

## 1 Introduction

Autobiographical memory seems simple to define: memories of our personal past. But this simple definition belies the complexity of autobiographical memory, as illustrated in this narrative from Mandy (this and all names are pseudonyms, and are from Fivush, 2019a, unless otherwise specified), a European-descent middle-class US college student, when asked to describe a significant life experience, the best thing that ever happened to her. I begin with a narrative provided by a young adult to demonstrate the complexity of autobiographical remembering and to highlight the multiple developmental skills and processes that are interwoven in this seemingly simple response (Nelson & Fivush, 2004):

The summer before my senior year in high school, I enrolled in the summer program for high school students at State University in Minneapolis. I was excited to be in a big city (I am from a small town in Minnesota) and nervous to be away from home. When I arrived in Minneapolis, I was overwhelmed with all the hustle and fast pace of the city life. I spent one month there, taking a course in genetics. While the university enriched my mind, the people I met there changed who I was and helped me discover who I wanted to be. I met many great people there, however there were two girls who I became particularly close with – one was Chelsea, a girl from Minneapolis. She brought me around the city because she was familiar with it. We also lived together in the same suite. I instantly became attached to her within days of knowing her. Chelsea was also in my particular class on genetics so we were also study buddies. She filled the void that was left when I left my comfort zone at home; my family and friends. Then there was Jessica from Iowa. The three of us became best friends over the course of those 4 weeks. We did everything from going downtown to get knock-off designer purses, to shopping almost daily at Steinmart, to getting lost (a lot) on the public transit system. Our friendship taught me so much. I learned how to allow people I barely knew into my life and allow them to know things about me that others do not. Although I only knew Chelsea and Jessica for 4 weeks by the end of the program, I felt as if I had known them longer than some of my close friends. Even now, two years later, we still Facebook each other with updates on our lives and I hope I will be able to see them again.

Memories of our personal past are dynamic re-presentations (hyphen intentional, as described in Section 2.3) of webs of interacting threads that include memories of specific past experiences (e.g., “going downtown to get knock-off purses”), memories of extended experiences (e.g., “I spent one month there taking a course in genetics”), recurring experiences (e.g., “shopping almost daily at Steinmarts”), and autobiographical facts (e.g., “I am from a small town in Minnesota”). Obviously, these memories are referenced to a self – they are *Mandy’s* memories, memories of *Mandy’s* experiences, and as

such integrate the external world with the internal world, to include thoughts, emotions, and evaluations (e.g., “I was excited . . . and nervous,” “I was overwhelmed,” “She filled the void,” and so on). Furthermore, memories of ourselves are rarely isolated from memories of others, of friends and family (this entire narrative is about relationships with new friends placed in the context of missing friends and family from home). When asked to tell about personally important life experiences, people do not report actions and objects that occurred at a specific point in time; they create richly storied narratives of what happened, to them and others, background information about why this experience was important, ongoing thoughts and emotions that occurred both during the experience and in reflections since, links to other experiences, including the future, and how and what experiences mean for understanding self and others in the world.

Autobiographical memory goes well beyond memories of past experiences, to create a uniquely human story of self, a narrative that defines identity in relation to previous experiences, future plans, families and friends, communities, and strangers, creating coherence through an evolving sense of meaning and purpose in life (Conway et al., 2004; Fivush, 2010b; Fivush & Graci, 2017; Fivush & Waters, 2019; McAdams, 1992). From this perspective, autobiographical memory cannot be studied simply as a subfield within the larger memory literature but actually as a bridging construct that connects cognitive, social, emotional, and cultural development. Autobiographical memory is the glue that integrates our experiences into a cohesive whole through narrative meaning-making.

In this Element, I delineate how autobiographical memory develops in sociocultural contexts through the construction of canonical narrative forms for expressing and evaluating our personal experiences. Autobiographical memories and narratives are not isomorphic (Rubin, 2021), but narratives are the cultural tools used to shape our memories, to differentiate the flow of lived experience into meaningful episodes with beginnings, middles, and ends that link experiences together and link experience to self (Bruner, 1991; Ricouer, 1991). Narratives, as culturally canonical tools for expressing and organizing personal memory, create the interface between culture and the individual. To make this argument, I bring together literatures from multiple perspectives, including cognitive, personality, evolutionary, cultural, and developmental psychology. To fully understand autobiographical memory, we must understand how it functions in the context of lives lived in complex sociocultural interactions. This is an expansive undertaking and requires synthesis across many ideas and domains. Moreover, the dynamic interaction between autobiographical memory and narrative development is a deeply developmental process that

*Autobiographical Memory and Narrative in Childhood* 3

occurs over time, both in short periods of time as new experiences are processed and in developmental time across the life span (Fivush et al., 2017).

