



# Ways of sampling voluntary and involuntary autobiographical memories in daily life



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## ABSTRACT

Cognitive psychologists have often equated retrieval of personal events with voluntary recall from autobiographical memory, but more recent research shows that autobiographical memories often come to mind involuntarily—that is, with no retrieval effort. Voluntary memories have been studied in numerous laboratory experiments in response to word-prompts, whereas involuntary memories primarily have been examined in an everyday living context, using a structured diary procedure. However, it remains unclear how voluntary memories sampled in the laboratory map onto self-prompted voluntary memories in daily life. Here, we used a structured diary procedure to compare different types of voluntary autobiographical memories to their involuntary counterparts. The results replicated previous findings with regard to differences between word-prompted voluntary and involuntary memories, whereas there were fewer differences between self-prompted voluntary and involuntary memories. The findings raise the question as to what is the best way of sampling voluntary memories and the best comparison for involuntary memories.

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## 1. Introduction

Cognitive psychologists have often equated retrieval of personal events with voluntary recall from autobiographical memory (e.g., Miller, 1962/1974; Robinson, 1976; Tulving, 1983), but over the last 15 years evidence has accumulated that autobiographical memories can come to mind both involuntarily and voluntarily (see Berntsen, 2009, 2010, for reviews). Whereas the first line of research typically has studied voluntary memories in response to word-prompts in a controlled laboratory setting, the latter tradition have examined involuntary memories primarily via the structured diary procedure, where participants report their naturally occurring involuntary memories in their everyday living contexts. Here, we examine how voluntary memories prompted by word-stimuli map onto voluntary memories in daily life, and we utilize the structured diary procedure to examine such self-prompted voluntary memories as well as to compare them with involuntary and word-prompted voluntary memories.

Almost 40 years ago, John Robinson published an article on different ways of sampling autobiographical memory, in which he defined autobiographical memory as “. . . the ability for voluntary recall of one’s past life. . . (1976, p. 578)”. The article described a study, where three sets of words (i.e., words for objects, activities and feelings respectively) were used as prompts for free recall of discrete experiences. Robinson was inspired by Galton’s (1907) and Crovitz’s and Schiffman’s (1974) pioneering works on the efficiency of word-prompts to evoke associations to a wide variety of autobiographical

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memories. Since then, the word-prompt paradigm has been used in numerous laboratory studies, and has generally been considered as a method for eliciting a representative sample of autobiographical memories (e.g., Rubin, 1980; Rubin, Schrauf, & Greenberg, 2003; Rubin & Schulkind, 1997a; Rubin & Siegler, 2004). However, although the robustness and effectiveness of this method are unquestionable, very little is known about how word-prompted voluntary memories may map onto voluntary remembering in everyday life.

While the study of word-prompted voluntary memories was crucial in the start-up of autobiographical memory research, studies from the last fifteen years have repeatedly demonstrated that autobiographical memories can come to mind not only voluntarily through strategic or goal-directed retrieval, but also involuntarily – that is spontaneously without any preceding conscious attempts at retrieval (e.g., Ball & Little, 2006; Berntsen, 1996, 2001; Berntsen & Hall, 2004; Kvavilashvili & Mandler, 2004; Mace, 2004; Rubin, Boals, & Berntsen, 2008; Schlagman & Kvavilashvili, 2008; for reviews, see Berntsen, 2009, 2010; Mace, 2007). In contrast to word-prompted memories, involuntary autobiographical memories typically have been assessed in the participant's everyday living context using a structured diary procedure in which the participants make records of the memory and the retrieval context on-line, that is immediately after a memory has come to mind (e.g., Ball & Little, 2006; Berntsen, 1996; Berntsen & Hall, 2004; Berntsen & Jacobsen, 2008; Finnbogadottir & Berntsen, 2011; Johannessen & Berntsen, 2010; Mace, 2004, 2005; Rubin et al., 2008; Schlagman, Kliegel, Schultz, & Kvavilashvili, 2009; Schlagman, Schulz, & Kvavilashvili, 2006). This method has the advantage of being more naturalistic, albeit less controlled. Surprisingly, this type of diary method never has been used to sample voluntary autobiographical remembering as they are retrieved in everyday life.

