From Individual to Collective: A Psychological Perspective on Collective Memory

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Abstract

[Objective]To explore the psychological mechanisms underlying the formation and maintenance of collective memory. [Method] Using epidemiological research methods, the psychological mechanisms of collective memory formation were systematically investigated. [Result] The study systematically elaborated on psychological mechanisms in collective memory formation, including social contagion, retrieval-induced forgetting, shared reality, and network convergence; focusing on existing memories, it also explicated the psychological principles underlying collective memory validity. [Limitation]Research on the validity of cultural memory is insufficient, and sensitivity to memory changes induced by media technological transformations is inadequate. [Conclusion] Psychological research on collective memory has achieved certain results, yet it still requires broadening perspectives and actively promoting localized research. Keywords collective memory; dialogue; epidemiology; communicative memory; cultural memory

Full Text

From Individual to Collective: Collective Memory from a Psychological Perspective

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Abstract: [**Objective**] This article explores the psychological mechanisms underlying the formation and maintenance of collective memory. [**Methods**] We systematically investigate these mechanisms using epidemiological research methods. [**Results**] The paper systematically elucidates key psychological mechanisms in collective memory formation, including social contagion,

retrieval-induced forgetting, shared reality, and network convergence. Focusing on pre-existing memories, we also explain the psychological principles governing the validity of collective memory. [**Limitations**] Research on the validity of cultural memory remains insufficient, and there is inadequate sensitivity to memory changes triggered by transformations in media technology. [**Conclusions**] While psychological research on collective memory has achieved certain results, it still needs to broaden its horizons and actively promote localized research.

Keywords: Collective Memory; Dialogue; Epidemiology; Communicative Memory; Cultural Memory

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For most of the 20th century, psychologists approached memory research through an individualistic lens, examining memory processes at the expense of social influences (Danziger, 2009). The concept of collective memory challenged this individualistic tradition and opened new avenues for sociological inquiry. Halbwachs (1925) introduced this concept in the early 20th century based on the importance of social groups in providing the "individual" with frameworks for encoding and retrieving memories. Building upon his mentor Émile Durkheim' s notion of "collective consciousness," Halbwachs elaborated on the social nature of memory, arguing that "individual memory is only possible when understood from the perspective of social groups" (Halbwachs, 1992). Following this line of thought, collective memory research has gradually established a sociology-dominated tradition over the past three decades (Olick, 1999; Kansteiner, 2002), while psychological approaches to collective memory have remained marginalized.

This marginalization stems from two main factors. First, psychology' s emphasis on individualistic methods and focus on individual memory seems incompatible with the social qualities of collective memory. Second, collective memory research has suffered from "abuses of memory" (Berliner, 2005), often being conflated with concepts such as "social memory," "collective recollection," "national memory," and "public memory," and associated with numerous other concepts including "representation," "ideology," "narrative," "discourse," and "meaning-making." Despite these definitional and methodological controversies that once constrained psychological research on collective memory, the situation began to change from the late 20th century onward. The introduction of the extended mind framework (Clark & Chalmers, 1998) and its application in psychology significantly advanced the field. Extended mind emphasizes that all human cognition and action arise from interactions between individuals and their external environment, reconciling collective memory "in the world" with memory "in the head." From an individual psychological perspective, memory is viewed as a product of interaction between the brain and the external world, with each person developing their own mnemonic style through interac-

tion with the environment. When these individual memory patterns converge, they can be interpreted as collective memory. From a social perspective, as "publicly available symbols," society (or authorities) reorganizes the world to facilitate better social remembering (Coman et al., 2009), with the fundamental purpose of promoting collective memory formation through socially created and maintained artifacts. This memory formation results from inter-individual communication, interaction, and sharing, and is closely associated with specific group membership identities. In this sense, collective memory is not merely a symbolic representation but rather "group members' shared individual memories associated with the group' s collective identity" (Hirst & Manier, 2008; Wertsch & Roediger, 2008). By "embracing" the social qualities of memory, collective memory has gained more reasonable and scientific explanations while simultaneously stimulating the flourishing of psychological research.