Thus, the first half of this Element provides a broad integrative theoretical overview, beginning with situating autobiographical memory within conceptualizations of memory and culture and the ways in which narrative integrates the two. This broad-based foundation sets the stage for the second half of this Element, in which I provide a more in-depth review of how autobiographical memory develops within everyday parentally guided reminiscing conversations across the preschool years and how developing elaborative and coherent autobiographical memories links to children's developing memory skills as well as their emerging understanding of self, other, and emotion. I extend this discussion to ongoing developments during adolescence that coalesce autobiographical memories into a coherent life story, essentially a story of "me," which is the hallmark of full autobiography, an autobiographical consciousness that links past, present, and future into an integrated whole that organizes, expresses, and communicates who one is in the world and in relation to others. It is in this sense that autobiographical memory is uniquely human, in providing a form of consciousness that relies on socioculturally mediated tools for constructing a life, and expansive, in integrating memories of self in ways that provide meaning and purpose to a life lived.

## 2 Conceptualizing Memory

Memory is perhaps one of the most elastic terms in the philosophical and psychological literature. At different points in time over the past 2,000 years, memory has been conceptualized as an archive, essentially an etching in the brain, of everything we have experienced, a repository of all knowledge, equating learning and memory, or as a specific type of knowledge that is defined by self-referential links that separate memory from more abstract conceptual understanding (see De Brigard, 2014 and Sutton, 1998 for reviews). More contemporary psychological attempts to define memory have relied on organizing memory into types or systems. Although there are many nuances, there is relatively widespread agreement that memory can be divided into declarative and nondeclarative systems (Squire, 2004). Roughly speaking, nondeclarative memory is memory of procedures, the "how" rather than the "what." Riding a bike, driving a car, and hitting a tennis ball are all considered procedural knowledge, a knowledge that is not necessarily available to conscious reflection but that guides our actions. Declarative memory, in contrast, is consciously accessible representations of past experiences.

Tulving's (1972) distinction of declarative memory into semantic and episodic has driven most of the research and theorizing about declarative memory. Episodic memory is memory for specific experiences tied to a particular time and a place (e.g., I went to Paris for my twenty-first birthday), and semantic memory is abstracted and devoid of time and place markers (e.g., Paris is the capital of France). Semantic memory can be abstract conceptual knowledge gained through lived experience, or, especially in industrialized cultures that engage in formal education, can be material that was deliberately studied and learned, such as historical and scientific knowledge. The distinction between semantic and episodic memory makes some intuitive sense, but as research and theorizing have suggested, the distinction may not really capture the way memory works (De Brigard, 2014; Dudai & Edelson, 2016). Here, I focus on two issues that have emerged in the theoretical and empirical literature on autobiographical memory, the equation between episodic and autobiographical memory, and the deeper and more difficult issue of the relations between memory systems and memory processes. To foreshadow, and based on the description of autobiographical memory that began this Element, I will argue that autobiographical memory and episodic memory are far from the same and, perhaps more importantly, that autobiographical memory (and perhaps all of memory) is better understood as an ongoing process of remembering rather than as a storehouse of things remembered.

## 2.1 Episodic and Autobiographical Memory

In Tulving's (1972) initial conceptualization, he defined episodic memory as tied to a specific time and place and as having auto-noetic consciousness, that is, the organism is conscious of having experienced a specific event in a specific time and place in the past. Over the years, it has become clear that memories can be tied to a specific time and place without necessarily entailing auto-noetic consciousness. This is most evident in the nonhuman animal literature, in which it can be clearly demonstrated that, for example, scrub jays (a kind of bird) are highly sensitive to the specific time and place of food caching (e.g., Clayton et al., 2003), even if they may not be able to "bring to mind" a memory of "self" hiding the food at a time and place. Some researchers have labeled this type of memory "episodic-like" to avoid the criticism that they might be claiming some form of auto-noetic consciousness in birds and other nonhuman animals (Crystal, 2010). Human infants are also quite capable of recalling specific events from the past. By the second half of the first year, infants presented with a novel action sequence performed with unusual objects will reconstruct that sequence in behavior even weeks later (Bauer, 2015). What this type of

*Autobiographical Memory and Narrative in Childhood* 5

research clearly demonstrates is that episodic memory, memory of specific where and when information, is possible without claiming auto-noetic consciousness.

