

From Memory to Meaning: A Systematic Review of Reminiscence Technologies in HCI

Zhongyue Zhang
The Hong Kong University of Science
and Technology (Guangzhou)
Guangzhou, China
zzhang837@connect.hkust-gz.edu.cn

Mingqing Xu
The Hong Kong University of Science
and Technology (Guangzhou)
Guangzhou, China
mxu097@connect.hkust-gz.edu.cn

Mengyang Wang
The Hong Kong University of Science
and Technology (Guangzhou)
Guangzhou, China
mengyang_wang77@163.com

Lina Xu
The Hong Kong University of Science
and Technology (Guangzhou)
Guangzhou, China
lxu582@connect.hkust-gz.edu.cn

Xu Zhang
The Hong Kong University of Science
and Technology (Guangzhou)
Guangzhou, China
xuzhang@hkust-gz.edu.cn

Mingming Fan*
The Hong Kong University of Science
and Technology (Guangzhou)
Guangzhou, China
The Hong Kong University of Science
and Technology
Hong Kong, China
mingmingfan@ust.hk

Abstract

Technologies designed to support reminiscence, defined as the practice of engaging with one's personal past, have become a significant area of inquiry within HCI. Although this has generated a diverse range of creative systems, the field still lacks a systematic account of the design principles that guide them. In this paper, we review 60 studies to examine both the psychosocial functions these technologies target and the mechanisms through which they operate. Our analysis suggests a predominant emphasis on positive identity construction and social connection, with comparatively less focus on functions related to everyday problem solving. To synthesize the mechanisms identified, we propose a cue-centered framework that treats mnemonic cues (e.g., photographs) as the basic unit of design. The framework organizes design mechanisms into a four-stage lifecycle: cue generation, augmentation, interaction, and sharing. It provides a conceptual vocabulary for analyzing reminiscence technologies and highlights underexplored opportunities for future research and design.

CCS Concepts

• **General and reference** → **Surveys and overviews**; • **Human-centered computing** → **HCI theory, concepts and models**.

Keywords

Reminiscence, Memory, Systematic Review, Design Framework, Mnemonic Cues, Aging, Intergenerational Storytelling, Narrative Identity, Slow Technology

*Corresponding author.



This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

CHI '26, Barcelona, Spain

© 2026 Copyright held by the owner/author(s).

ACM ISBN 979-8-4007-2278-3/26/04

<https://doi.org/10.1145/3772318.3791453>

ACM Reference Format:

Zhongyue Zhang, Mingqing Xu, Mengyang Wang, Lina Xu, Xu Zhang, and Mingming Fan. 2026. From Memory to Meaning: A Systematic Review of Reminiscence Technologies in HCI. In *Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems (CHI '26)*, April 13–17, 2026, Barcelona, Spain. ACM, New York, NY, USA, 18 pages. <https://doi.org/10.1145/3772318.3791453>

1 Introduction

Memory is not merely a record of past events; it is also the anchor of identity and a connective tissue between people. **Reminiscence**—the act of engaging with one's personal past—has long been recognized in psychology and gerontology as a meaning-making process that can support self-understanding, emotional regulation, and social connection [7, 61, 94]. Foundational frameworks such as Webster's Reminiscence Functions Scale (RFS) [92] and Westerhof's tripartite model [94] highlight reminiscence as a multifaceted and adaptive practice, encompassing *social* purposes (maintaining bonds and transmitting legacy), *instrumental* purposes (coping and problem-solving), and *integrative* purposes (sustaining self-identity and meaning). Situated within the broader autobiographical memory system, reminiscence draws on the encoding, storage, and retrieval of episodic experience [7], but transforms these processes into active work on the self. In everyday life, it is often triggered by a photograph, a familiar song, a treasured object, or a conversation with others, underscoring that memory is not passive storage but a socially embedded practice of recall and interpretation. In this paper, we adopt a definition of reminiscence as *the purposeful engagement with one's past to achieve psychosocial goals such as constructing identity, sustaining social connection, and coping with present challenges* [92, 94]. This framing distinguishes reminiscence from general recall or nostalgia, emphasizing its functional and meaning-making character.

Over the past two decades, HCI researchers have increasingly explored technologies to support reminiscence. Some give digital traces tangible form, for example through music boxes or interactive artifacts that embody personal histories [32, 63]. Others emphasize

co-located sociality, such as TableTalk’s shared displays for family conversation [20], or platforms for gifting curated memories [22]. Immersive approaches recreate past places in VR [4, 79], while intelligent systems resurface forgotten content or generate new visual cues [39, 58, 103]. Collectively, these systems demonstrate HCI’s creativity in shaping how people remember.

At the same time, this creativity has resulted in a diverse but somewhat fragmented conceptual landscape. Different projects focus on different units of analysis, such as memories [22, 100], moments [39, 93], or stories [41, 48], without a shared vocabulary for comparison. Some systems emphasize nostalgic enjoyment [82], while others pursue therapeutic aims [73], yet their psychosocial purposes are not always made explicit. At the same time, design mechanisms are often described case by case, making it difficult to identify recurring strategies across studies. Without a more systematic account of both the functional goals and the design mechanisms of reminiscence technologies, the field may find it difficult to build cumulative knowledge and could risk overlooking important opportunities.

To address these issues, we conducted a systematic review of 60 peer-reviewed papers on reminiscence technologies across leading HCI venues. Our analysis is guided by two research questions: **(RQ1) Which psychosocial functions does the current body of work foreground, and which appear underexplored?** and **(RQ2) What design mechanisms recur across this work, and how might they be systematically organized?** To answer RQ1, we analyze the functional aims of each paper using established psychosocial frameworks that distinguish between social, integrative, and instrumental purposes. To answer RQ2, we introduce the **mnemonic cue** as a unifying unit of analysis. Whether a photograph, a line of text, a GPS coordinate, or an AI-generated image, cues consistently anchor recall, structure meaning-making, and mediate sharing [19, 34, 45, 76]. This cue-centered perspective enables us to synthesize diverse systems that might otherwise appear incommensurable.

This paper aims to make three contributions. First, we map the psychosocial functions addressed in HCI work on reminiscence and observe a tendency to emphasize social and positive orientations, with comparatively less attention to instrumental problem solving and more emotionally complex dimensions. Second, we propose a cue-centered framework that organizes design mechanisms into a four-stage lifecycle: (1) Cue Generation & Capture, (2) Cue Augmentation & Enrichment, (3) Interaction & Experience Modalities, and (4) Social & Collaborative Mechanisms. This framework offers a common vocabulary for analysis and comparison. Third, our discussion considers possible directions for the next generation of reminiscence technologies and encourages the field to explore designs that more fully engage with everyday challenges, complex emotions, and collaborative forms of remembering.

2 Background and Related Work

2.1 Situating Reminiscence through Theoretical Functions

The design of technologies for remembering continues a long lineage of human efforts to extend and externalize memory. Bush’s Memex envisioned a desk-sized archive of associative links as a

personal partner to cognition [11], while McLuhan framed media as “extensions of man,” externalizing and amplifying cognitive faculties [59]. Philosophical accounts further distinguish between *anamnesis*, the embodied act of recollection, and *hypomnesis*, the external traces such as diaries, photographs, or digital logs that scaffold memory [26, 80]. Contemporary HCI inherits this tradition, extending it through pervasive digital traces, lifelogging devices, and interactive artifacts that weave memory into everyday environments.

Within this broad lineage, our review focuses specifically on **reminiscence**: the practice of engaging with one’s past for psychosocial ends. Psychological traditions often emphasize reminiscence as an active, adaptive process of meaning-making, through which people construct identity, regulate emotions, and sustain relationships [94]. Ricoeur’s notion of narrative identity similarly positions retelling the past as an interpretive act that shapes the present [75]. This functional perspective suggests that reminiscence can serve multiple, and sometimes ambivalent, goals: strengthening intimacy, teaching lessons, coping with challenges, or even reviving bitterness. For HCI, this implies that technologies for reminiscence may carry assumptions about which functions of memory they aim to support.

Although our review is situated within HCI, reminiscence itself is a phenomenon that has been extensively theorized within psychology. We therefore draw on psychological frameworks to ground our analysis in established understandings of what reminiscence does in human life. This allows us to examine whether and how current technologies align with, neglect, or reinterpret these psychosocial functions, rather than evaluating systems purely in terms of technical novelty or interaction form.

To analyze these functions systematically, we draw on two foundational frameworks from psychology. The first is Webster’s Reminiscence Functions Scale (RFS) [92], one of the most widely used and empirically validated instruments in the field. Developed through large-scale factor analysis and validated across populations, the RFS outlines eight functions: *Conversation*, *Teach/Inform*, *Problem Solving*, *Intimacy Maintenance*, *Boredom Reduction*, *Death Preparation*, *Identity*, and *Bitterness Revival*. Over three decades of use, these categories have been associated with outcomes such as well-being, resilience, and depression in aging and clinical contexts. The RFS has also been previously applied to study the influence of technologies on reminiscence, such as social media [86]. For our purposes, the RFS provides a fine-grained vocabulary that can be mapped onto design intents in HCI—for example, systems that facilitate social talk (*Conversation*) or tools that scaffold reflection on life stories (*Identity*).

The second framework is Westerhof et al.’s synthesis of fifty years of reminiscence and life-review research [94]. Drawing together decades of empirical and clinical studies, they consolidate diverse functions of reminiscence into three overarching purposes: the *Social Function* (fostering connection and bonding), the *Instrumental Function* (supporting coping and problem-solving), and the *Integrative Function* (sustaining identity continuity and meaning-making). This model highlights broad orientations in how reminiscence operates and connects them to psychological outcomes. Yet both models recognize that some functions may be maladaptive, suggesting that

remembrance is not always uniformly positive but can also be complex and ambivalent. We summarize their definitions in Table 1, which outlines the eight functions alongside the three overarching purposes.

In this review, we do not treat the RFS and the Westerhof et al.'s model as directly mappable frameworks. Although some studies have proposed pragmatic correspondences between them, prior literature acknowledges ongoing debate regarding the optimal structural model of reminiscence, and no stable theoretical mapping has been established between the eight RFS functions and the three broader orientations [64, 86, 94]. We therefore conceptualize the two frameworks as operating on different analytical dimensions: the RFS captures the specific activities and uses of memory in everyday life, while the tripartite model articulates broader psychosocial orientations that describe why these practices matter.

Using both frameworks thus enables us to meaningfully address RQ1 by examining which broad psychosocial orientations are prioritized in current HCI reminiscence technologies, while also revealing which specific functions are emphasized or overlooked. This combined perspective makes it possible to identify not only general alignment (e.g., the dominance of socially oriented designs) but also subtler blind spots, such as the limited engagement with functions like *Death Preparation* or *Boredom Reduction*.

2.2 The Fragmented Landscape of Reminiscence Technology and the Need for a Systematic Framework

The HCI community has produced a rich and diverse body of work on reminiscence, yet this landscape remains conceptually dispersed. Research has often progressed along distinct thematic tracks, yielding a wealth of creative artifacts but with limited common language for systematic comparison. A foundational and enduring paradigm is the design of screen-based digital tools for personal reflection. A large body of work, often targeting general adult users [37, 42, 67] or older adults for life review [85], has focused on creating web-based or mobile applications that allow individuals to navigate their personal archives. Examples include MUSE, a tool for browsing large email archives [28]; Project Greenwich, which supports constructing personal history timelines [85]; and journaling applications that prompt ongoing memory recording [33]. These systems often prioritize information management and personal agency over collective interaction. In parallel, another line of work has moved beyond the individual to explore co-located, social reminiscence, frequently in family and care contexts. TableTalk [20] aggregates digital content from multiple devices onto a shared tabletop to stimulate family conversation, while large, wall-sized displays have been used in care homes to create immersive experiences for residents with dementia and their caregivers [77]. Emerging from this social focus is a strong interest in tangible and physical computing. Here, digital memories are linked to custom artifacts, such as the music player Olly [63] or Huber's interactive stones [32], creating embodied, situated interactions. More recently, a cross-cutting theme has been the incorporation of automation and intelligence. Systems resurface photos based on contextual signals [58], perform cross-generational photo matching [39], or even generate new visual cues from oral

descriptions [103]. These approaches extend reminiscence technologies into more proactive and generative roles, opening both new opportunities and challenges.

While these trajectories have produced valuable insights, they also suggest an underlying conceptual ambiguity in the field. The “thing” being designed for sometimes remains implicit or varies across projects, shifting from “memories,” to “stories,” to isolated “moments.” Without a more consistent unit of analysis, it can be difficult to critique prior work or build cumulative knowledge. We know a great deal about what is possible in individual cases, yet a shared lens for connecting a tangible music box for general users with a VR classroom for older adults has not yet fully emerged.

Beyond HCI, several reviews have examined technology in reminiscence contexts, often within clinical or intervention oriented domains. For example, Lazar and colleagues reviewed technologies used in reminiscence therapy with attention to therapeutic aims and study quality, and Xu and colleagues conducted a scoping review of digital storytelling interventions and associated well-being outcomes [43, 99]. Other reviews focus on specific health conditions such as dementia or depression or on particular modalities such as virtual reality [40, 55, 81]. These syntheses provide important overviews of what technologies are used and what outcomes they produce. However, they do not attempt to articulate a shared conceptual vocabulary for how reminiscence technologies are designed or structured. Within HCI, there has similarly been no systematic effort to consolidate design mechanisms or analytical units that support comparison across diverse systems. Although some individual papers offer helpful perspectives, these approaches remain domain specific and do not yet function as a unifying design language.