2. From Formation to Maintenance: The Epidemiological Metaphor in Collective Memory Research

Epidemiologists primarily study how diseases spread through populations until reaching epidemic proportions. Similarly, for a memory to become collective, it must first spread through a population, converge around shared descriptions of the past, and remain stable over time (Hirst & Manier, 2008; Sperber & Hirschfeld, 2004). Based on this "contagious" mechanism, collective memory from a psychological perspective has been metaphorically framed as an epidemiological project (Hirst & Manier, 2008), with its formation and maintenance analogous to the spread of disease. Questions about why some communities become "infected"while others remain "immune,"and about the scope and duration of contagion across different groups, are thus translated into questions about the effectiveness of collective memory formation and maintenance, constituting the core issues in psychological research on collective memory.

2.1 Formation of Collective Memory

Collective memory formation is a process of memory transmission and convergence. Rather than focusing on already-existing collective memories, foreign psychologists follow a "bottom-up" approach (Hirst et al., 2018), concentrating on the formation of communicative memory and examining memory transmission and formation primarily through "dialogue" contexts. By investigating two dimensions—speakers' "influence on listeners" and "influence on themselves" — they explore the complex mechanisms of memory formation. The "influence on listeners" primarily reveals mechanisms of social contagion and retrieval-induced forgetting, while the "influence on oneself" mainly uncovers the mechanism of shared reality in collective memory. Additionally, to address the convergence of collective memory, the mechanism of network convergence has been extensively explored.

(1) Social Contagion Social contagion refers to the spread of memory from person to person through social interaction (Roediger et al., 2001). Psychologists have not only discovered social contagion effects in collective memory through tightly controlled dialogue experiments (Basden et al., 1997; Gabbert et al., 2003; Wright et al., 2000) but have also validated these effects in free-flowing conversational contexts (Cuc et al., 2006; Gabbert et al., 2003). Furthermore, a special form of social contagion—memory implantation—has also been verified (Meade & Roediger, 2002; Gabbert et al., 2011). Choi et al. (2017) found through studies of participants' recall after exposure to false information that conversation can not only bias people' s memories of actual events but also generate fabricated and false memories for events that never occurred.

Although social contagion can be considered a mechanism of collective memory formation, its strength is closely related to participants' personalities, the nature of events, role positioning, and power dynamics in dialogue. First, personality traits affect information transmission and collective memory formation. Research shows that anxious individuals are more likely to share rumors (Kimmel & Keefer, 1991); children and older adults are more susceptible to misinformation than young people (Ceci & Bruck, 1993; Roediger & Geraci, 2007); individuals open to new experiences, agreeable, extroverted, or more emotional are more vulnerable to misinformation (Frost et al., 2006; Liebman et al., 2002); and people with post-traumatic stress disorder are more likely to form false memories than healthy individuals (Clancy et al., 2000).

Second, the nature of events influences memory transmission. Events with strong emotional experiences are more likely to spread throughout a community (Harber & Cohen, 2005; Luminet et al., 2000), possibly due to individuals' emotional responses. However, since these emotional responses are often culturally bound, the degree of emotional event transmission may vary across cultures (Stone et al., 2015).

Third, role differences in dialogue significantly impact memory. Research on conversations among family members has revealed the crucial role of dominant narrators, who not only control discussions of relevant topics but also frequently introduce non-shared memories, causing conversations to converge around specific stories told by the narrator (Hirst & Manier, 1996; Hirst et al., 1997). Cuc et al. (2006) noted that dominant narrators influence not only the formation of collective memory but also its content.

Fourth, power has an important impact on collective memory. Researchers have analogized "expertise" to power and "warnings" to resistance against power, examining their psychological mechanisms in shaping collective memory. The social contagion effect of expertise has been widely validated (Gabbert et al., 2003; Wright et al., 2000), stemming from its decisive role in source monitoring of information, which effectively increases listeners' trust in speakers (Hirst & Echterhoff, 2008). Considering that experts in dialogue contexts can represent both expertise and narrator roles, thereby exerting combined influence on collective memory, Brown et al. (2009) found that expertise' s influence decreased

in 3-4 person dialogue experiments compared to dyadic pair experiments, while the narrator' s influence increased.