The addition of auto-noetic consciousness to episodic memories adds another layer of information for the rememberer – information about *self* over time, the ability to place the self at a particular point in the past, or what is now called “mental time-travel” (Suddendorf et al., 2009). Mental time-travel implies that the individual can “travel” back in time in their memories and consciously bring to mind a past experience. An intriguing added wrinkle to the idea of mental time-travel is that individuals can also travel forward in time, engaging in “future episodic thinking” by imaginatively conceptualizing what will happen at some future point in time based on both specific past experiences and general semantic knowledge about the world (Schacter et al., 2007). Theories of mental time-travel suggest that episodic memory may not be tied to the past but simply be about the “not present.” This perspective raises thorny questions about possible differences between memory and imagination (Hassabis & Maguire, 2007) and supports ideas about memory as highly reconstructive, an issue I discuss in more detail later in this Element. The conflation of mentally traveling back and traveling forward in time also raises questions about the separation between episodic and semantic memory – if we use general knowledge infused with episodic thought to propel ourselves mentally into the future, why would we not also be using general, semantic knowledge when we remember the past?

Moreover, bringing the idea of *self* into the theory of episodic memory fundamentally changes how we understand what episodic memory versus autobiographical memory may be. With the addition of auto-noetic consciousness, it is no longer simply a specific memory of an event that occurred at a particular time and place; it now becomes an event that happened *to me*. The transition from episodic to autobiographical requires at least three additional layers of processing or knowledge (Fivush, 2010b; Nelson & Fivush, 2020). First, there has to be a reflective *self* that is remembering. Second, there has to be a conceptualization of a *self in the present* remembering a *self in the past*; thus, there must be some ability to construct a timeline. Third, there has to be some way of connecting the *self in the present* to that *self in the past* – that was the same me that experienced that event in the past that is remembering that event in the present – thus the construction of time must be along a personal timeline, a sense of the *me* traveling along a temporal pathway. As William James (1890) suggests, we do not wake up in the morning wondering whose thoughts are in our mind; we know they are our thoughts and that our thoughts are continuous over time. It is this continuity of consciousness that ensures a sense of self that is

continuous over time, and this continuity of consciousness requires a continuity of memories, an *autobiographical consciousness* (see also Schectman's theory of a narrative self, 2003).

All three layers of self-understanding – that “I” am remembering, that what I am remembering is something that happened to “me” in the past, and that the past “me” is related to this present experiencing “I” – underlie autobiographical consciousness. Yet, obviously, from a developmental perspective, this is a very complicated conceptual understanding, relying on developments of self-concept, time, and theory of mind (Fivush, 2019a; Nelson & Fivush, 2004; Nelson & Fivush, 2020). More specifically, although there is a nascent sense of bodily self in infancy, toddlers do not recognize themselves in the mirror, a hallmark of self-concept, until eighteen to twenty-two months of age, and it is not until age three or later that toddlers begin to understand self-conscious emotions such as embarrassment that rely on an understanding that there is a self being watched and evaluated (Rochat, 2018). Clever studies by Povinelli (2001) further demonstrate that it is not until age five that children begin to connect the previous self to their current self; children watching a video of themselves in the past do not make a connection between their current self watching the video and the self portrayed on the video, a skill which is fundamental to auto-noetic consciousness. Understanding others also develops gradually across the preschool years. The development of theory of mind, the idea that all individuals hold unique thoughts, emotions, and desires, begins with simple empathic responses as early as the first year of life and develops through understanding one's own mind as separate and possibly different from others across the toddler years. It is not until the end of the preschool years that children understand “false belief,” that a person can hold a belief about the state of the world that is demonstrably untrue (Wellman, 2018).

Both developing an evaluative self-concept and understanding of theory of mind may be critical developmental skills for a full autobiographical consciousness. To understand a continuous me over time that has specific experiences, I may need to further understand that my autobiographical consciousness is unique, that my continuity of consciousness is mine alone, and that others have their own individual autobiographical consciousness (Fivush & Nelson, 2006). Without this understanding, what I know over time is simply general knowledge of how things happen, similar to scrub jays knowing where food is hidden, and not specific knowledge of what happened to *me* that may be the same or different from what others may know. Thus, we can separate the development of episodic memory for time and place as emerging early in development (e.g., Bauer & Leventon, 2013; Ghetti & Bunge, 2012), and autobiographical

*Autobiographical Memory and Narrative in Childhood* 7

consciousness as evolving more gradually across childhood as more nuanced and integrated understandings of self, others, and time develop.