To help address this, we conceptualize the **mnemonic cue** as a potential building block of reminiscence technologies. Whether embodied as a photograph, a line of text, a GPS coordinate, or an AI-generated image, cues consistently act as triggers that anchor recall, structure meaning-making, and mediate sharing. They are not only the mechanism through which technologies support reminiscence but also an object of study in their own right, shaping how memories are surfaced, interpreted, and circulated [19, 34, 45, 76]. By treating cues as a common denominator across otherwise diverse systems, we may gain a more stable basis for systematic comparison.

Building on this perspective, we propose a cue-centered framework that examines the lifecycle of a cue from its generation and capture, through processes of augmentation and enrichment, to the interaction modalities and social practices it enables. This framework is intended not as a definitive solution but as one possible way to move beyond case-by-case novelty toward a more structured understanding of recurring design mechanisms.

3 Method

To systematically examine the design strategies and functional priorities of reminiscence technologies in HCI, we conducted a systematic literature review of publications from the past two decades (2005–2025).

3.1 Data Collection

Our data collection process followed a multi-stage search and screening protocol inspired by the PRISMA methodology [65] to

Reminiscence Function	Description
Boredom Reduction	Thinking back about the past to escape an under-stimulating environment or a lack of engagement in goal-directed activities.
Death Preparation	The way we use our past in order to arrive at a calm and accepting attitude towards our own mortality.
Identity	The existential use of the past to discover, clarify, or crystallize our sense of who we are.
Problem Solving	The use of reminiscence as a constructive coping mechanism by remembering past problem-solving strategies.
Conversation	The informal use of memories in order to connect or reconnect to others.
Intimacy Maintenance	A process whereby cognitive and emotional representations of important people in our lives are resurrected in lieu of the remembered person's physical appearance.
Bitterness Revival	The recall of memories about unjust treatments, providing the justification to maintain negative thoughts and emotions toward others.
Teach/Inform	An instructional type of reminiscence to relay personal experiences and life lessons to others.
Social	Sharing personal memories in everyday conversations fosters bonding between people.
Instrumental	Recollecting earlier coping strategies may help people to deal with current problems. However, this strategy may become maladaptive when it is used to escape present-day problems.
Integrative	Especially in times of change, reflecting on the past may help to continue or to flexibly adjust one's identity. However, some people come to define their identity by a negative past event or episode.

Table 1: Descriptions of eight reminiscence functions based on RFS [92] and three higher-level functions by [94]

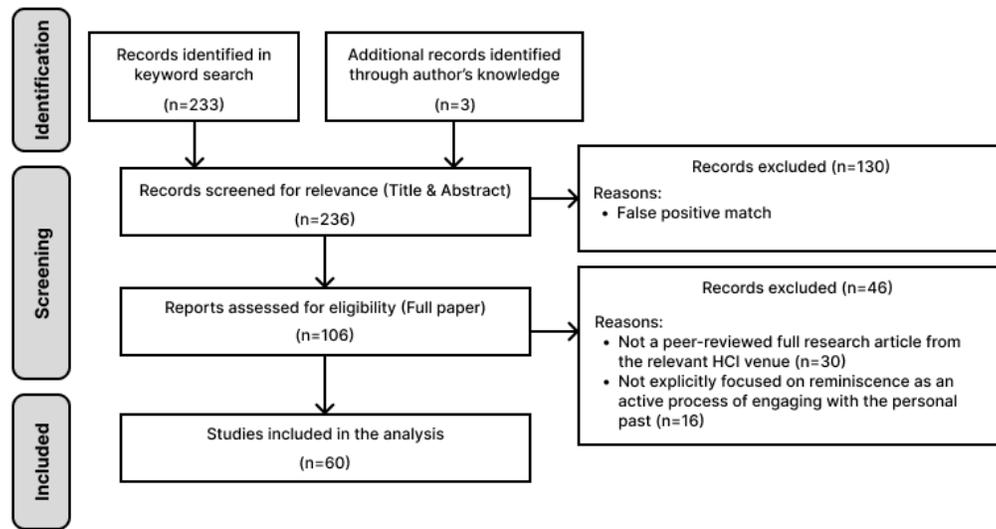


Figure 1: PRISMA flowchart of the article selection process.

construct a comprehensive and relevant corpus of papers (Figure 1). Our search targeted top-tier HCI venues known for publishing significant work in this area, including the proceedings for CHI, CSCW, DIS, UIST, Ubicomp, TEI, and MobileHCI, as well as IJHCS. Additionally, we explored other potentially relevant HCI venues such as TOCHI, IJHCI, ASSETS, IUI, and BIT. However, after our search, we found no relevant articles from these sources, so they were excluded from the final corpus. After finalizing the venue list, we searched only the databases that reliably index these specific outlets. ACM Digital Library was selected as the primary source because it indexes all of the chosen conference venues. Elsevier Scopus was added in order to ensure complete coverage of IJHCS. The

Boolean search string was iteratively refined through a pilot process. Initial queries explored broader combinations including terms such as “memor*”, “personal memor*”, “storytelling”, etc.; however, these frequently returned large volumes of unrelated work (e.g., in computer memory architecture or general memory studies). We therefore converged on terms that more reliably captured studies explicitly engaging with reminiscence as a practice in HCI contexts: (reminisc* OR nostalgi* OR “autobiographical memory” OR “personal history” OR memoir). The terms were combined and searched in abstracts. We restricted results to full papers published within the last 20 years, resulting in 233 articles. Three additional relevant papers were manually added, bringing the total to 236. We intended

to include only studies in which reminiscence was explicitly named or framed by the authors themselves, rather than retrospectively labeling any memory-related activity as reminiscence.

After this, we applied two key inclusion criteria to screen the papers:

- Peer-reviewed full articles published in relevant HCI venues. Extended abstracts, workshops, keynotes, and doctoral consortium papers were not considered.
- Explicitly focused on reminiscence as an active process of engaging with personal memory. According to our definition, the paper must demonstrate how individuals engage with their personal memories or contribute to the understanding of this process. This could involve a user study, prototype, or system that advances knowledge of the reminiscence process, supports or facilitates this engagement, or shows ways to support human reminiscence. We excluded papers that treat reminiscence only as a context. For example, in [16], reminiscence therapy is mentioned merely as a context to motivate understanding of dementia practitioners' perspectives, and such papers were excluded.

In the first stage, we reviewed the titles and abstracts of all 239 papers, excluding 176 that were clearly out of scope. In the second stage, we conducted a full-text eligibility review on the remaining 106 papers. After applying the inclusion criteria, we excluded an additional 46 papers: 30 were not peer-reviewed full research articles from the relevant HCI venues, and 16 did not explicitly focus on reminiscence as an active process. To ensure the reliability of the screening process, two researchers independently reviewed the papers. Cohen's Kappa was calculated for inter-rater reliability and was found to be good (Cohen's $\kappa = 0.77$). Disagreements were resolved through discussion between the researchers. This left a final corpus of 60 papers, which formed the basis of our analysis.

3.2 Data Analysis

We carried out a systematic analysis of the final corpus of 60 papers. As a first step, we extracted general study characteristics from each paper, including publication year, venue, contribution type, user population, and study setting. In addition, we examined the types of mnemonic cues reported, classifying them into five sensory modalities—visual, auditory, tactile, olfactory, and gustatory.

To address RQ1 (*which psychosocial functions does the current body of work foreground, and which appear underexplored?*), we applied the two reminiscence functions frameworks introduced in Section 2.1 to code which functions each paper's research or design engaged with. For the three high-level functions (*Social, Instrumental, Integrative*) [94], we assigned a code based on the emphasis given to it within the paper, using the following operational definitions: (1) Primary: if the function was presented as an explicit, central, and stated goal of the research or designed artifact. This was typically evident from the abstract, introduction, or research questions. (2) Secondary: if the function appeared as an observed outcome, affordance, or minor goal. This was often mentioned in the discussion or findings as a side effect or as one of several less-central functions. (3) Not mentioned: if the function did not appear as either a primary or secondary emphasis. For example, in a study

about a life review game [46], the Social function was coded as Primary because the research questions focused on intergenerational communication. The Integrative function was coded as Secondary because the discussion briefly noted that the game allowed players to reflect on their lives. The Instrumental function was coded as Not Mentioned, since the study did not engage reminiscence as a way to solve present challenges.

For the eight granular RFS functions [92], we coded for their presence (1) or absence (0) depending on whether a study explicitly designed for or reported evidence of that function. For instance, in the study of ReminiBuddy, a multi-agent conversational system for older adults, the Conversation function was coded as 1 because the system's primary aim was to facilitate dialogue. Teaching/Informing Others was also coded as 1, as findings indicated that older adults often shared knowledge with the younger agent. Other functions, such as Problem Solving or Boredom Reduction, were coded as 0 because they were neither designed for nor observed.

To address RQ2 (*What design mechanisms are employed by the technologies?*), we conducted a qualitative analysis of all papers involving an artifact contribution, following an open-coding approach [29]. This bottom-up process [2] involved examining each paper's prototypes and design elements to identify mechanisms that supported reminiscence. Initially, the first and second authors independently coded a subset of 15 papers, highlighting key design details and their roles. From these initial insights, we began to outline a preliminary framework for coding. The first author then conducted a first round of coding to develop an initial codebook.

Subsequently, the 60 papers were distributed among the four authors, who coded independently to ensure coverage and fidelity. The first author then carried out an additional round to review for consistency. Conflicts or discrepancies in coding were flagged for discussion in weekly meetings. Where needed, the framework or coding criteria were refined, and authors revisited their codes accordingly. Through this iterative process of comparison and discussion, our team gradually converged on the cue-centered, four-part design mechanism framework presented in Section 4.3.

3.3 Positionality Statement

Our interpretations are shaped by our backgrounds as HCI researchers working across East Asian and Western academic contexts, and by our ongoing involvement in designing reminiscence technologies. These experiences inevitably influence what we attend to as meaningful cues, mechanisms, and functions in this space. We include this statement to acknowledge these situated lenses and invite future work that brings additional cultural, methodological, and disciplinary perspectives.

4 Results

4.1 General Study Characteristics

4.1.1 Publication Trajectory and Venues. Research on reminiscence technologies has gradually expanded over the past decade, with a noticeable increase in recent years. This trend may reflect both societal shifts, such as a growing focus on aging populations, and technological advances in AI and immersive computing that have opened up new design possibilities. The reviewed papers span prominent HCI venues, with the majority in CHI (n=25), followed

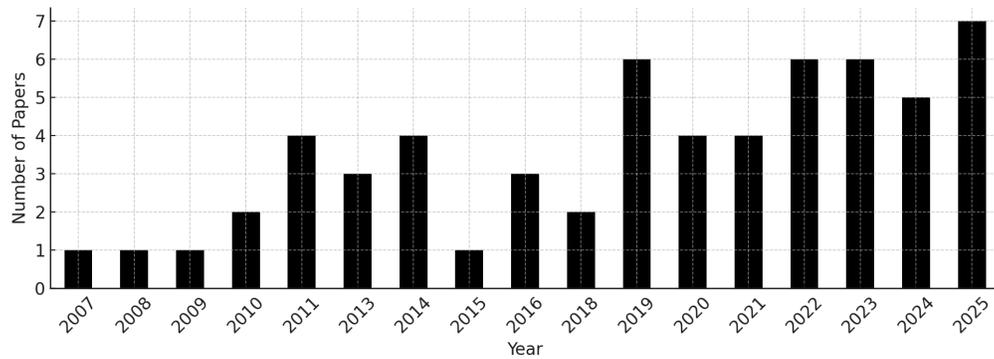


Figure 2: Publication year and frequency of reviewed studies

Publication venue	# of papers
CHI	25
DIS	9
IJHCS	9
CSCW	8
IMWUT	3
Other venues*	6
Total	60

* Less than 3 papers in the corpus per venue.

Table 2: Distribution of publication venues in the reviewed corpus.

by DIS (n=9), IJHCS (n=9), and CSCW (n=8). This distribution suggests that reminiscence technology is a cross-cutting theme, engaging diverse research traditions ranging from design-oriented and empirical work to explorations of social and collaborative dynamics.

4.1.2 Contribution Types. The nature of these publications suggests a field that is highly practice-oriented, often advancing through a "build-and-evaluate" paradigm. The vast majority of studies (58 papers, 97%) include an empirical component, while more than half (38 papers, 63%) involve the design or development of a new technological artifact. The most common approach is the coupling of empirical and artifact contributions, accounting for 36 papers (60%). These studies typically introduce a novel artifact, such as an interactive tangible device [32, 41, 63] or a pervasive display system [6, 77], and deploy it to gain insights into user behavior. A second group consists of purely empirical studies (22 papers, 37%), where qualitative methods are used to understand existing reminiscence practices of particular populations, such as people with visual impairments [101, 102]. Finally, we observed a smaller but influential set of methodological contributions (2 papers, 3%), which propose new design methods or perspectives, often through provocative artifacts [14, 89].

4.1.3 User Populations. The research landscape primarily focuses on two major user groups—general adult users and older adults—while also showing growing interest in specific relational groups and populations with unique needs. The largest single cohort is general adult users, featured in 25 papers (42%). These studies

(e.g., [23, 42, 63]) are important for exploring foundational concepts of digital memory. The second major cohort is older adults, the focus of 21 papers (35%). Of these, 15 papers investigate healthy or homebound older adults (e.g., [4, 31, 85]), while 6 papers address people with dementia (e.g., [6, 32, 77]).

In addition, 16 papers (27%) move beyond a monolithic view of the user to consider specific relational contexts or needs. This includes families and intergenerational groups (9 papers), with designs aimed at bridging generational gaps (e.g., [22, 48, 49]). The remaining 7 papers (12%) address other specific needs, reflecting the field's increasing nuance, including work on accessibility for people with visual impairments (4 papers: [36, 100–102]) and targeted explorations for individuals experiencing depression [73], "looked-after" children [24], and niche groups such as cricket fans [41].