Resistance to power can be viewed as limiting the ability of power to shape collective memory. Researchers typically employ "post-warning" and "pre-warning" methods to make listeners aware that speakers' statements may mislead them, thereby verifying the psychological effects of individual resistance. Both methods effectively inhibit social contagion, with post-warning showing stronger effects than pre-warning. However, post-warning increases listeners' erroneous rejection of initial information, biasing memory, while pre-warning may increase contagion under certain circumstances depending on whether a dominant narrator is present and listeners' memory capacity. The presence of a dominant narrator or poor listener memory makes it difficult to distinguish conversation content from original material, resulting in greater social contagion of misinformation (Echterhoff et al., 2005; Echterhoff et al., 2007).

(2) Retrieval-Induced Forgetting Collective memory is not only a result of collective remembering but also of collective forgetting. Psychologists have found that when individuals remember together, discussion of selective topics strengthens mentioned memories (Abel & Roediger, 2018; Roediger & Desoto, 2016) while simultaneously inducing forgetting in both "speakers" and "listeners." When forgetting occurs in the "speaker," this phenomenon is called intraindividual retrieval-induced forgetting (RIF). Through numerous experiments with different stimulus materials, Western psychologists have consistently verified the RIF effect (Ciranni & Shimamura, 1999; Anderson et al., 1994; Barnier et al., 2004). Unlike selective omission of relevant information due to deception, avoidance of psychological stress, or social taboos, Anderson et al. (1994) argued that RIF occurs because retrieving one memory typically activates other related memories, and to successfully retrieve the target memory, individuals must competitively inhibit related memories. Since this inhibition persists for some time, individuals subsequently forget the inhibited memories.

Extending this "contagious" forgetting mechanism, when forgetting occurs in "listeners," it develops into socially-shared retrieval-induced forgetting (SS-RIF) (Cuc et al., 2007; Stone et al., 2010; Stone et al., 2013), becoming an effective method for establishing collective memory. Following similar research paradigms to RIF, psychologists have verified SS-RIF with different stimulus materials and revealed its psychological mechanisms (Stone & Jay, 2019). Cuc et al. (2007) suggested that SS-RIF may occur because it triggers synchronized retrieval between listeners and speakers, producing similar inhibition and inducing forgetting. Notably, SS-RIF occurs not only in events jointly experienced by recaller and listener but also in non-jointly experienced events, as the recaller' s narrative style may influence the listener' s recall style. Coman et al. (2009) verified the SS-RIF effect of a recaller' s experience on listeners' "flashbulb memories" of the 9/11 attacks.

Although SS-RIF can be demonstrated as a method for establishing collective

memory through induced collective forgetting, this effect does not always occur. Its emergence depends on listeners' goals: when listeners aim to monitor speaker accuracy, they exhibit induced forgetting, but not when monitoring speaker fluency (Cuc et al., 2007).

(3) Shared Reality Dialogue influences not only listeners' memories through social contagion and retrieval-induced forgetting but also speakers' own memories. Beyond the RIF effect, Higgins and Rholes (1978) discovered the shared reality theory through their "Saying-Is-Believing" experiments. They found that speakers actively adjust their narratives in conversation to align with listeners' attitudes, and this "audience tuning" causes speakers to "firmly believe" what they say and converge with listeners' memories. This occurs because speakers, motivated by cognitive and relational needs, are driven to create a "shared reality" with listeners to experience "commonality of inner states about the world" (Echterhoff et al., 2009). Relational motivation refers to the need to connect with others and feel related to them, bringing positive consequences such as emotional well-being, security, and self-esteem. Cognitive motivation refers to the effort after meaning—the need to know and obtain reliable understanding of the world and oneself (Bartlett, 1932). The strength of cognitive motivation increases with individuals' uncertainty or ambiguity about targets, and speakers typically increase cognitive motivation to reduce information uncertainty by establishing goal-aligned mental states with listeners.