From this perspective, it is clear that both nonhuman and human animals can have episodic memories without autobiographical consciousness and thus not all episodic memories are autobiographical. If we further reflect on the need for a more extended consciousness over time to achieve autobiographical consciousness, a sense of self in the past and the present linked through experience, then it is also clear that autobiographical memory is more than a discrete set of episodic memories. Autobiographical memory weaves episodes into an ongoing tapestry of self, linking earlier experiences to later experiences, linking past experiences to a current sense of who one is, how we became that way, and what our future holds (Conway & Pleydell-Pearce, 2000; Conway et al., 2004), an ability that does not develop until adolescence as I discuss in Section 5.1 in this Element. This is what we see in Mandy's narrative. Her narrative is clearly autobiographical, but it is certainly not an episode. It is an artfully connected series of facts and single, repeated, and recurring experiences that create a sense of who Mandy is and how she became this person, what is important to her, and what she strives for. Research that assumes that recalling a single episode in time and space is the gold standard of autobiographical memory research misses the essential point of autobiographical memory, a question asked by Baddeley (1988, p. 3), "But what the hell is it for?" One answer seems to be that autobiographical memory functions to create a sense of self as continuous over time, essentially a narrative identity.

## 2.2 Autobiographical Memory and Autobiographical Narratives

Whereas cognitive researchers have focused on memories of past experiences as a problem of understanding the process of encoding, storing, and retrieving specific information, researchers from a tradition of social and personality theory turned to autobiographical memory to answer rather different questions: How do we form a sense a self over time? As just outlined, this question also emerged as more cognitively oriented researchers began to dig deeper into episodic memory as a system. Thus, in the early 1990s, a synergy emerged between the cognitive and personality literatures around this question. In particular, McAdams (1992) outlined a theory of personality that included the life story as a critical layer. Stemming from Erikson's (1968) psychosocial developmental theories, McAdams proposed that individuals create unity and purpose through storying their lives around developmentally critical tasks, such as trust, autonomy, affiliation, identity, generativity, and integrity. More specifically, with development, individuals fashion key narratives that address core

developmental issues and express developmental tensions. From these developmentally evolving narratives, individuals construct an overarching life narrative that integrates experiences into a coherent whole that explains how they became the person they are and will be in the future and expresses ongoing consideration and resolution to developmentally critical concerns. The narratives individuals create are based on their remembered experiences, but McAdams did not concern himself with the mechanisms of the memory process as much as the use of memories to create a life narrative that is coherent and explanatory.

At about this same time, Bruner (1990, 1991) reintroduced narratives into the cognitive literature as a basic form of human understanding. Bruner argued that humans are storytellers and that we understand our world and ourselves through stories. Stories are deeply embedded in our ancestral evolutionary history; there is growing evidence that our forebears told stories and likely used these stories to understand virtually all aspects of the world, from its origin to the people in it (Boyd, 2018; Donald, 2001). Stories, or narratives, go beyond recounting actions in sequence; narratives integrate the outer world with the inner world, interweaving what happened with motivations, thoughts, and emotions, bending experience into discrete units defined through beginnings, middles, and ends formed by human intentions and reactions (Bruner, 1990; Labov, 2010). Speculatively, humans came to understand their world through stories – stories of ancestors, great hunters and warriors, chiefs and priestesses – and as these stories came to shape how the world was understood, they became the way we understood individual lives as well. Humans began to shape their experiences into personal stories that explained and motivated human behavior (Fivush, 2019b; McAdams, 2019).

Theoretically, then, narratives are a critical link between cognitive and personality psychology; they are culturally mediated forms for expressing and evaluating experience, both experiences of others and experiences of self. Understood this way, narratives become a key connection between mind and world (Goodman, 1978; McLean & Syed, 2015). Stories that shape our communal culturally mediated understanding of world also shape our understanding of self. Narratives are both outward and inward facing, providing the interface between how we perceive the world and how we perceive ourselves. In narrating our own lives, narratives transform our memories of what happened into stories of what these happenings mean for who we are in the world and who we want to be. Indeed, research on the self-reported functions of autobiographical memory has identified three major functions: to define self, to create and cement social relationships, and to direct future behavior (Bluck et al., 2005). All three functions are both constructed and expressed in autobiographical narratives



*Autobiographical Memory and Narrative in Childhood* 9

(Waters et al., 2014). In other words, as we create stories from our experiences, we form our sense of self, our relationships with others, and project ourselves into the future. This approach fundamentally changes the way we understand what autobiographical memory is for, and how episodic memories are co-opted for it. This is not to argue that autobiographical memories are represented as narratives. Rather, narratives are the way in which multimodal, multisensory memories of our personal experiences are brought together into a coherent, verbalizable, and communicable form (Brockmeier, 2019). If this conceptualization of memory is correct, then it changes our conceptualizations of memory from something we *have* to something we *do*.