4.1.4 Study Contexts: Settings and Geographic Distribution. Our analysis shows a preference for in-situ research, with field studies being the most common approach (33 papers, 55%). This reflects a commitment to generating ecologically valid findings grounded in everyday contexts such as homes and residential care facilities. Research labs were the setting for 12 papers (20%), offering controlled environments useful for evaluating usability parameters (e.g., [25, 82]). Mixed-setting approaches (9 papers, 15%) and remote studies (4 papers, 7%) were also present.

Geographically, much of the research originates from the United Kingdom (n=14) and the United States (n=10), followed by China (n=6), Canada (n=5), and Australia (n=4). This suggests that the current body of knowledge is primarily shaped by perspectives

from Western and East Asian contexts, while contributions from South America, Africa, and other parts of Asia remain limited. Furthermore, most studies are situated in urban contexts, with only two explicitly addressing mixed or rural settings [32, 49]. This points to opportunities for future work to explore how reminiscence might unfold in rural or more isolated environments.

4.1.5 Mnemonic Cue Modalities. Our analysis of mnemonic cues across the 60 reviewed papers reveals a predominance of visual and auditory modalities. Visual cues were used in 54 papers (90%), making them the most common form of mnemonic prompt. Among these, static photographs, text, and video were especially frequent. Auditory cues appeared in 30 papers (50%), including music, voice recordings, and ambient soundscapes designed to evoke past events or moods. In contrast, haptic and tangible cues leveraging touch were less common, featured in 6 studies (10%). Olfactory cues (smell) appeared in 2 studies (3.3%), while gustatory cues (taste) were not represented in our corpus. This suggests an opportunity for future work to investigate more multi-sensory or less conventional modalities for triggering memory.

4.2 Reminiscence Functions: What is Supported and What is Overlooked? (RQ1)

4.2.1 The Macro-Picture: A Duality of the Social and the Self. An analysis of the three high-level functions highlights the field's prevailing priorities. The **Social Function** appears to be the most prominent, addressed in 41 papers (68%), with 29 of those identifying it as a primary goal. This concentration (e.g., [4, 20, 22, 31, 48]) reflects a strong belief in the value of reminiscing as a shared, interpersonal experience. The second major focus is the **Integrative Function**, discussed in 44 papers (73%), with 25 serving as a primary objective (e.g., [14, 58, 88, 95]). This suggests a sustained interest in supporting users through self-reflection and identity construction. By comparison, the **Instrumental Function**, which involves using the past to solve present problems or regulate emotion, has received relatively little attention and is the primary focus in 6 papers (10%) [33, 57, 62, 73, 77, 84] and overall in 23 papers (38%).

4.2.2 A Granular View: From Lively Conversation to a Silent Void. The analysis of the eight RFS sub-functions offers a more detailed map of the field's areas of emphasis and relative neglect. The two most frequently supported functions are **Conversation** (39 papers, 65%) and **Identity** (30 papers, 50%). The focus on conversation (e.g., [3, 20, 47, 52]) aligns with the prominence of the social function, often positioning technology as a "social lubricant." The strong attention to identity work (e.g., [24, 83, 89, 95]) indicates that HCI has moved beyond simple recall toward designing tools for personal meaning-making. **Intimacy Maintenance** (20 papers, 33%) and **Teach/Inform** (17 papers, 28%) also feature regularly, supporting ongoing bonds and the transmission of legacy.

By contrast, **Problem Solving**, where past lessons are drawn upon to navigate current challenges, is a focus in only 12 papers (20%) (e.g., [33, 62, 73, 74]). Similarly, **Boredom Reduction**, where reminiscence provides stimulation such as in care environments, appears in 10 papers (17%) (e.g., [6, 42, 77, 79]). These findings suggest an opportunity: while technology has been effective at helping us look back, it has been less often explored as a resource

for addressing present-day needs. The more challenging functions are especially rare. **Death Preparation**, a central theme of life review, was explicitly addressed in only 1 paper (2%) [46]. **Bitterness Revival**, recalling past hurts or injustices, is acknowledged in psychological literature, yet only 8 papers (13%) touch upon bittersweet memories (e.g., [14, 22, 30, 73]). We did not identify any systems explicitly designed to help users process such difficult emotions, pointing to an underexplored but potentially meaningful direction for future work.

4.3 A Framework of Design Mechanisms for Cue-Centered Reminiscence (RQ2)

This section presents the findings from our analysis of the design mechanisms employed by technologies that support reminiscence. Based on our review of the selected literature, our analysis surfaced a range of strategies that leverage mnemonic cues such as photographs, objects, and digital artifacts to facilitate and enrich the reminiscence process. Through iterative coding and thematic analysis, we propose a cue-centered framework that organizes these design mechanisms into four interconnected stages: cue generation, cue augmentation, interaction modalities, and collaborative mechanisms. Rather than offering a definitive model, this framework is intended as a structured lens that may help to interpret existing work and suggest possible directions for future developments in the field.

4.3.1 Category 1: Cue Generation & Capture. A common starting point of technologically mediated reminiscence is the generation and capture of memory cues. Mechanisms in this category address the question of how the "raw materials" for reminiscence are sourced and instantiated within a system. This initial step often plays an important role in shaping the scope, form, and nature of the content that underpins the overall reminiscence experience.

User-Initiated Creation (DM-1.1). One of the most foundational classes of cue generation mechanisms centers on user-initiated creation, where the user acts with intent to translate their personal experiences into digital cues. This approach foregrounds the user's agency as the primary author of their memory archive. It can include the curated selection of items from personal archives, as in Slide2Remember [42] and MeMa [22], or the digitization of physical objects and places, as in MemoryLane [37]. Some systems support capturing richer, multi-modal stories, such as Trove [24] or ephemeral interactions from live video calls in MemoryReel [93]. In these examples, the user takes an active and deliberate role in shaping the cues for reminiscence.

System-Guided Generation (DM-1.2). In contrast to purely user-driven approaches, system-guided generation positions the technology as a catalyst for reminiscence. Here, the system plays a more proactive role by using prompts to encourage users to create new memory cues, most often in the form of oral or textual narratives. This approach can be especially valuable when users are uncertain where to begin. For example, systems like Pensieve [67], Rebulb [33], and the voice interface by Cuadra et al. [13] employ prompt-driven narrative capture. Such mechanisms illustrate how technology (or designed artifacts) may provide the initial spark that stimulates users' own memory-making.

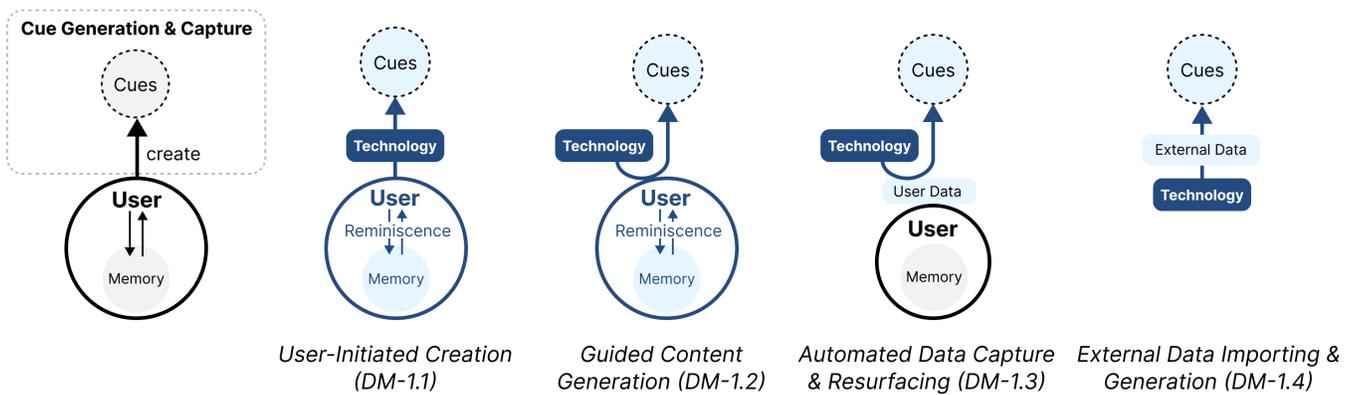


Figure 3: Cue Generation & Capture includes four design mechanisms

Automated Data Capture & Resurfacing (DM-1.3). This mechanism shifts more control to the system by leveraging passively collected personal data. It works in the background to capture traces of daily life and resurface them later, enabling more serendipitous forms of reminiscence. Examples include resurfacing digital archives, as in Pensieve [67], or continuous lifelogging through wearable cameras [38, 95]. Contextual triggers, such as Reveal [58], use GPS location to surface photos taken nearby, while MomentMeld [39] links the act of taking a new photo to in-situ resurfacing. Together, these approaches illustrate how automated capture and resurfacing may open up more spontaneous entry points into reminiscence.

External Data Importing & Generation (DM-1.4). The final pathway for cue generation extends beyond a user’s personal sphere to incorporate external data sources or generative technologies. These mechanisms enrich reminiscence by introducing content the user did not create themselves, adding context, filling gaps, or producing new representations of memories. For instance, Project Greenwich [85] allows users to import Wikipedia articles, while Rewind [83] reconstructs a journey using Google Street View imagery. Computational approaches go further: Fantibles [41] transforms sports statistics into a 3D model, and RemiHaven [103] uses AI to generate new images from oral descriptions when no photographic cues exist. Such strategies highlight how external or generated content may complement personal archives in supporting reminiscence.

4.3.2 Category 2: Cue Augmentation & Enrichment. Once a memory cue has been generated or captured, its potential for evoking rich reminiscence may be further enhanced. Mechanisms in this category are concerned with adding new layers of information, context, and meaning to foundational cues. Such processes can help transform a simple artifact, like a photograph or a GPS point, into a more evocative and multi-faceted mnemonic object.

Narrative & Contextual Annotation (DM-2.1). A common method of enrichment involves a human actor, whether the user, a collaborator, or a trusted mediator, adding information to a cue. This approach draws on human knowledge, memory, and emotion to layer personal context that technology alone may not replicate. Examples include unstructured narrative annotations, such as

recording the story behind a photo [22, 37, 72], and more structured labels or tags [84]. Some systems include affective or importance ratings [37], or symbolic element embedding to add conceptual meaning [14]. Annotation can also be collaborative, as in systems that support multiple contributors [72], or user-corrected groupings of system suggestions [28]. In care contexts, annotation can take the form of caregiver-mediated content seeding [24] or interface-level scaffolding to enhance accessibility [71, 72].

AI-Driven Analysis & Generation (DM-2.2). Another pathway involves computational techniques that automatically analyze or generate additional layers of information. Here, the system can act as a partner in uncovering patterns and associations that users might not have articulated on their own. This includes scene description for visually impaired users [100], AI-assisted textual enrichment of oral histories [103], and cross-media association such as linking photos to music or matching cross-generational images [39, 42]. Systems may also optimize cues through processes like photo restoration or iterative user-feedback on generated content [48, 103]. Together, these mechanisms illustrate how AI can contribute to enriching and reinterpreting mnemonic material.

Physical & Multi-Sensory Augmentation (DM-2.3). Some systems enhance cues by giving them tangible or multi-sensory qualities. The intention here is to make digital memories more present and immersive. One approach is physical-digital anchoring, linking digital information to physical artifacts through RFID or tags [9, 23, 24, 89]. Others explore multisensory augmentation, for example adding soundscapes to images [48], creating holographic embodiments [4], or integrating props and food into reminiscence activities [77]. Data physicalization offers yet another pathway, such as turning metadata into a physical property—for instance, the speed of a rotating object representing a memory’s age [63].

Deliberate & Reflective Distortion/Abstraction (DM-2.4). A more counter-intuitive set of mechanisms involves deliberately altering or abstracting information to provoke reflection or protect privacy. Rather than adding clarity, these approaches introduce ambiguity or remove detail. Examples include presenting blurred or low-resolution images to encourage users to fill in gaps from memory [88], or applying privacy-preserving obfuscation in lifelogging contexts [38]. Other approaches use abstract or non-associative representation, such as pairing a memory with a seemingly unrelated

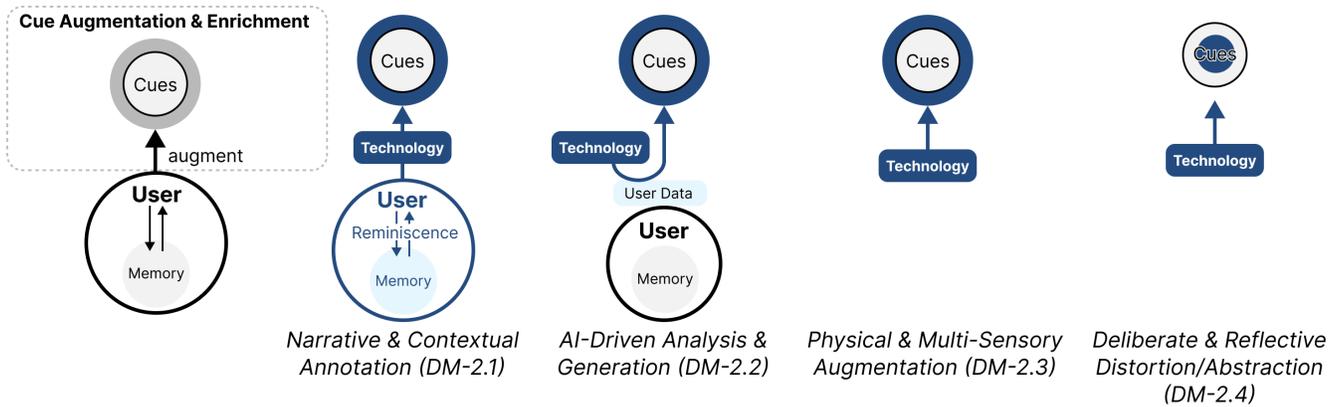


Figure 4: Cue Augmentation & Enrichment includes four design mechanisms

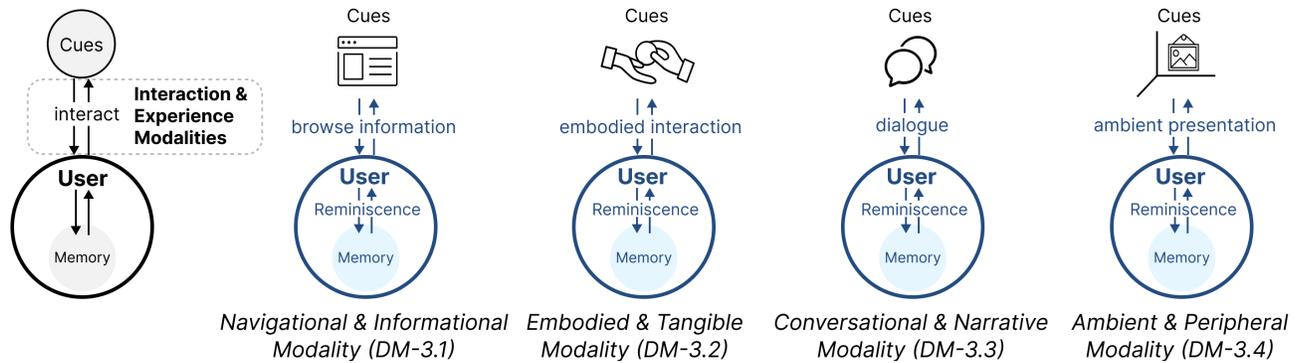


Figure 5: Interaction & Experience Modalities includes four design mechanisms

image to spark interpretation [21]. Instead of guiding toward a fixed meaning, such designs may invite users to engage with memories in a more interpretive and reflective manner.