While shared reality facilitates memory convergence around a shared past, this process has two important preconditions. First, speakers must have intrinsic (rather than extrinsic) motivation to create a shared reality with listeners. Second, speakers must successfully experience the process of creating a shared reality. Speakers' shared experiences can be thwarted by listeners' negative reactions (Echterhoff et al., 2005), and when listeners lack motivation to co-retrieve information with speakers, speakers may remember different content than listeners (Cuc et al., 2007; Drost-Lopez & Coman, 2018). Once established, shared reality not only enhances memory confidence (Wells & Bradfield, 1998; Kopietz et al., 2010) and improves event memorability (Gable et al., 2004) but also helps individuals form and maintain specific social identities (Hirst, 2010; Reis et al., 2010; Conley et al., 2010; Hardin & Conley, 2001). This, in turn, establishes boundary identity conditions for shared reality formation. When discussing ambiguous topics, individuals tend to transmit information consistent with listeners' attitudes, especially with ingroup (versus outgroup) members (Echterhoff et al., 2009). This not only reveals the origins of stereotypes (Lyons & Kashima, 2003) but also corroborates the identity-relevance of collective memory.

(4) Network Convergence of Memory Collective memory formation is a process of continuous "sharing" of individual memories. If "dialogue" is considered part of social communication, then extending these psychological mechanisms reshapes a community' s collective memory. Although current psychological research on collective memory primarily focuses on dyadic dialogue contexts,

psychologists have expanded sample ranges to verify memory network convergence phenomena and reveal their formation causes as well as the effects of group size and network structure on memory (Stone et al., 2010; Coman et al., 2012; Coman et al., 2016).

The causes of memory network convergence can be attributed to reinforcement and retrieval-induced forgetting induced by dialogue. Coman and Hirst (2012) found that the degree of induced forgetting increases with transmission frequency, causing individuals to converge more extensively around shared descriptions of the past. Moreover, even when community members never directly converse, indirect interactions can promote memory convergence (Yamashiro & Hirst, 2014).

The degree of memory network convergence is closely related to relationship closeness, community size, interaction frequency, community structure, and community type. More direct communication between individuals leads to more obvious memory convergence (Luhmann & Rajaram, 2015); smaller group sizes facilitate memory convergence (Hirst et al., 2018); and community network structure and type are also associated with memory convergence. Isolated groups seem more likely to form shared false memories (Choi et al., 2017), while non-clustered networks show better memory convergence effects than clustered networks (Coman et al., 2016).

2.2 Maintenance of Collective Memory

Once formed, a community' s collective memory must remain stable over time to be considered collective memory. Current research on collective memory maintenance differs methodologically from formation research because it focuses on pre-existing memories, typically involving personally significant memories of historical and national importance, including family memories and generational memories. Psychologists therefore often follow a "top-down" approach (Hirst et al., 2018), systematically exploring the stability mechanisms of communicative memory while revealing general principles of cultural memory validity.

(1) Communicative Memory General Rules of Memory. Compared to cultural memory, communicative memory is a "living" memory whose depth is closely related to event characteristics and individual psychological mechanisms. Regarding event characteristics, research shows that communicative memory typically includes distinctive figures (heroes, villains, fools, etc.) (Licata & Klein, 2010); events with catastrophic or historically progressive significance are remembered more deeply; highly structured material is remembered better than loosely structured material (Rubin, 1997); and compared to distant historical events, people tend to describe "living" historical events in more contextualized, individualized ways (Schuman & Scott, 1989). Additionally, memories of personally experienced events are more vivid and specific. For example, World War II veterans tend to remember specific events, while others tend to recall the war within a broader framework (Zaromb et al., 2014). Memory retention is also

closely related to individual psychological mechanisms. Experiments on recall and recognition of U.S. presidents show that memory and forgetting patterns align with classic memory research (standard serial position curves and traditional power function forgetting curves) (Roediger & DeSoto, 2014), while false recognition reflects the close relationship between familiarity and false alarm rates (Roediger & DeSoto, 2016).

