturally situated autobiographical memory development

In this model [30], Wang includes more varied factors that may shape AM development. Self-goals establish the subject and relationship in reminiscence. Western parents from countries like Germany encourage self-expression and autonomy, while eastern parents from countries like India support children to develop a sense of relatedness and to complying with social norms. The self-

goals different may lead western children to be prone to setting themselves as the autonomous self-goals and expressing individual uniqueness, whereas non-western children prioritize relational self-goals, pay more attention to the relationships with others and remember more group activities. This theory is supported by a recent study showing that European Americans (EA) display significantly less in mentioning others in AM contrasted with Chinese participants, who reported more school-centered events in reminiscence [31]. This model also emphasizes the importance of language in AM and indicates that Hong Kong children who speak English more use their unique attributes to define themselves whereas children who speak Chinese more often use social-relational terms to define themselves [32]. Moreover, emotion knowledge and perceptual style are also the pathways to shape cultural AM. In Western cultures, parents focus more on the emotion setting when they talk with the children, which helps children build rich emotional knowledge, resulting in remembering more emotional details from their experiences and better understanding of emotion compared to Asian children whose parents focus more on teaching behavior and discipline. Perceptual style is shaped in parent-child interactions. Western parents lead children to pay attention to individual toys and focal characters in reading, causing children to be prone to remembering more specific events. In contrast, Asian parents encourage children to focus on the relationships between different toys and different characters in reading, causing children to display a holistic view in AM.

5. Bio-psycho-social model of autobiographical memory

The integrative model [32] of memory development emphasizes the interplay between neural maturation and environmental influences throughout life. In early childhood, the brain's structure and function are relatively simple, relying on basic sensory and emotional systems. As the brain matures, particularly in regions related to language and complex thinking, children own the ability to receive and process the emotion stimulus. The model highlights that emotional activation plays a critical role in maturing the regions related to language and complex thinking. Early emotional experiences, shaped by cultural and social contexts, influence how memories are formed and recalled. The parents who more focus on emotion in leading children may earlier fully activate emotions and motivation – related subcortical regions of the limbic system and accelerate the process of corticalisation [33]. Nevertheless, as the brain develops, areas of the orbitofrontal and inferotemporal cortices are involved in filtering important, socially relevant information [34].

6. Recent Empirical Studies Review

The first author conducted a thorough database search using PubMed, Science Direct, Web of Science, and google scholar. The search results ranged from 2020 to 2024. This review also summarize the latest empirical studies that shows different aspects of social specificity, directly or indirectly supporting the models or theory this review mentioned above.

6.1. Self-Goals

There are three studies published from 2021 to 2023 investigating the different aspects of cultural differences in positive and negative memory. Wang's studies [35] compared the number of success and failure memories that EA and Asians recalled and found that EA recalled more success memories than failure, but Asians recalled an equal amount of these two types of memories. This study also found that compared to the Chinese participants, American participants recalled more AM memories than vicarious memories which refers to recollections of events that happened to other people. Linking to the model, the difference between the Asian cultural background that facilitates attention to relationships with others (relational self-goals) and the western autonomous self-goals (more attention to self-uniqueness) may lead these finding observed. Not just the number, another study [36] reported that American participants' positive memories were also older than those of the Chinese participants. In contrast, Chinese had more recent negative memories. Interestingly, not just positive memories, a study found that EA participants would also think and talk more about their earliest general memories compared to CA participants [31]. This series of studies further supports the shaping of the self-goals pathway in (AM) specificity and reveals the detailed specificities it may generate.

6.2. Maternal Reminiscing

In recent years, a series of studies has more detailed investigate the differences in the reminiscing styles of English and Thai Mothers in language scaffolding and their influence on children's AM development and provided newer evidence supporting the social cultural developmental theory [37, 38, 39]. Maternal reminiscing was observed in book sharing and event narration. The studies' findings are consistent with the studies mentioned previously. The English-speaking mother all used high-elaborative and child-centered styles characterized by frequent use of affirmations, positive feedback, negative feedback, and recasting. They employed a variety of scaffolding strategies, including descriptions, extensions, labels, and recasts, to build on their children's narratives. American mothers also used direct action requests, reflecting the individualistic cultural values that emphasize explicit communication, autonomy, self-competence, and self-expression. Their narrative approach, known as the story-builder style, encourages children to continue narrating by validating their contributions and promoting co-narration. In contrast, Thai mothers exhibit the frequent use of attention directives, indirect action requests, and commands. They prefer a repetitive approach, open-

ended questions to prompt responses but focus more on monitoring behavior and modeling appropriate behaviors, and indirect commands to instill collectivist cultural values that emphasize group harmony, respect for elders. Not surprisingly, children's reminiscences show consistent with their mother and reflect own culture. English-speaking children frequently use affirmations, labels, negative feedback, closed-ended questions, and direct-action requests in their narratives, speaking more and contributing significantly to storytelling, which reflects individualistic values of elaboration, self-expression, and direct communication. In contrast, Thai children often repeat their mothers' utterances, provide more positive feedback, and contribute less to storytelling, acting more as attentive listeners. This reflects collectivist values of group harmony. Both groups share universal scaffolding strategies, such as the use of expansions and repetition.

7. Conclusion

This systematic review underscores the complexity of autobiographical memory (AM) development, shaped by an intricate interplay of neural, cognitive, social, and cultural factors. The findings highlight that AM, while universally significant, manifests differently across cultures due to variations in maternal reminiscing styles, language use, emotional focus, and perceptual strategies. Western cultures, emphasizing individualism, foster AM development through elaborative, child-centered narratives that promote self-expression and autonomy. Conversely, Eastern cultures, with a collectivist orientation, encourage repetition, behavioral monitoring, and group harmony in children's narratives. Theoretical models like the Social Cultural Developmental Theory, the Model of Culturally Situated Autobiographical Memory Development, and the Bio-Psycho-Social Model provide comprehensive frameworks to understand these cultural divergences. Empirical evidence further supports these models, revealing that cultural contexts significantly influence the content, structure, and emotional tone of autobiographical memories. This review highlights the need for continued cross-cultural research to deepen our understanding of AM's development and its implications for cognitive, social, and emotional functioning across diverse populations.

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