4.3.3 Category 3: Interaction & Experience Modalities. Once a cue has been generated and enriched, a common sequence often unfolds: the system presents the cue, and the user, in turn, engages with it. How a cue is presented can strongly shape the ways in which it may be interacted with. We therefore analyze these two facets together as integrated Interaction & Experience Modalities, which provides one way of deconstructing the holistic experience of reminiscence.

Navigational & Informational Modality (DM-3.1). A frequently used modality frames reminiscence as an engagement with a structured information space. In this approach, systems organize cues within a visual framework, and the user’s primary mode of interaction is explicit and goal-oriented, involving actions such as browsing, filtering, or drilling down for details. This is often achieved through two strategies. First, structured and visualized presentation provides an organizational frame, sometimes temporal or thematic. Examples include timeline-based narratives in Project Greenwich [85] and MUSE [28], or automated playback in MeMa [22] and Mnemosyne [6]. More complex layouts include interactive visualizations of social connections [28] or thematic juxtapositions of new and old photos [39]. Second, exploratory and managerial

tools support navigation, such as faceted browsing and skimming in email archives [28], immersive viewpoint exploration of reconstructed journeys [83], or lightweight actions like “favoriting” a photo [58].

Embodied & Tangible Modality (DM-3.2). This modality grounds digital reminiscence in the physical world, leveraging tangible artifacts and embodied actions as central elements of interaction. The experience is often shaped by physical manipulation, spatial relationships, and haptic feedback. Two interconnected strategies are common. First, spatial and environmental presentation sets the “stage” for the experience. This can be a metaphorical curation space, such as the “Home” view in MemoryLane [37], or immersive environments like the VR classroom for older strangers [4] or wall-sized displays in dementia care [77]. Second, tangible and kinesthetic interaction defines the “actions” users perform on this stage, from sliding tokens in MemoryReel [93] to rotating the TableTalk display for shared viewing [20]. Other examples include tracing-based light path interactions in MemoryTracer [95] or embodied gestures, such as rowing motions that propel users through a virtual tour [79].

Conversational & Narrative Modality (DM-3.3). Another modality frames reminiscence as an interactive dialogue, using language as the main medium of engagement. This can create experiences that feel natural and socially scaffolded. Two strategies are

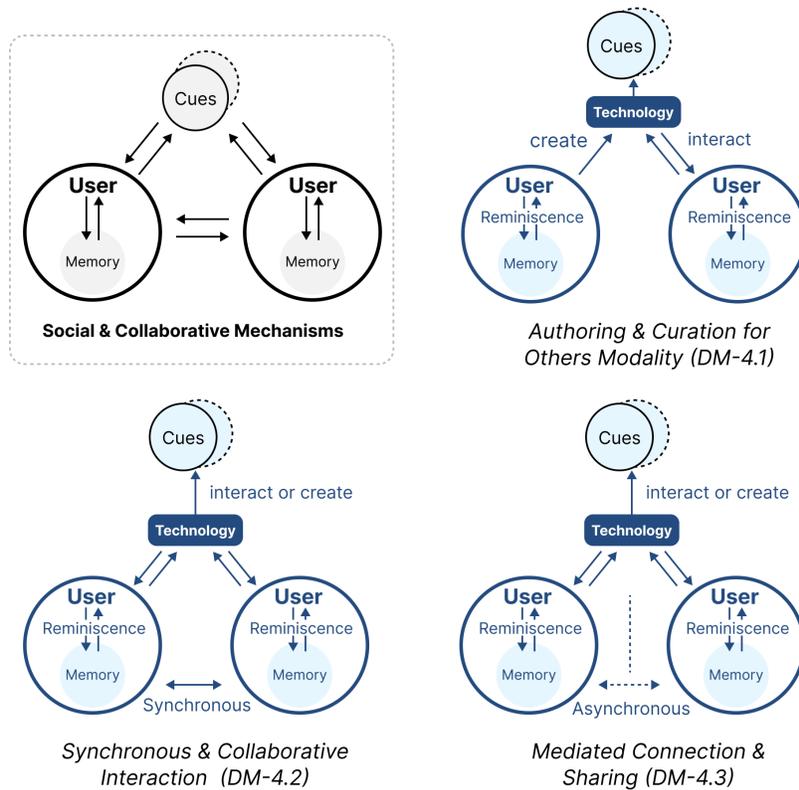


Figure 6: Social & Collaborative Mechanisms includes three design mechanisms

evident. The first is conversational prompting and narration, where the system presents a cue, often as a question, to elicit narrative contributions. This can be seen in Rebulb [33] and the home voice interface [13], which prompt diary entries or oral stories. A related approach is recursive reminiscence, where a previously recorded conversation becomes a new prompt [71, 72]. The second involves AI agent orchestration and personas. For example, ReminiBuddy [82] uses a backend AI to manage dialogue among multiple agents with different archetypes, which may enable multi-agent conversational interactions for older adults and extend beyond one-on-one exchanges.

Ambient & Peripheral Modality (DM-3.4). In contrast to modalities that demand focused attention, ambient and peripheral modalities integrate memory cues into the environment in subtle ways. The intention is often to create a persistent atmosphere rather than deliver content for active consumption. This can be done in two ways. First, ambient presentation and notification may signal nostalgic opportunities non-intrusively, for example through serendipitous notifications [58, 67] or slow revelations like the rotating disc of Olly [63]. Second, constrained and consequential interactions frame the engagement as limited or conditional. For instance, Olly [63] allows only a brief interaction before the song is lost, while the reflexive printer [88] deletes a photo after printing a low-fidelity version, prompting a conscious decision about whether to intervene. Such mechanisms may encourage users to treat reminiscence as situated and intentional rather than routine.

4.3.4 Category 4: Social & Collaborative Mechanisms. While reminiscence can be a deeply personal and introspective activity, it is often also a social practice. The final category of our framework considers Social & Collaborative Mechanisms that are explicitly designed to support this interpersonal dimension. These mechanisms are best understood not as a distinct stage in the cue lifecycle, but as a cross-cutting dimension that may be integrated into any of the previously discussed modalities. They frame reminiscence as a potential vehicle for creating, maintaining, or enriching relationships.

Authoring & Curation for Others (DM-4.1). One way to imbue reminiscence with social purpose is to frame the creation process as an act intended for an audience. This mechanism emphasizes the user's intention to author and curate for others, a motivation that can shape curatorial decisions. For instance, Gibson et al.'s gifting-as-a-goal design [22, 23] oriented the activity of selecting photos and writing narratives toward preparing a gift for a recipient. Social orientation can also be seen in user-driven manual curation, as in Mnemosyne [6], where family members dynamically adjusted content based on a resident's cognitive state. Related practices include filtering archives based on social relationships [21] or reviewing content before sharing to ensure appropriateness for family audiences [20].

Synchronous & Collaborative Interaction (DM-4.2). This set of mechanisms focuses on enabling two or more users to engage with a memory cue simultaneously and collaboratively. A central feature is co-presence and co-action, whether in a physical or virtual

space. Examples include collaborative storytelling in TableTalk [20], where participants jointly recounted stories about shared photos. Some designs go further by requiring collaboration, such as the VR classroom for older strangers [4], where scene transitions depended on collective action to promote closeness.

Mediated Connection & Sharing (DM-4.3). Another mechanism leverages technology as a mediator, connecting users across time and space. It focuses on the system's role as a bridge or messenger that facilitates social connection when users are not co-located. A common approach is asynchronous sharing, as in Project Greenwich [85], which allows created memory artifacts to be shared for later viewing. This can also be made more proactive, as in MomentMeld [39], which prompted users to share newly generated memories with family. Connections can also be more indirect, as with Olly [63], which played songs that reminded users of friends and sometimes led them to reach out outside the system.

5 Discussion

This review examined how HCI research has approached reminiscence through different functional aims and design mechanisms. Overall, the result shows a strong emphasis on supporting social connection and positive identity construction through memory sharing and storytelling. At the same time, other dimensions of reminiscence appear less frequently within the reviewed HCI corpus, particularly its instrumental potential for problem solving and its role in engaging with emotionally complex or difficult past experiences.

In the following sections, we discuss these patterns through the three core functions of reminiscence, social, integrative, and instrumental, using our cue-centered framework to reflect on both current practices and future design directions. We also discuss the implications and limits of using psychological frameworks to analyze technology-mediated reminiscence, and how HCI's design strengths may help extend the field in constructive ways.

5.1 Designing for Social Reminiscence

Our analysis suggests that the social function has been a central foundation of reminiscence technology design in HCI. This focus includes fostering in-the-moment connection (Conversation), reinforcing enduring emotional bonds (Intimacy Maintenance), and transmitting knowledge and legacy (Teach/Inform). As shown in Figure 7, their rows indicate broad engagement across the design space. This emphasis resonates with HCI's long-standing concern for fundamental human values such as community, togetherness, and social connection.

At the same time, our review points to the complexity of how sociality is realized. On one hand, social interaction often emerges organically. Foundational mechanisms such as *User-Initiated Creation* (DM-1.1) and *Navigational & Informational Modality* (DM-3.1) are frequently appropriated for social ends, even when systems include no explicit sharing features. For instance, a simple photo slideshow may catalyze conversation when a family gathers to watch and discuss it. On the other hand, some systems adopt a more explicit stance by drawing on *Social & Collaborative Mechanisms* (Category 4) to structure interpersonal engagement. Together, these approaches illustrate how social reminiscence can

be supported both by cultivating emergent opportunities and by providing dedicated structures that scaffold and sustain them. Even so, explicit *Social & Collaborative Mechanisms* remain relatively underdeveloped. To encourage further exploration, we highlight four directions that may offer promising opportunities:

Reimagine Synchronous Interaction. Current systems often center on co-viewing shared cues. Future work might consider more collaborative forms of reconstruction. For instance, a shared VR or AR environment could present an incomplete memory, such as a childhood home missing familiar objects that two users co-populate and annotate in real time. Building on recent efforts to generate 3D memory environments for older adults [48], such designs might evolve into co-creative experiences that foreground negotiation and perspective-taking in storytelling [78, 104].

Deepen Connection via Mediated Sharing. For families or peers dispersed across time zones, synchronous interaction can be difficult. Asynchronous sharing systems might move beyond one-way transmission toward layered, dialogic artifacts. For example, User A might record a story that User B listens to and enriches with reflections or related memories, gradually forming a multi-voiced narrative. Older adults in prior work have envisioned similar practices, such as attaching photos or voice recordings to reconnect with classmates [104]. Designing for such asynchronous co-creation could elevate sharing from transactional exchange into ongoing, emotionally resonant dialogue.

AI as a Mediated Co-Participant. Beyond synchronous or asynchronous settings alone, the presence of AI introduces new forms of collaboration. Rather than acting as a sole narrator or guide, AI could serve as a subtle third participant, as has been explored in other domains such as conflict negotiation in group collaboration tasks [12]. In the context of reminiscence, such a role might involve scaffolding interaction between two human partners by suggesting missing details, resurfacing relevant artifacts, or posing perspective-shifting prompts when dialogue stalls [17]. Framed in this way, AI is positioned not as a replacement for human connection but as a facilitator of joint meaning-making across both synchronous and asynchronous reminiscence.

Augment Authoring for Others with AI. Legacy building is often framed as static curation, but AI might help make it dynamic and context-aware. Rather than a fixed archive, an intelligent system could resurface curated stories at opportune moments, for instance, recalling a parent's first job interview story when their child begins searching for work. This echoes systems like MomentMeld, where present-day actions trigger intergenerational juxtapositions [39]. By linking *Authoring & Curation for Others* (DM-4.1) with *AI-Driven Analysis* (DM-2.2), authoring could evolve from preservation to an active resource for guidance and intergenerational learning.