Memory and Identity. Since individuals and collectives mutually influence the construction of cultural understanding of the past (Assmann & Czaplicka, 1995; Schejter, 2009; Zerubavel, 1996), collective memory research must focus on both individuals and collectives (Hirst & Manier, 2008). The association between memory and identity has become an important perspective for explaining collective memory stability. Current research on communicative memory stability focuses primarily on "traumatic memory." Brown et al. (2009) found that individuals from countries that experienced major historical transformations are more likely than those without such experiences to date personal events using historical terms (e.g., "it happened before the war"). Hirst et al. (2018) discovered "flashbulb memory" phenomena for major national historical events (e.g., Americans' memories of 9/11). Even without direct experience, autobiographical memories formed through learning enable individuals to become witnesses to the event with confident memories. Additionally, citizens who identify "catastrophic" events as most important are more willing to fight for their country than those who identify "progressive" events as most important. Beyond traumatic memory, the memory-identity association has been explored in intergenerational transmission. Svob et al. (2016) examined how parents' war memories affect children' s identity, while Fivush et al. (2011) noted that intergenerational transmission of family memory helps children develop stronger bonds with parents and enhances their well-being.

Maintenance and Change of Generational Memory. Intergenerational transmission is crucial for memory maintenance. Western scholars have extensively studied the duration and accuracy of generational memory transmission. Regarding duration, Stone et al. (2014) found through studies of three-generation Belgian families that transmission of historically relevant memories is largely limited to one generation. Other scholars argue that the temporal limits of intergenerational transmission relate to conversational roles and dynamics when different generations discuss the past, with communicative memory being transmissible and stable across at least three generations in some cases (Stone & Jay, 2019). Regarding accuracy, the constructive nature of memory has been confirmed. Welzer (2005) found that younger generations exhibit obvious "heroization" distortions of their grandfathers' Nazi experiences during World War II. Memory distortion may stem from narrative schemas of specific social groups that actively and selectively minimize negative social representations during narration (Sahdra & Ross, 2007), subtly shaping individual memory patterns. It may also originate from generational differences, as each generation labels historically significant events occurring from late adolescence to early adulthood as "most important events" (Hirst et al., 2018), with different generations rep-

resenting the same events differently.

(2) Cultural Memory As memory "in the world," cultural memory has long been a focus of sociological research. In recent years, psychologists have begun examining, from an individual reception perspective and based on social interactionism, the effectiveness and related psychological mechanisms of memory carriers such as textbooks and schools, historical films, myths, and folklore in shaping collective memory. It should be noted that psychological research on cultural memory stability mechanisms differs from sociological concerns with the invention of tradition (Hobsbawm & Ranger, 1983), politics of memory (Bronkhorst, 1995; Hodgkin & Radstone, 2003; Rosenberg, 1995), and memory history (Assmann, 1997) that focus on power and custom in the formation of "publicly available symbols." Instead, psychology aims to explore the psychological processes through which these symbols are constructed and maintained, focusing on the psychological principles of collective memory stability.

The role of textbooks and schools in shaping collective memory has been extensively verified. Zaromb et al. (2014) studied American older and younger adults' memories of the Civil War, World War II, and Iraq War, finding that 55% of their first memories came from textbooks. This may relate to individuals' retrieval capacity, as more frequent retrieval leads to longer information retention, and may also stem from the influence of narrative schemas (Wertsch, 2002), through which individuals form and retain memories according to textbook narrative patterns. Films also play an important role in collective memory maintenance, strengthening both correct and false memories (Stone & Jay, 2019), possibly through mechanisms of social contagion and retrieval-induced forgetting in virtual conversations. Additionally, to reveal why cultural "attractors" such as myths and folklore spread widely in specific communities, cross-cultural psychological research has found that "minimally counterintuitive narratives are more memorable than maximally counterintuitive narratives" (Norenzayan, 2006). The resulting cognitive stickiness becomes an important reason for the widespread dissemination of certain cultural phenomena.

