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How to cite this publication

Please cite the final published version:

Berntsen, D. (2018). The dynamics of episodic memory functions. *Behavioral and Brain Sciences*, 41, [e4]. <https://doi.org/10.1017/S0140525X17001261>

Publication metadata

Title:	The dynamics of episodic memory functions
Author(s):	Berntsen, Dorthe
Journal:	Behavioral and Brain Sciences
DOI/Link:	https://doi.org/10.1017/S0140525X17001261
Document version:	Accepted manuscript (post-print)

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The dynamics of episodic memory functions

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Abstract

There is no doubt that episodic memories serves communicative functions, but Mahr and Csibra, overlook that this is not the only function served by episodic memory. Empirical research has identified several other functions, including purely directive functions. The functionality of episodic memory is not stable across situations, it varies dynamically with the demands of the retrieval context.

The dynamics of episodic memory functions

Mahr and Csibra's basic idea that remembering serves the justification of beliefs and that this justification has communicative and social functions is not new, but was formulated by Bartlett almost a 100 years ago. In his seminal book, Bartlett (1932) stated: "Remembering appears to be far more decisively an affair of construction rather than mere reproduction ... The construction that is effected is the sort of construction that would justify the observer's 'attitude'". (pp. 205-206). This seems very close to the tenet in the target article that the construction of a past event serves to justify a present belief. Bartlett also considered the social and communicative functions of such constructions at length. Unfortunately, Bartlett's (1932) theory is not considered or even cited in the target article. It is therefore hard to evaluate exactly what Mahr and Csibra add to this classic of psychology.

In addition, an entire field seems to be neglected. Mahr and Csibra operate with two conceptions of memories for past events; 'episodic memory' which is characterized by a specific set of features (to which I will return shortly) and 'event memory', which is all other types of memory for past events. This division appears to leave no room for autobiographical memory, usually defined as memory for personal past events (Conway & Pleydell-Pearce, 2000, Rubin, 1986, 1996). It is unclear whether autobiographical memory should be viewed as an instance of

'episodic memory' or 'event memory' or neither of the two. The target article mentions autobiographical memory in a footnote, leaving its role completely unclarified.

The problem is not simply failing to specify a slot for autobiographical memory in the taxonomy. The key problem is that a number of insights from the field of autobiographical memory could have informed Mahr and Csibra's theory, but were ignored. For example, several autobiographical memory researchers have studied the perceived functions of memories for past events. They have developed psychometric tests to determine types of functions that people perceive to be associated with those memories and examined individual differences in their frequencies (Bluck, Alea, Habermas & Rubin, 2005; Harris, Rasmussen & Berntsen, 2014; Webster, 1993). Using experimental manipulations, they have examined interactions between perceived memory functions and other memory characteristics, such as emotional valence (Rasmussen & Berntsen, 2009; Walker et al., 2009) or retrieval processes (Rasmussen, Ramsgaard & Berntsen, 2015).

Contrary to Mahr and Csibra's position, this research leaves little empirical basis for claiming a unitary and privileged role for a communicative function. In the autobiographical memory literature, the communicative function is just one among several identified uses of event memories in daily life. For example, there is empirical evidence that people perceive their memories of past events to direct their current behavior (also in non-communicative contexts) as well as to support their identity and sense of self-continuity (Bluck et al., 2005; Webster, 1993; Pillemer, 1998; Pillemer, 2003). There is also evidence that memories of past events serve emotion regulation functions and that the tendencies to entertain these functionalities differ across age groups (e.g., Harris et al., 2014; Webster, 1994).

In essence, two crucial problems follow from neglecting many findings in the autobiographical memory literature. First, in the target article, Mahr and Csibra give themselves the task of developing a theory that can account for what they consider as three central characteristics of episodic memory: "the epistemic generativity, auto-noetic character and proneness to belief congruency" (p. 33). They claim that these features agree with the key role of the communicative function of the memories. Although this is likely true, the exact same characteristics are congruent with a number of other functions served by the memories, such as guiding and

directing ongoing behavior. To use Mahr and Csibra's own example, a vivid recollection of having turned off the oven before leaving the house to go for a walk does not just serve a communicative function in relation to one's companion; it also serves a directive function in relation to one's ongoing behavior and would also do so in a solitary context ("yes, it is OK to continue the walk, the oven is turned off").

Second, although episodic memories are likely to have the characteristics mentioned by Mahr and Csibra, they have other central characteristics that go unmentioned. It is therefore not clear whether these other characteristics would fit or challenge the theory by Mahr and Csibra. For example, it is well-established that distinctive events are better remembered (Hunt, 2006), that episodic memories are cue sensitive, and often come to mind unbidden. Involuntary (unbidden) memories of past event are at least as frequent as voluntary memories (Rasmussen et al., 2015). They can be highly vivid, are more often about specific events and come with more emotional impact than their voluntarily retrieved counterparts (Berntsen, 2009). Such memories have a number of functions that are constrained by the ongoing situation and its demands (Pillemer 2003; Rasmussen et al., 2015). The existence of such involuntary episodic memories with a diversity of functions also has implications for the claims of human uniqueness. Even if Mahr and Csibra are right that non-human animals do not make use of episodic memory in a communicative fashion, there is empirical evidence that they spontaneously retrieve memories of concrete past episodes to solve a problem in an ongoing situation, even after long delays, if exposed to distinct situational cues (Martin-Ordas et al, 2013). This and similar studies speak against the claim that episodic memory is a uniquely human ability.

Perhaps the greatest problem with Mahr and Csibra's theoretical position is that they assume a unitary function of episodic memory and thus overlook that the functionality of episodic memory is inherently dynamic; that is, the functions served by any given memory varies as a function of the demands of the retrieval situation. Thus, the very same memory may have communicative functions in one situation and purely instrumental (or directive) functions in another depending on the retrieval context. Without such dynamics, episodic memory would not be adaptive.

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