5.2 Designing for the Full Spectrum of Memory

Alongside the social function, our review indicates that the integrative function that involves the use of the past to construct a coherent sense of self has been a major focus of HCI research. The *Identity* row in our heatmap (Figure 7) shows consistent engagement across numerous design mechanisms. However, this engagement tends to favor a positive, affirmative model of identity. More challenging and emotionally complex aspects of life review appear only rarely.

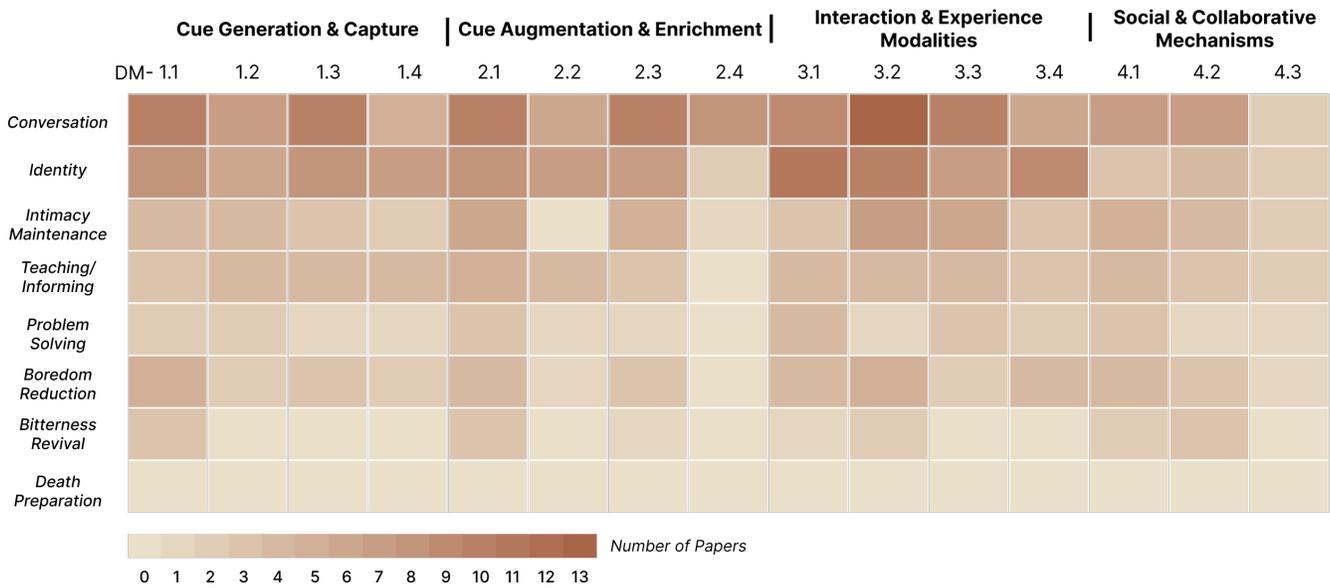


Figure 7: Crosstabulation of Reminiscence Functions and Design Mechanisms. This matrix visualizes how different design mechanisms (columns) support various reminiscence functions (rows) based on coded papers. The design mechanisms are grouped into four overarching categories: Cue Generation & Capture, Cue Augmentation & Enrichment, Interaction & Experience Modalities, and Social & Collaborative Mechanisms. Each mechanism (DM) is represented as a numbered subcategory: (1.1) User-Initiated Creation, (1.2) System-Guided Generation, (1.3) Automated Data Capture & Resurfacing, (1.4) External Data Importing & Generation, (2.1) Narrative & Contextual Annotation, (2.2) AI-Driven Analysis & Generation, (2.3) Physical & Multi-Sensory Augmentation, (2.4) Deliberate & Reflective Distortion/Abstraction, (3.1) Navigational & Informational Modality, (3.2) Embodied & Tangible Modality, (3.3) Conversational & Narrative Modality, (3.4) Ambient & Peripheral Modality, (4.1) Authoring & Curation for Others, (4.2) Synchronous & Collaborative Interaction, (4.3) Mediated Connection & Sharing. Darker cells indicate higher concentration of studies addressing that specific functional-mechanism pairing.

The rows for *Bitterness Revival* and *Death Preparation*, for instance, remain largely unaddressed.

This tendency to sidestep difficult emotions may limit the scope of what reminiscence technologies can offer. Psychological research highlights that negative and ambivalent memories are not merely obstacles but can play important roles in identity formation, emotional regulation, and meaning-making [10, 60]. Recent empirical work in HCI echoes this, showing the nuanced and sometimes ambivalent responses of users engaging with reminiscence technologies, as well as the potential risks of framing reminiscence too narrowly around positivity [30, 104]. Broadening the design space in this direction may allow technologies to support more holistic forms of reflection. Engaging with the full emotional spectrum of memory raises important design challenges, particularly around emotional safety and user control. Our framework helps surface several directions that could be explored:

Scaffold Reflection through Abstraction and Distance. Confronting a difficult memory in full fidelity can be overwhelming. One approach is to use *Deliberate & Reflective Distortion/Abstraction* (DM-2.4) to introduce psychological distance. Rather than resurfacing a sharp, painful photo, a system might render it as a watercolor, a blurred outline, or an abstract composition of shapes and colors. This idea can also extend to XR contexts, where past events are reconstructed in therapeutic scenarios [8]. By softening the sensory

impact, such abstractions may help users engage with the essence of a memory without being retraumatized, turning a painful artifact into a gentler prompt for reflection.

Design Digital Vaults for Private, Intentional Engagement. Users may benefit from safe, contained spaces for vulnerable memories. Designers could create "digital vaults" or "lockboxes" where users intentionally place difficult content. Access might require an explicit, high-friction interaction, ensuring that engagement is always deliberate. Such designs would also call for robust privacy controls, such as information obfuscation [38] (a component of DM-2.4), to blur sensitive details in passively collected archives and prevent unintentional resurfacing.

Guide Narrative Re-framing. The goal of engaging with a difficult past is often to find new meaning in it. Drawing on narrative therapy, systems could use *System-Guided Generation* (DM-1.2) and a *Conversational & Narrative Modality* (DM-3.3) to gently support users in re-framing their stories. A conversational agent or a text prompt like Rebulb [33] might ask, for example, "What strength did you discover in yourself during that time?" or "How has that experience, though difficult, shaped who you are today?" Such prompts position technology not simply as an archive, but as a reflective companion in the complex process of integrating one's life story.

Beyond emotional complexity, our review also points to other functions that have received comparatively less attention but may enrich everyday reminiscence. One such example is *Boredom Reduction*.

Activate Reminiscence in Moments of Boredom. Our review highlights *Boredom Reduction* as a function that has been comparatively underexplored yet may hold value. Everyday moments of idleness such as waiting for a bus, standing in a queue, or scrolling aimlessly can provide unique opportunities for memory engagement. Instead of treating boredom as an undesirable state to be eliminated, technologies might reimagine it as a possible trigger for reminiscence. Related work in other domains has begun to examine boredom interventions: for example, D-Twins [53] designed a personalized digital twin that detects users' boredom states in real time through EEG signals and provides empathic conversational interventions to alleviate them. While their focus was on monotonous automated environments, similar principles could be extended to reminiscence. For instance, systems might gently surface a forgotten photograph, a past diary entry, or a family voice clip during idle moments, transforming boredom into an entry point for reflection. Designing for such everyday triggers may not only enrich otherwise empty stretches of time but also potentially position reminiscence as an ambient, seamlessly integrated part of daily life.

5.3 Designing from Reflection to Action

Beyond the social and integrative functions, our review suggests that the instrumental function which involves using the past to solve present problems, remains underexplored within the specific context of HCI research. As shown in Figure 7, the row for *Problem Solving* is less populated. It is important to acknowledge that this scarcity is likely a reflection of venue selection; the therapeutic application of reminiscence is well-established in clinical psychology, nursing, and gerontology journals not covered in this review [43, 99]. However, the relative absence of this function in current corpus suggests opportunities to translate established clinical protocols into accessible, everyday user experiences.

Psychological research has long emphasized the value of instrumental reminiscence as a mechanism for coping with stress and enhancing self-efficacy [66]. It works by recalling past coping strategies, reflecting on their effectiveness, and applying successful approaches to current challenges. Studies show that this process can improve adaptive capacity and quality of life in older adults [61] and serve as a useful treatment for depression [91]. While clinical interventions often rely on scheduled therapy sessions, HCI is uniquely positioned to embed these mechanisms into the fabric of daily life. Design can move instrumental reminiscence out of the clinic and into the wild, leveraging context-awareness and ubiquitous computing to support users exactly when challenges arise. Building on our framework, we suggest several directions where HCI designers can contribute unique value to this established psychological domain:

Design for Context-Aware Proactive Cueing. Clinical reminiscence often relies on a therapist to initiate recall. HCI systems can innovate by automating this initiation based on context. Instead of generic prompts about happy memories, systems might

use *System-Guided Generation* (DM-1.2) to ask targeted, instrumental questions, for example: "Tell me about a time you successfully navigated a difficult career change," or "Describe a moment you felt resilient in the face of uncertainty." Such prompts could also be context-aware, triggered by cues such as an upcoming stressful event in a user's calendar, positioning the past as a resource for the future. HCI can further enhance this by moving beyond text prompts on screens to tangible or ambient interventions.

Create an Intelligent Archive of Coping Strategies. While traditional therapy relies on a patient's unaided memory to recall past successes, HCI can leverage *AI-Driven Analysis* (DM-2.2) to mine personal archives. Systems could identify and tag personal narratives, whether from journals, emails, or oral histories, by themes such as "overcoming conflict" or "creative problem-solving." This would allow users to draw on their own lived experiences when facing new challenges.

Scaffold an Action-Oriented Dialogue. Finally, technology might support users in translating reminiscence into practical steps. Using a *Conversational & Narrative Modality* (DM-3.3), a system could guide a structured dialogue that moves from recollection to action: (1) Recall a past success. (2) Reflect on the key lesson. (3) Identify one small step that could be taken today based on that lesson. Such scaffolding can help ensure that reminiscence becomes not only a reflective activity but also a source of self-efficacy and forward momentum.

5.4 Reflections on the Theoretical Lens and Context

Psychological frameworks offer a useful way to compare diverse HCI systems by providing a shared functional vocabulary. At the same time, we recognize that these models emphasize functions, while HCI research often attends to lived experience and relational nuance. This means that some experiential dimensions may sit alongside, rather than fully within, functional classifications. Even so, theory can productively support design and evaluation. Many systems articulate aims such as identity continuity or emotional support, yet their assessments focus on immediate interaction qualities. In these cases, theoretical models can serve as scaffolds, helping researchers articulate design intentions more clearly and consider evaluation metrics that speak to the broader aims of reminiscence work.

Our synthesis also suggests contextual limits in how reminiscence technologies have been conceptualized to date. While our dataset does not support broad generalization, several patterns in the corpus, such as the predominance of urban and neurotypical participants, Global North settings, and visually oriented designs, indicate a relatively narrow slice of reminiscence practice. Prior work demonstrates that memory is deeply cultural and relational [56, 90]. For instance, Zhang et al. show that older adults in China often situate memories within broader historical narratives and envision collaborative modes of storytelling [104], suggesting that different populations may foreground different aspects of our framework. Collectivist contexts, for example, may place greater value on shared authorship and collaborative mechanisms. These observations highlight opportunities to widen the design space by engaging

more diverse cultural practices, user groups, and modalities, including those that extend beyond predominantly visual cues.

Furthermore, we observe a tension between technological efficiency and the lived experience of remembering. Despite advances in retrieval speeds and automation, efficiency may not always align with the emotional goals of reminiscence. Few projects in our corpus explicitly draw on the principles of slow technology [27], which foreground deceleration, reinterpretation, and the fragmented, emotionally complex character of memory [62, 63]. This challenge is particularly relevant for emerging work with large language models (LLMs). While LLMs demonstrate potential in scaffolding reminiscence conversations [82, 100, 103], they are frequently framed as single-session encounters, evaluated mainly through conversational fluidity or story quantity. We see a valuable opening for future work to extend this direction toward longer-term, slower engagements, using AI not just for immediate retrieval, but to scaffold reflection, narrative evolution, and emotional processing across time. Realizing this vision will require evaluation approaches that attend not only to functional outcomes, but also to cultural situatedness, relational depth, and the unfolding temporal rhythms of remembering.

6 Limitations

First, the scope of our literature search, while systematic, was primarily focused on top-tier, English-language HCI venues available through major digital libraries. Consequently, relevant work published in other languages, in adjacent fields such as psychology, gerontology, or design studies, or in less-indexed regional conferences may not be fully captured. Our framework reflects the discourse within a specific, albeit influential, segment of the academic community.

Second, although our corpus includes studies that draw on lifelogging and journaling practices, our analysis focused on work that explicitly identifies its contributions as reminiscence. This decision enabled a coherent synthesis but also narrowed the design space considered. In the broader autobiographical technology landscape, personal informatics systems demonstrate how past data can support reflection and planning [18, 44, 54], lifelogging research offers methods for capturing heterogeneous personal traces [1, 98], and digital journaling systems provide structured supports for narrative construction [50, 96]. These approaches may contribute to memory work even when not labeled as reminiscence. By centering self-identified reminiscence technologies, our review reflects the emphases of this subcommunity, which tends to foreground identity and social functions. This field convention may partly explain why instrumental mechanisms appear relatively scarce in our corpus. Integrating insights from personal informatics, lifelogging, and journaling could broaden the functional repertoire of reminiscence technologies, clarifying how autobiographical systems can support not only emotional connection but also everyday problem solving, adaptation, and self-management. Such integration would also help articulate the distinctive contributions that HCI can offer, including designing novel multimodal cues, developing interactive systems that help users work with complex autobiographical data, and creating human-centered methods for meaning making that complement clinically or data-driven approaches in adjacent fields. These directions may extend the proposed cue-centered framework and

support a more comprehensive understanding of autobiographical technologies in HCI.