### 2.3 Memory as a Process

Much of the scholarly history of memory assumes, at least implicitly, some form of memory “trace” (Brockmeier, 2015; Sutton, 1998). A memory trace is a hypothetical construct that explains memory as a laying down or encoding of a specific experience in the brain/mind in such a way that the individual can access and retrieve that trace at some point in the future. That is, a memory trace is a reproduction of the original experience that is somehow connected, and even causal, to the current act of memory. This idea has led to research aimed at discovering the way in which memory traces are encoded, stored, and retrieved – issues of capacity, duration, and accuracy – with the underlying assumption that we are encoding, storing, and retrieving some stable *thing*.

Over the years, many of the assumptions underlying the idea of a stable memory trace have been challenged. Both behavioral (Hirst & Echteroff, 2012; Pasupathi, 2001) and neuroscience (Dudai & Edelson, 2016) research have convincingly shown that memories are far from static entities but rather are highly dynamic patterns of activation that undulate over time and with each retrieval (De Brigard, 2014). Rather than a metaphor for retrieving a file from storage, this dynamic conceptualization of memory assumes that some cue, internal or external, starts a cascade of activation that reinstates previous patterns but simultaneously creates new patterns in the very process of reactivation, which leads to a reconsolidation of the pattern in somewhat new ways. Rather than conceptualizing memory as retrieving a trace, memory is conceptualized as dynamic patterns of activation over time. Moreover, even the process of encoding is a dynamic interaction of related previous experiences cued by the current experience. Thus, what an individual remembers is not a representation of something that happened in the past, but a re-presenting of patterns integrating past and present activations. In the words of Faulkner (1951, p. 73) “the past is never dead; it is not even past.”

This dynamic view of memory, supported by recent neuroscience research, has, not surprisingly, a long theoretical and empirical history, perhaps best illustrated by the early debates in psychology between Ebbinghaus (2013) and Bartlett (1932). Whereas Ebbinghaus famously sought the memory trace by stripping material to be remembered of all meaning to quantify “pure” memory and map “forgetting,” Bartlett argued that it was impossible to strip information of meaning and that humans engaged in ever-present “efforts after meaning” that rendered even nonsense syllables of isolated lists of words to be recalled into meaningful entities. Bartlett’s schematic view of memory as dynamic and reconstructive was echoed in the cognitive revolution (Neisser, 2014) and the many schema-based theories of memory that emerged in the aftermath of behaviorism (e.g., Alba & Hasher, 1983; Barclay, 1986; Bransford et al., 1972). Schematic views of memory posit that preexisting information shapes how the individual makes sense of incoming information, and thus reorganizes information as it is encoded in the effort to make meaning. Schema formation begins virtually at birth, with infants initially forming nascent schema from first experiences and quickly generalizing as new experiences occur (Mandler & Canovas, 2014; Nelson, 1986). From this perspective, the function of memory is not necessarily to accurately represent the past but to facilitate understanding of the world in the present and the future (Nelson, 1986; Schacter et al., 2007). By creating schemas that infer and integrate most likely scenarios into patterns of activation, memories are forward facing, providing the best possible information for action in the world.

## 2.4 Reconstruction, Error, and Accuracy

Over the years, schematic processing views of memory have been integrated with systems approaches in multiple ways, and few theorists actually posit pristine memory traces anymore. But the often-unexamined assumptions underlying the idea of a memory trace still pervade much of the field (see Brockmeier, 2015, for a theoretical and empirical analysis), as can be seen in the idea of “memory errors.” A memory error is said to occur when the current information provided by a participant in an experiment does not precisely match the information as previously presented. Schacter (2002) described the seven “sins” of memory as ways in which memory goes astray. The underlying assumption is that memory has somehow failed in these situations. A different interpretation is that memory makes sense of our past experiences in ways that allow us to plan for and predict the future. “Memory” may be best conceptualized as a process of “remembering,” a process of constantly reactivating and