3. Conclusion and Outlook

The social interactionist perspective based on extended mind has driven a turn in psychological research on collective memory. The epidemiological metaphor for collective memory accommodates this research perspective by acknowledging the inseparability of social and psychological factors in the origins of collective memory. It reconciles memory "in the world" with memory "in the head," incorporates communicative and cultural memory into the research scope, and highlights attention to the "individual-collective" generative process, further emphasizing collective memory as widely "shared individual memory" and its close association with identity. As psychological research on collective memory deepens, psychological mechanisms of collective memory validity—its formation and maintenance—constitute the main research trajectory.

In formation research, psychologists use "dialogue" as the research context and adopt a "bottom-up" approach. Through investigation of social contagion, retrieval-induced forgetting, and shared reality mechanisms, they systematically reveal the evolution of collective memory "from individual to collective," confirming memory' s dynamic nature and opening windows for observing collective memory' s characteristics of "sharedness," "forgettability," and "contagiousness" from a psychological perspective. In memory maintenance research, focusing on pre-existing memories, foreign psychologists employ a "top-down" approach, profoundly elucidating memory stability mechanisms and general psychological principles. Through analysis of memory-identity issues, they further explain the essential nature of collective memory—its identity relevance—while attention to cultural memory expands the research horizon of collective memory psychology and facilitates dialogue with sociology, history, communication studies, and other disciplines.

From formation to maintenance, although psychological research on collective memory has opened new avenues for studying collective memory from a "reception" perspective, many issues remain to be explored due to its relatively recent emergence. First, research must advance on psychological mechanisms of memory validity "in the world." Current psychological research on collective memory, in both approach and method, primarily focuses on memory "in the head" —that is, communicative memory—while research on cultural memory remains insufficient. As "publicly available symbols," different symbolic resources inevitably have vastly different impacts and manifestations on collective memory, leaving ample room for exploring cultural memory stability. On one hand, beyond public symbols such as textbooks, schools, historical films, myths, and folklore, numerous other symbolic resources—including museums, monuments, and memorials—await in-depth psychological investigation. On the other hand, since cultural memory effects depend on individual evaluation, reception, and feedback, psychological judgments of these symbols' effectiveness necessarily differ from sociological perspectives. In real life, some symbols facilitate collective memory formation or stability while others do not, and even when facing identical symbols, different individuals show vastly different memory representations closely related to group characteristics and identity features. Future research needs to reveal the psychological mechanisms of cultural memory based on different symbolic resources, establish universal principles of individual psychological reception, and deeply explore the identity relevance underlying cultural memory.

Second, research on social network memory must be strengthened. With media technological transformation and development, memory now emerges, is stored, and recovered in social networks, forming what Hoskins (2009) calls "social network memory."The resulting changes in the "dialogue"environment not only blur the essence of communicative and cultural memory but also alter the psychological mechanisms of collective memory formation and maintenance. Advancing research on collective memory in social network environments, exploring new characteristics of social network memory representation, and revealing its boundary

conditions and psychological mechanisms of formation and maintenance requires re-examining mechanisms such as social contagion, retrieval-induced forgetting, and shared reality. This involves not only the impact of information content and communication goals on memory but also issues such as the breadth and depth of memory network convergence in networked communication contexts, the association between memory and identity, and the impact of long-term digital information storage on generational memory. Moreover, research on digital "publicly available symbols" in social network memory necessarily differs from traditional cultural memory research, posing higher challenges and demands for collective memory psychology.

Third, indigenous theoretical research on collective memory psychology must be accelerated. Collective memory reflects a group' s current values and norms, connecting tradition and culture, concerning identity, and pointing toward the future, thus holding undeniable significance for nations and ethnic groups. Compared to Western research, relevant psychological research in China has not yet begun. Combining China' s unique social and cultural background, scientifically drawing on the social interactionist perspective of extended mind, fully integrating memory "in the head" and "in the world," and advancing epidemiological research on collective memory through empirical methods constitute an important path for establishing indigenous theories of collective memory psychology.

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Author Contribution Statement:

Li Hai: Proposed and designed the research, guided the overall research plan.
Ge Yaojun: Systematically collected and organized research literature, implemented the research process, and drafted and revised the paper.

Note: Figure translations are in progress. See original paper for figures.