Third, the process of data analysis and framework development, like any qualitative synthesis, necessarily involves elements of subjectivity and interpretation. Although we grounded our framework in an iterative, bottom-up analysis of the data and drew on established psychological scales to guide our functional coding, the act of categorizing diverse designs into a unified structure remains interpretive. Other researchers, bringing different perspectives, might reasonably group certain mechanisms differently or highlight alternative thematic priorities.

Fourth, because the vast majority of reviewed systems relied on visual and auditory cues, our framework is likewise grounded primarily in these modalities. Mechanisms for olfactory, gustatory, and tactile cues are necessarily less developed, and future work will need to examine how the cue-centered model generalizes to multi-sensory or unconventional cue types.

Finally, this review represents a snapshot in time of a rapidly evolving field. The technological landscape continues to shift, particularly with the recent growth of generative AI. While our corpus includes recent work available at the time of our search, new design mechanisms and research priorities are likely to emerge. Our framework is best understood not as a definitive conclusion, but as a foundation for ongoing inquiry and future analyses of this dynamic area.

7 Conclusion

Remembering is a fundamental part of human experience, and the HCI community has explored this space with notable creativity and care. Yet the field still lacks shared ways to describe and compare its many contributions. In this work, we offer one attempt to address this gap through a systematic review of 60 papers on reminiscence technology.

We see our contributions as twofold. First, our analysis of the functions supported in existing systems suggests that research has focused largely on positive identity building and social connection, while relatively less work addresses instrumental or more challenging aspects of memory. This pattern reveals an opportunity for further exploration of the broader roles reminiscence can play. Second, we introduce a cue-centered framework that organizes design mechanisms into a four stage lifecycle. We offer this not as a vocabulary that may help researchers discuss existing work and consider new design directions.

We hope this review can serve as a helpful resource for researchers and designers. By making some of the field's implicit goals and mechanisms more visible, we aim to support continued reflection and intentionality. Our intention is not only to highlight ways of engaging with the pleasant and social dimensions of the past, but also to invite attention to the fuller and sometimes more complex spectrum of what it means to remember.

Acknowledgments

This research is partially funded by 2025 Guangdong Undergraduate University Teaching Quality and Teaching Reform Project, AI Research and Learning Base of Urban Culture under Project

2023WZJD008, Guangdong Provincial Key Lab of Integrated Communication, Sensing and Computation for Ubiquitous Internet of Things (No. 2023B1212010007), the Project of DEGP (No. 2023KCXTD042), the National Natural Science Foundation of China (No. 72203054), the Basic and Applied Basic Research Foundation of Guangdong Province (No. 2025A1515010549), the Guangzhou Municipal Science and Technology Project (No. 2024A03J0630 and No. 2024A04J4549), the Yangcheng Scholars Research Project of Guangzhou (No. 2024312031), and the Guangzhou-HKUST(GZ) Joint Funding Program (No. 2025A03J3807). We thank the anonymous reviewers for their valuable feedback in improving this work.

References

- [1] Adrian Aiordachioae and Radu-Daniel Vatavu. 2024. Lifelogging in Mixed Reality. In *Extended Abstracts of the CHI Conference on Human Factors in Computing Systems*. ACM, Honolulu HI USA, 1–8. doi:10.1145/3613905.3650897
- [2] Carl F. Auerbach and Louise B. Silverstein. 2003. *Qualitative data: an introduction to coding and analysis*. New York University Press, New York.
- [3] Benett Axtell, Raheleh Saryazdi, and Cosmin Munteanu. 2022. Design is Worth a Thousand Words: The Effect of Digital Interaction Design on Picture-Prompted Reminiscence. In *CHI Conference on Human Factors in Computing Systems*. ACM, New Orleans LA USA, 1–12. doi:10.1145/3491102.3517692
- [4] Steven Baker, Ryan M. Kelly, Jenny Waycott, Romina Carrasco, Roger Bell, Zaher Joukhadar, Thuong Hoang, Elizabeth Ozanne, and Frank Vetere. 2021. School's Back: Scaffolding Reminiscence in Social Virtual Reality with Older Adults. *Proceedings of the ACM on Human-Computer Interaction* 4, CSCW3 (Jan. 2021), 1–25. doi:10.1145/3434176
- [5] Steven Baker, Jenny Waycott, Romina Carrasco, Thuong Hoang, and Frank Vetere. 2019. Exploring the Design of Social VR Experiences with Older Adults. In *Proceedings of the 2019 on Designing Interactive Systems Conference*. ACM, San Diego CA USA, 303–315. doi:10.1145/3322276.3322361
- [6] Andrea Baumann, Peter Shaw, Ludwig Trotter, Sarah Clinch, and Nigel Davies. 2024. Mnemosyne - Supporting Reminiscence for Individuals with Dementia in Residential Care Settings. In *Proceedings of the CHI Conference on Human Factors in Computing Systems*. ACM, Honolulu HI USA, 1–17. doi:10.1145/3613904.3642783
- [7] Susan Bluck and Linda J. Levine. 1998. Reminiscence as autobiographical memory: a catalyst for reminiscence theory development. *Ageing and Society* 18, 2 (March 1998), 185–208. doi:10.1017/S0144686X98006862
- [8] Elise Bonnal, Wen-Jie Tseng, Mark McGill, Eric Lecolinet, Samuel Huron, and Jan Gugenheimer. 2023. Memory Manipulations in Extended Reality. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. ACM, Hamburg Germany, 1–20. doi:10.1145/3544548.3580988
- [9] Simon Bowen and Daniela Petrelli. 2011. Remembering today tomorrow: Exploring the human-centred design of digital mementos. *International Journal of Human-Computer Studies* 69, 5 (May 2011), 324–337. doi:10.1016/j.ijhcs.2010.12.005 Publisher: Elsevier BV.
- [10] Ryan Burnell, Anne S. Rasmussen, and Maryanne Garry. 2020. Negative memories serve functions in both adaptive and maladaptive ways. *Memory* 28, 4 (April 2020), 494–505. doi:10.1080/09658211.2020.1737133 Publisher: Informa UK Limited.
- [11] Vannevar Bush. 1996. As we may think. *Interactions* 3, 2 (March 1996), 35–46. doi:10.1145/227181.227186 Publisher: Association for Computing Machinery (ACM).
- [12] XinHui Chen, Xiang Yuan, Hui Zhang, Ruixiao Zheng, and Wanyi Wei. 2025. Maintaining “Balanced” Conflict: Proactive Intervention Strategies of AI Voice Agents in Online Collaboration of Temporary Design Teams. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–19. doi:10.1145/3706598.3713457
- [13] Andrea Cuadra, Jessica Bethune, Rony Krell, Alexa Lempel, Katrin Hänsel, Armin Shahrokni, Deborah Estrin, and Nicola Dell. 2023. Designing Voice-First Ambient Interfaces to Support Aging in Place. In *Proceedings of the 2023 ACM Designing Interactive Systems Conference*. ACM, Pittsburgh PA USA, 2189–2205. doi:10.1145/3563657.3596104
- [14] Laura Devendorf, Kristina Andersen, and Aisling Kelliher. 2020. Making Design Memoirs: Understanding and Honoring Difficult Experiences. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. ACM, Honolulu HI USA, 1–12. doi:10.1145/3313831.3376345
- [15] Lina Dib, Daniela Petrelli, and Steve Whittaker. 2010. Sonic souvenirs: exploring the paradoxes of recorded sound for family remembering. In *Proceedings of the 2010 ACM conference on Computer supported cooperative work*. ACM, Savannah Georgia USA, 391–400. doi:10.1145/1718918.1718985
- [16] Emma Dixon and Amanda Lazar. 2020. Approach Matters: Linking Practitioner Approaches to Technology Design for People with Dementia. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. ACM, Honolulu HI USA, 1–15. doi:10.1145/3313831.3376432
- [17] Qiuxin Du, Xiaoying Wei, Jiawei Li, Emily Kuang, Jie Hao, Dongdong Weng, and Mingming Fan. 2025. AI as a Bridge Across Ages: Exploring The Opportunities of Artificial Intelligence in Supporting Inter-Generational Communication in Virtual Reality. *Proceedings of the ACM on Human-Computer Interaction* 9, 2 (May 2025), 1–29. doi:10.1145/3710924
- [18] Tina Ekhtiar, Armağan Karahanoglu, Ruben Gouveia, and Geke D.S. Ludden. 2025. Changing Health Goals with Personal Informatics. In *Proceedings of the 2025 ACM Designing Interactive Systems Conference*. ACM, Madeira Portugal, 2867–2883. doi:10.1145/3715336.3735813
- [19] Mohamad El Haj, Dimitrios Kapogiannis, and Pascal Antoine. 2020. The picture of the past: Pictures to cue autobiographical memory in Alzheimer's disease. *Journal of Clinical and Experimental Neuropsychology* 42, 9 (Oct. 2020), 914–923. doi:10.1080/13803395.2020.1825636
- [20] Hasan Shahid Ferdous, Bernd Ploderer, Hilary Davis, Frank Vetere, Kenton O'Hara, Jeremy Farr-Wharton, and Rob Comber. 2016. TableTalk: integrating personal devices and content for commensal experiences at the family dinner table. In *Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing*. ACM, Heidelberg Germany, 132–143. doi:10.1145/2971648.2971715
- [21] David B. Gerritsen, Dan Tasse, Jennifer K. Olsen, Tatiana A. Vlahovic, Rebecca Gulotta, William Odom, Jason Wiese, and John Zimmerman. 2016. Mailing Archived Emails as Postcards: Probing the Value of Virtual Collections. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*. ACM, San Jose California USA, 1187–1199. doi:10.1145/2858036.2858541
- [22] Rebecca Gibson, Camilla May Babbage, Hanne Gesine Wagner, Dominic James Price, Sarah Martindale, Neil H Chadborn, Sachio Ito-Jaeger, Dimitrios Paris Darzentas, Helena Webb, Rachel Jacobs, Ayça Atabey, Boriana Koleva, Martin Flintham, Heidi Winklhofer, Lachlan D Urquhart, and Elvira Perez Vallejos. 2023. “It's not just for the Past but it's for the Here and Now”: Gift-Giver Perspectives on the Memory Machine to Gift Digital Memories. In *Proceedings of the 2023 ACM Designing Interactive Systems Conference*. ACM, Pittsburgh PA USA, 987–1001. doi:10.1145/3563657.3595962
- [23] Rebecca Gibson, Boriana Koleva, Martin Flintham, and Heidi Winklhofer. 2023. Gifting the Past in the Present: An Exploration of Evoking Nostalgia through Hybrid Gifts. In *Proceedings of the 2023 ACM Designing Interactive Systems Conference*. ACM, Pittsburgh PA USA, 1047–1059. doi:10.1145/3563657.3596103
- [24] Stuart Gray, Rachel Hahn, Kirsten Cater, Debbie Watson, Keir Williams, Tom Metcalfe, and Chloe Meineck. 2020. Towards A Design For Life: Redesigning For Reminiscence With Looked After Children. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. ACM, Honolulu HI USA, 1–14. doi:10.1145/3313831.3376824
- [25] Kunal Gupta, Sam W. T. Chan, Yun Suen Pai, Nicholas Strachan, John Su, Alexander Sumich, Suranga Nanayakkara, and Mark Billinghurst. 2022. Total VREcall: Using Biosignals to Recognize Emotional Autobiographical Memory in Virtual Reality. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 6, 2 (July 2022), 1–21. doi:10.1145/3534615 Publisher: Association for Computing Machinery (ACM).
- [26] Hackforth, Reginald. 1972. *Plato: phaedru*. Number No. 119. Cambridge University Press.
- [27] Lars Hallnäs and Johan Redström. 2001. Slow Technology – Designing for Reflection. *Personal and Ubiquitous Computing* 5, 3 (Aug. 2001), 201–212. doi:10.1007/pl00000019 Publisher: Springer Science and Business Media LLC.
- [28] Sudheendra Hangal, Monica S. Lam, and Jeffrey Heer. 2011. MUSE: reviving memories using email archives. In *Proceedings of the 24th annual ACM symposium on User interface software and technology*. ACM, Santa Barbara California USA, 75–84. doi:10.1145/2047196.2047206
- [29] Hsiu-Fang Hsieh and Sarah E. Shannon. 2005. Three Approaches to Qualitative Content Analysis. *Qualitative Health Research* 15, 9 (Nov. 2005), 1277–1288. doi:10.1177/1049732305276687 Publisher: SAGE Publications.
- [30] Long-Jing Hsu, Manasi Swaminathan, Weslie Khoo, Kyrie Jig Amon, Hiroki Sato, Sathvika Dobbala, Kate Tsui, David Crandall, and Selma Sabanovic. 2025. Bittersweet Snapshots of Life: Designing to Address Complex Emotions in a Reminiscence Interaction between Older Adults and a Robot. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–18. doi:10.1145/3706598.3714256
- [31] Yaxin Hu, Laura Stegner, Yasmine Kotturi, Caroline Zhang, Yi-Hao Peng, Faria Huq, Yuhang Zhao, Jeffrey P Bigham, and Bilge Mutlu. 2024. “This really lets us see the entire world.” Designing a conversational telepresence robot for homebound older adults. In *Designing Interactive Systems Conference*. ACM, IT University of Copenhagen Denmark, 2450–2467. doi:10.1145/3643834.3660710
- [32] Stephan Huber, Renate Berner, Martina Uhlig, Peter Klein, and Jörn Hurlienne. 2019. Tangible Objects for Reminiscing in Dementia Care. In *Proceedings of the Thirteenth International Conference on Tangible, Embedded, and Embodied Interaction*. ACM, Tempe Arizona USA, 15–24. doi:10.1145/3294109.3295632

- [33] Sangsu Jang, Nari Kim, Nanum Kim, Jin-young Moon, Choong-Wan Woo, and Young-Woo Park. 2025. Journey to My Past: Exploring and Journaling Past Memories Evoked by Questions Framed as Proud Moments. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–19. doi:10.1145/3706598.3713215
- [34] Jun Li Jeung and Janet Yi-Ching Huang. 2024. Unlocking Memories with AI: Exploring the Role of AI-Generated Cues in Personal Reminiscing. In *Extended Abstracts of the CHI Conference on Human Factors in Computing Systems*. ACM, Honolulu HI USA, 1–6. doi:10.1145/3613905.3650979
- [35] Yucheng Jin, Wanling Cai, Li Chen, Yizhe Zhang, Gavin Doherty, and Tonglin Jiang. 2024. Exploring the Design of Generative AI in Supporting Music-based Reminiscence for Older Adults. In *Proceedings of the CHI Conference on Human Factors in Computing Systems*. ACM, Honolulu HI USA, 1–17. doi:10.1145/3613904.3642800
- [36] Ju Yeon Jung, Tom Steinberger, Junbeom Kim, and Mark S. Ackerman. 2022. “So What? What’s That to Do With Me?” Expectations of People With Visual Impairments for Image Descriptions in Their Personal Photo Activities. In *Designing Interactive Systems Conference*. ACM, Virtual Event Australia, 1893–1906. doi:10.1145/3532106.3533522
- [37] Vaiva Kalnikaitė and Steve Whittaker. 2011. A saunter down memory lane: Digital reflection on personal mementos. *International Journal of Human-Computer Studies* 69, 5 (May 2011), 298–310. doi:10.1016/j.ijhcs.2010.12.004 Publisher: Elsevier BV.
- [38] Thivya Kandappu, Vigneshwaran Subbaraju, and Qianli Xu. 2021. PrivacyPrimer: Towards Privacy-Preserving Episodic Memory Support For Older Adults. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW2 (Oct. 2021), 1–32. doi:10.1145/3476047 Publisher: Association for Computing Machinery (ACM).
- [39] Bumsoo Kang, Seungwoo Kang, and Inseok Hwang. 2021. MomentMeld: AI-augmented Mobile Photographic Memento towards Mutually Stimulatory Intergenerational Interaction. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–16. doi:10.1145/3411764.3445688
- [40] Arshia Khan, Alex Bleth, Marat Bakpayev, and Nabihia Intiaz. 2022. Reminiscence Therapy in the Treatment of Depression in the Elderly: Current Perspectives. *Journal of Ageing and Longevity* 2, 1 (Feb. 2022), 34–48. doi:10.3390/jal2010004
- [41] Rohit Ashok Khot, Josh Andres, Jennifer Lai, Juerg Von Kaenel, and Florian “Floyd” Mueller. 2016. *Fantibles: Capturing Cricket Fan’s Story in 3D*. In *Proceedings of the 2016 ACM Conference on Designing Interactive Systems*. ACM, Brisbane QLD Australia, 883–894. doi:10.1145/2901790.2901886
- [42] Subin Kim, Sangsu Jang, Jin-young Moon, Minjoo Han, and Young-Woo Park. 2022. Slide2Remember: an Interactive Wall Frame Enriching Reminiscence Experiences by Providing Re-encounters of Taken Photos and Heard Music in a Similar Period. In *Designing Interactive Systems Conference*. ACM, Virtual Event Australia, 288–300. doi:10.1145/3532106.3533456
- [43] Amanda Lazar, Hilaire Thompson, and George Demiris. 2014. A Systematic Review of the Use of Technology for Reminiscence Therapy. *Health Education & Behavior* 41, 1_suppl (Oct. 2014), 51S–61S. doi:10.1177/1090198114537067
- [44] Kwangyoung Lee. 2025. Designing Personal Informatics in Context: Toward Collective Well-being through Nuanced Personal Data. In *Companion Publication of the 2025 ACM Designing Interactive Systems Conference*. ACM, Funchal Portugal, 100–103. doi:10.1145/3715668.3735628
- [45] Matthew L. Lee and Anind K. Dey. 2007. Providing good memory cues for people with episodic memory impairment. In *Proceedings of the 9th international ACM SIGACCESS conference on Computers and accessibility*. ACM, Tempe Arizona USA, 131–138. doi:10.1145/1296843.1296867
- [46] Seyeon Lee, Hyunyoung Oh, Chung-Kon Shi, and Young Yim Doh. 2020. Life Review Using a Life Metaphoric Game to Promote Intergenerational Communication. *Proceedings of the ACM on Human-Computer Interaction* 4, CSCW2 (Oct. 2020), 1–21. doi:10.1145/3415169
- [47] Lin Li, Xinru Tang, and Anne Marie Piper. 2023. Understanding Extrafamilial Intergenerational Communication: A Case Analysis of an Age-Integrated Online Community. *Proceedings of the ACM on Human-Computer Interaction* 7, CSCW2 (Sept. 2023), 1–25. doi:10.1145/3610052 Publisher: Association for Computing Machinery (ACM).
- [48] Zisu Li, Li Feng, Chen Liang, Yuru Huang, and Mingming Fan. 2023. Exploring the Opportunities of AR for Enriching Storytelling with Family Photos between Grandparents and Grandchildren. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 7, 3 (Sept. 2023), 1–26. doi:10.1145/3610903
- [49] Amna Liaqat, Benett Axtell, and Cosmin Munteanu. 2022. “With a hint she will remember”: Collaborative Storytelling and Culture Sharing between Immigrant Grandparents and Grandchildren Via Magic Thing Designs. *Proceedings of the ACM on Human-Computer Interaction* 6, CSCW2 (Nov. 2022), 1–37. doi:10.1145/3555158 Publisher: Association for Computing Machinery (ACM).
- [50] Katherine Lin, Juna Kawai-Yue, Adira Sklar, Lucy Hecht, Sarah Sterman, and Tiffany Tseng. 2025. Crafting a Personal Journaling Practice: Negotiating Ecosystems of Materials, Personal Context, and Community in Analog Journaling. In *Proceedings of the 2025 Conference on Creativity and Cognition*. ACM, Virtual United Kingdom, 294–309. doi:10.1145/3698061.3726923
- [51] Siân E. Lindley, Maxine Glancy, Richard Harper, Dave Randall, and Nicola Smyth. 2011. “Oh and how things just don’t change, the more things stay the same”: Reflections on SenseCam images 18 months after capture. *International Journal of Human-Computer Studies* 69, 5 (May 2011), 311–323. doi:10.1016/j.ijhcs.2010.12.010 Publisher: Elsevier BV.
- [52] Siân E. Lindley and Andrew F. Monk. 2008. Social enjoyment with electronic photograph displays: Awareness and control. *International Journal of Human-Computer Studies* 66, 8 (Aug. 2008), 587–604. doi:10.1016/j.ijhcs.2008.04.002 Publisher: Elsevier BV.
- [53] I-Chen Lo and Pei-Luen Patrick Rau. 2025. D-Twins: Your Digital Twin Designed for Real-Time Boredom Intervention. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–15. doi:10.1145/3706598.3714163
- [54] Julianne Louie, Tara Mukund, Chau Vu, Daniel A. Epstein, and Alexandra Papoutsaki. 2025. Understanding Temporality of Reflection in Personal Informatics through Baby Tracking. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–18. doi:10.1145/3706598.3713197
- [55] Qian Mao, Zhen Zhao, Lisha Yu, Yang Zhao, and Hailiang Wang. 2024. The Effects of Virtual Reality–Based Reminiscence Therapies for Older Adults With Cognitive Impairment: Systematic Review. *Journal of Medical Internet Research* 26 (Nov. 2024), e53348. doi:10.2196/53348
- [56] Maryanne Martin and Gregory V. Jones. 2012. Individualism and the field viewpoint: Cultural influences on memory perspective. *Consciousness and Cognition* 21, 3 (Sept. 2012), 1498–1503. doi:10.1016/j.concog.2012.04.009
- [57] Maria Matsangidou, Theodoros Solomou, Fotos Frangoudis, Ersi Papayianni, Natalie Kkeli, and Constantinos S. Pattichi. 2025. “Transported to a better place”: The influence of virtual reality on the behavioural and psychological symptoms of dementia. *International Journal of Human-Computer Studies* 196 (Feb. 2025), 103413. doi:10.1016/j.ijhcs.2024.103413 Publisher: Elsevier BV.
- [58] David McGooken. 2019. Reveal: Investigating Proactive Location-Based Reminiscing with Personal Digital Photo Repositories. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. ACM, Glasgow Scotland UK, 1–14. doi:10.1145/3290605.3300665
- [59] Marshall McLuhan. 1994. *Understanding media: the extensions of man* (1st mit press ed ed.). MIT Press, Cambridge, Mass.
- [60] Juan C. Melendez, Marta Torres, Rita Redondo, Teresa Mayordomo, and Alicia Sales. 2017. Effectiveness of follow-up reminiscence therapy on autobiographical memory in pathological ageing. *International Journal of Psychology* 52, 4 (Aug. 2017), 283–290. doi:10.1002/ijop.12217
- [61] Juan C. Meléndez, Flor B. Fortuna, Alicia Sales, and Teresa Mayordomo. 2015. The effects of instrumental reminiscence on resilience and coping in elderly. *Archives of Gerontology and Geriatrics* 60, 2 (March 2015), 294–298. doi:10.1016/j.archger.2014.12.001
- [62] William Odom. 2015. Understanding Long-Term Interactions with a Slow Technology: an Investigation of Experiences with FutureMe. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*. ACM, Seoul Republic of Korea, 575–584. doi:10.1145/2702123.2702221
- [63] William Odom, Ron Wakkary, Jeroen Hol, Bram Naus, Pepijn Verburg, Tal Amram, and Amy Yo Sue Chen. 2019. Investigating Slowness as a Frame to Design Longer-Term Experiences with Personal Data: A Field Study of Olly. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. ACM, Glasgow Scotland UK, 1–16. doi:10.1145/3290605.3300264
- [64] N. O’Rourke, S. Carmel, H. Chaudhury, N. Polchenko, and Y. G. Bachner. 2013. A Cross-National Comparison of Reminiscence Functions between Canadian and Israeli Older Adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 68, 2 (March 2013), 184–192. doi:10.1093/geronb/gbs058
- [65] Matthew J Page, Joanne E McKenzie, Patrick M Bossuyt, Isabelle Boutron, Tammy C Hoffmann, Cynthia D Mulrow, Larissa Shamseer, Jennifer M Tetzlaff, Elie A Akl, Sue E Brennan, Roger Chou, Julie Glanville, Jeremy M Grimshaw, Asbjørn Hróbjartsson, Manoj M Lalu, Tianjing Li, Elizabeth W Loder, Evan Mayo-Wilson, Steve McDonald, Luke A McGuinness, Lesley A Stewart, James Thomas, Andrea C Tricco, Vivian A Welch, Penny Whiting, and David Moher. 2021. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* (March 2021), n71. doi:10.1136/bmj.n71 Publisher: BMJ.
- [66] Rhonda G. Parker. 1999. Reminiscence as Continuity: Comparison of Young and Older Adults. *Journal of Clinical Geropsychology* 5, 2 (April 1999), 147–157. doi:10.1023/A:1022931111622
- [67] S. Tejaswi Peesapati, Victoria Schwanda, Johnathon Schultz, Matt Lepage, So-yaee Jeong, and Dan Cosley. 2010. Pensive: supporting everyday reminiscence. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, Atlanta Georgia USA, 2027–2036. doi:10.1145/1753326.1753635
- [68] Leana Petiot, Héléne Sauzeon, and Pierre Dragicevic. 2025. The Effect of Augmented Reality on Involuntary Autobiographical Memory. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–20. doi:10.1145/3706598.3713922

- [69] Daniela Petrelli, Simon Bowen, and Steve Whittaker. 2014. Photo mementos: Designing digital media to represent ourselves at home. *International Journal of Human-Computer Studies* 72, 3 (March 2014), 320–336. doi:10.1016/j.ijhcs.2013.09.009 Publisher: Elsevier BV.
- [70] Daniela Petrelli, Elise Van Den Hoven, and Steve Whittaker. 2009. Making history: intentional capture of future memories. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, Boston MA USA, 1723–1732. doi:10.1145/1518701.1518966
- [71] Anne Marie Piper, Nadir Weibel, and James Hollan. 2013. Audio-enhanced paper photos: encouraging social interaction at age 105. In *Proceedings of the 2013 conference on Computer supported cooperative work*. ACM, San Antonio Texas USA, 215–224. doi:10.1145/2441776.2441802
- [72] Anne Marie Piper, Nadir Weibel, and James D. Hollan. 2014. Designing audio-enhanced paper photos for older adult emotional wellbeing in communication therapy. *International Journal of Human-Computer Studies* 72, 8–9 (Aug. 2014), 629–639. doi:10.1016/j.ijhcs.2014.01.002 Publisher: Elsevier BV.
- [73] Chengcheng Qu, Corina Sas, and Gavin Doherty. 2019. Exploring and Designing for Memory Impairments in Depression. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. ACM, Glasgow Scotland Uk, 1–15. doi:10.1145/3290605.3300740
- [74] Amon Rapp. 2022. How do people experience the temporality of everyday life changes? Towards the exploration of existential time in HCI. *International Journal of Human-Computer Studies* 167 (Nov. 2022), 102899. doi:10.1016/j.ijhcs.2022.102899 Publisher: Elsevier BV.
- [75] Paul Ricœur and Kathleen Blamey. 2021. *Oneself as another* (new ed.). University of Chicago Press, Chicago. OCLC: 1242582487.
- [76] Corina Sas. 2018. Exploring Self-Defining Memories in Old Age and their Digital Cues. In *Proceedings of the 2018 Designing Interactive Systems Conference*. ACM, Hong Kong China, 149–161. doi:10.1145/3196709.3196767
- [77] Corina Sas, Nigel Davies, Sarah Clinch, Peter Shaw, Mateusz Mikusz, Madeleine Steeds, and Lukas Nohrer. 2020. Supporting Stimulation Needs in Dementia Care through Wall-Sized Displays. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. ACM, Honolulu HI USA, 1–16. doi:10.1145/3313831.3376361
- [78] Chenxinran Shen, Joanna Mcgreneire, and Dongwook Yoon. 2024. LegacySphere: Facilitating Intergenerational Communication Through Perspective-Taking and Storytelling in Embodied VR. In *Proceedings of the CHI Conference on Human Factors in Computing Systems*. ACM, Honolulu HI USA, 1–16. doi:10.1145/3613904.3641923
- [79] Panote Siritiraya and Chee Siang Ang. 2014. Recreating living experiences from past memories through virtual worlds for people with dementia. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, Toronto Ontario Canada, 3977–3986. doi:10.1145/2556288.2557035
- [80] Stiegler, Bernard. 1998. *Technics and time, 1: The fault of Epimetheus*. Vol. 1. Stanford University Press.
- [81] Ponnusamy Subramaniam and Bob Woods. 2010. Towards the therapeutic use of information and communication technology in reminiscence work for people with dementia: a systematic review. *International Journal of Computers in Healthcare* 1, 2 (2010), 106. doi:10.1504/IJCH.2010.037457
- [82] Jingwei Sun, Zhongyue Zhang, Mengyang Wang, Nianlong Li, Zhangwei Lu, Yan Xiang, Liuxin Zhang, Yu Zhang, Qianying Wang, and Mingming Fan. 2025. Chorus of the Past: Toward Designing a Multi-agent Conversational Reminiscence System with Digital Artifacts for Older Adults. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–22. doi:10.1145/3706598.3713810
- [83] Neille-Ann H. Tan, Han Sha, Eda Celen, Phucanh Tran, Kelly Wang, Gifford Cheung, Philip Hinch, and Jeff Huang. 2018. Rewind: Automatically Reconstructing Everyday Memories with First-Person Perspectives. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 2, 4 (Dec. 2018), 1–20. doi:10.1145/3287069 Publisher: Association for Computing Machinery (ACM).
- [84] Karen P. Tang, Jason I. Hong, Ian E. Smith, Annie Ha, and Lalatendu Satpathy. 2007. Memory karaoke: using a location-aware mobile reminiscence tool to support aging in place. In *Proceedings of the 9th international conference on Human computer interaction with mobile devices and services*. ACM, Singapore, 305–312. doi:10.1145/1377999.1378023
- [85] Elizabeth Thiry, Siân Lindley, Richard Banks, and Tim Regan. 2013. Authoring personal histories: exploring the timeline as a framework for meaning making. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, Paris France, 1619–1628. doi:10.1145/2470654.2466215
- [86] Lisa Thomas and Pam Briggs. 2016. Reminiscence through the Lens of Social Media. *Frontiers in Psychology* 7 (June 2016). doi:10.3389/fpsyg.2016.00870
- [87] Lisa Thomas, Pam Briggs, Finola Kerrigan, and Andrew Hart. 2018. Exploring digital remediation in support of personal reflection. *International Journal of Human-Computer Studies* 110 (Feb. 2018), 53–62. doi:10.1016/j.ijhcs.2017.10.002 Publisher: Elsevier BV.
- [88] Wenn-Chieh Tsai, Po-Hao Wang, Hung-Chi Lee, Rung-Huei Liang, and Jane Hsu. 2014. The reflexive printer: toward making sense of perceived drawbacks in technology-mediated reminiscence. In *Proceedings of the 2014 conference on Designing interactive systems*. ACM, Vancouver BC Canada, 995–1004. doi:10.1145/2598510.2598589
- [89] Jayne Wallace, Peter C. Wright, John McCarthy, David Philip Green, James Thomas, and Patrick Olivier. 2013. A design-led inquiry into personhood in dementia. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, Paris France, 2617–2626. doi:10.1145/2470654.2481363
- [90] Qi Wang. 2008. On the cultural constitution of collective memory. *Memory* 16, 3 (April 2008), 305–317. doi:10.1080/09658210701801467
- [91] L. M. Watt and P. Cappeliez. 2000. Integrative and instrumental reminiscence therapies for depression in older adults: Intervention strategies and treatment effectiveness. *Aging & Mental Health* 4, 2 (May 2000), 166–177. doi:10.1080/13607860050008691
- [92] J. D. Webster. 1993. Construction and Validation of the Reminiscence Functions Scale. *Journal of Gerontology* 48, 5 (Sept. 1993), P256–P262. doi:10.1093/geronj/48.5.p256 Publisher: Oxford University Press (OUP).
- [93] Huaxin Wei, Dianya Hua, Eli Blevis, and Zitao Zhang. 2019. MemoryReel: A Purpose-designed Device for Recording Digitally Connected Special Moments for Later Recall and Reminiscence. In *Proceedings of the Thirteenth International Conference on Tangible, Embedded, and Embodied Interaction*. ACM, Tempe Arizona USA, 135–144. doi:10.1145/3294109.3295649
- [94] Gerben J. Westerhof and Ernst T. Bohlmeijer. 2014. Celebrating fifty years of research and applications in reminiscence and life review: State of the art and new directions. *Journal of Aging Studies* 29 (April 2014), 107–114. doi:10.1016/j.jaging.2014.02.003
- [95] Jordan White, William Odom, Nico Brand, and Ce Zhong. 2023. Memory Tracer & Memory Compass: Investigating Personal Location Histories as a Design Material for Everyday Reminiscence. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. ACM, Hamburg Germany, 1–19. doi:10.1145/3544548.3581426
- [96] Huatao Xu, Zilin Zeng, Panrong Tong, Mo Li, and Mani B Srivastava. 2025. AutoLife: Automatic Life Journaling with Smartphones and LLMs. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 9, 4 (Dec. 2025), 1–29. doi:10.1145/3770683
- [97] Ling Xu, Noelle L. Fields, M. Christine Highfill, and Brooke A. Troutman. 2023. Remembering the Past with Today's Technology: A Scoping Review of Reminiscence-Based Digital Storytelling with Older Adults. *Behavioral Sciences (Basel, Switzerland)* 13, 12 (Dec. 2023), 998. doi:10.3390/bs13120998
- [98] Liang Xu, Songkai Jia, Cathal Gurrin, Monica Ward, and Allie Tran. 2025. Through Someone Else's Eyes: Lifelogging Meets Narrative Virtual Reality. In *Proceedings of the 33rd ACM International Conference on Multimedia*. ACM, Dublin Ireland, 8988–8996. doi:10.1145/3746027.3755833
- [99] Lijun Xu, Shasha Li, Renfu Yan, Yingyuan Ni, Yuecong Wang, and Yue Li. 2023. Effects of reminiscence therapy on psychological outcome among older adults without obvious cognitive impairment: A systematic review and meta-analysis. *Frontiers in Psychiatry* 14 (March 2023), 1139700. doi:10.3389/fpsyg.2023.1139700
- [100] Shuchang Xu, Chang Chen, Zichen Liu, Xiaofu Jin, Lin-Ping Yuan, Yukang Yan, and Huamin Qu. 2024. Memory Reviver: Supporting Photo-Collection Reminiscence for People with Visual Impairment via a Proactive Chatbot. In *Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology*. ACM, Pittsburgh PA USA, 1–17. doi:10.1145/3654777.3676336
- [101] MinYoung Yoo, William Odom, and Arne Berger. 2021. Understanding Everyday Experiences of Reminiscence for People with Blindness: Practices, Tensions and Probing New Design Possibilities. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–15. doi:10.1145/3411764.3445212
- [102] MinYoung Yoo, William Odom, Arne Berger, Samuel Barnett, Sadhbh Kenny, Priscilla Lo, Samein Shamsher, Gillian Russell, and Lauren Knight. 2024. Remembering through Sound: Co-creating Sound-based Mementos together with People with Blindness. In *Proceedings of the CHI Conference on Human Factors in Computing Systems*. ACM, Honolulu HI USA, 1–19. doi:10.1145/3613904.3641940
- [103] Xuechen Zhang, Changyang He, Peng Zhang, Hansu Gu, Ning Gu, Qi Shen, Zhan Hu, and Tun Lu. 2025. RemiHaven: Integrating "In-Town" and "Out-of-Town" Peers to Provide Personalized Reminiscence Support for Older Drifters. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–20. doi:10.1145/3706598.3714277
- [104] Zhongyue Zhang, Lina Xu, Xingkai Wang, Xu Zhang, and Mingming Fan. 2025. Understanding and Co-designing Photo-based Reminiscence with Older Adults. *Proceedings of the ACM on Human-Computer Interaction* 9, 2 (May 2025), 1–30. doi:10.1145/3711094 Publisher: Association for Computing Machinery (ACM).

A All Papers Included in the Review

Table 3: List of all reviewed papers with metadata.

Year	Paper	Venue	Contribution	Population	Settings
2007	Tang et al. [84]	MobileHCI	empirical, artifact	older adults	field
2008	Lindley et al. [52]	IJHCS	empirical	general	lab
2009	Petrelli et al. [70]	CHI	empirical	family	field
2010	Dib et al. [15]	CSCW	empirical	family	field
2010	Peesapati et al. [67]	CHI	empirical, artifact	general	field
2011	Lindley et al. [51]	IJHCS	empirical	general	field
2011	Kalnikaite et al. [37]	IJHCS	empirical, artifact	general	field
2011	Bowen et al. [9]	IJHCS	empirical, artifact	general	mixed
2011	Hangal et al. [28]	UIST	empirical, artifact	general	mixed
2013	Piper et al. [71]	CSCW	empirical, artifact	older adults, family	field
2013	Thiry et al. [85]	CHI	empirical, artifact	older adults	field
2013	Wallace et al. [89]	CHI	empirical, artifact, methodological	PwD	field
2014	Petrelli et al. [69]	IJHCS	empirical	general	field
2014	Tsai et al. [88]	DIS	empirical, artifact	general	field
2014	Siriariya et al. [79]	CHI	empirical, artifact	PwD	field
2014	Pipei et al. [72]	IJHCS	empirical, artifact	older adults	field
2015	Odom [62]	CHI	empirical	general	mixed
2016	Ferdous et al. [20]	Ubicomp	empirical, artifact	family	field
2016	Khot et al. [41]	DIS	empirical, artifact	cricket fans	field
2016	Gerritsen et al. [21]	CHI	empirical, artifact	general	field
2018	Thomas et al. [87]	IJHCS	empirical	general	mixed
2018	Tan et al. [83]	IMWUT	empirical, artifact	general	field
2019	Qu et al. [73]	CHI	empirical	depression	remote
2019	Baker et al. [5]	DIS	empirical	older adults	lab
2019	Mcgookin et al. [58]	CHI	empirical, artifact	general	mixed
2019	Odom et al. [63]	CHI	empirical, artifact	general	field
2019	Huber et al. [32]	TEI	empirical, artifact	PwD	field
2019	Wei et al. [93]	TEI	empirical, artifact	general	lab
2020	Lee et al. [46]	CSCW	empirical	intergenerational	field
2020	Gray et al. [24]	CHI	empirical, artifact	looked-after children	field
2020	Sas et al. [76]	CHI	empirical, artifact	PwD	field
2020	Devendorf et al. [14]	CHI	artifact, methodological	general	n/a
2021	Yoo et al. [101]	CHI	empirical	BLV	field
2021	Baker et al. [4]	CSCW	empirical, artifact	older adults	lab
2021	Kandappu et al. [38]	CSCW	empirical, artifact	older adults	remote
2021	Kang et al. [39]	CHI	empirical, artifact	intergenerational	field
2022	Rapp et al. [74]	IJHCS	empirical	general	mixed
2022	Jung et al. [36]	DIS	empirical	BLV	remote
2022	Axtell et al. [3]	CHI	empirical	general	remote
2022	Gupta et al. [25]	IMWUT	empirical	general	lab
2022	Kim et al. [42]	DIS	empirical, artifact	general	field
2022	Liaquat et al. [49]	CSCW	empirical	intergenerational	field
2023	Li et al. [47]	CSCW	empirical	Intergenerational	n/a
2023	Li et al. [48]	IMWUT	empirical, artifact	intergenerational	field
2023	Cuadra et al. [13]	DIS	empirical, artifact	older adults	mixed
2023	Gibson et al. [23]	DIS	empirical, artifact	general	field
2023	White et al. [95]	CHI	artifact	general	mixed
2023	Gibson et al. [23]	DIS	empirical, artifact	older adults, general	mixed
2024	Jin and Cai et al. [35]	CHI	empirical	older adults	lab
2024	Xu et al. [97]	CHI	empirical	BLV	field
2024	Baumann et al. [6]	CHI	empirical, artifact	PwD	field
2024	Hu et al. [31]	DIS	empirical, artifact	older adults	field
2024	Xu et al. [100]	UIST	empirical, artifact	BLV	lab
2025	Petiot et al. [68]	CHI	empirical	general	lab
2025	Zhang et al. [104]	CSCW	empirical	older adults	lab
2025	Jang et al. [33]	CHI	empirical, artifact	general	field
2025	Matsangidou et al. [57]	IJHCS	empirical, artifact	PwD	field
2025	Sun et al. [82]	CHI	empirical, artifact	older adults	lab
2025	Zhang et al. [103]	CHI	empirical, artifact	older adults	lab
2025	Hsu et al. [30]	CHI	empirical	older adults	lab