In the following, we will examine how different ways of sampling voluntary versus involuntary memories will influence their content, perceived function and other characteristics. We compare three types of voluntary memories to involuntary memories in four consecutive, but separate, diary studies. We first describe different paradigms for investigating voluntary and involuntary memories. We then review studies on differences and similarities between the two types of remembering.

### 1.1. Voluntary and involuntary remembering: two standard research paradigms

The word-prompt method was introduced by Sir Francis Galton (1907) and later revised by Crovitz and Schiffman (1974) in order to specifically prompt voluntary autobiographical memories. Galton (1907) examined his own thoughts while walking around in a familiar environment, using objects in the environment as prompts for the deliberate retrieval of thought associations and mental images, of which he then took mental note. This method has since been coined as the *memory walk procedure* (Berntsen & Hall, 2004), and was a precursor for the more convenient *word-prompt method*, which Galton also developed. Here, he would sit at his desk and take note of his own thought associations in response to self-chosen word-prompts. In case the thought association turned out to be an autobiographical memory, Galton would also date that memory. The word-prompt method was reintroduced and systematized by Crovitz and Schiffman (1974), who asked participants to retrieve discrete autobiographical events in response to word-prompts chosen by the experimenter and also to date each remembered event. They found that the frequency of the memories decreased systematically as a function of the age of the memories, following the standard forgetting curve (Ebbinghaus, 1885). The word-prompt method generally is regarded as a random way of sampling a wide variety of autobiographical memories spanning over a large proportion of the participants' lives (e.g., Robinson, 1976).

Since then, the word-prompt method has been used and manipulated in a large number of laboratory experiments. For instance, Robinson (1976) showed how different types of word-prompts would yield systematic differences on memory properties such as latencies, age of memory and type of experience. Likewise, Rubin and Schulkind (1997a) found that word-prompts varying with respect to their level of imagery, concreteness, meaningfulness, goodness, emotionality and frequency elicited memories that differed systematically on age as well as retrieval latencies. Rubin and colleagues also have used word-prompts to examine the relationships between a representative sample of participants' autobiographical memories and measures of individual differences, such as differences related to personality traits, depression symptoms, dissociation and posttraumatic stress disorder symptoms (e.g., Rubin & Siegler, 2004; Rubin et al., 2003, 2008, see also Rasmussen & Berntsen, 2010). In addition to word-prompts, more elaborate descriptions, such as an instruction to retrieve important memories (e.g., Fitzgerald, 1988; Pillemer, 1998; Rubin & Schulkind, 1997b), emotionally positive or negative memories (e.g., Berntsen & Rubin, 2002; Rasmussen & Berntsen, 2009a, 2013; Talarico, LaBar, & Rubin, 2004; Walker, Rodney, & Thompson, 1997) as well as instructions to elicit memories with specific functions (e.g., Harris et al., 2008; Rasmussen & Berntsen, 2009a, 2013) have been used as prompts for deliberate recall in various studies. In spite of their differences, these types of prompts all have been used to initiate a voluntary search for an autobiographical memory, but – as we will discuss in the following – not necessarily a voluntary search as we would expect it to occur in daily life.

In contrast to most studies on voluntary memories, involuntary autobiographical memories typically have been examined outside a laboratory context (but see for example Ball, 2007; Berntsen, Staugaard, & Sørensen, 2013; Mace, 2006; Schlagman & Kvavilashvili, 2008). Some of these studies have used retrospective assessments, which is a method often used in clinical research on intrusive involuntary memories. For instance, Brewin, Christodoulides, and Hutchinson (1996) asked participants to list the five most frequent involuntary intrusive memories from the last two weeks. For similar uses of retrospective assessments, see for example Berntsen and Rubin (2002) and Rasmussen and Berntsen (2009a). However, the most common method for sampling involuntary autobiographical memories in naturalistic settings is the *structured diary method* (see Berntsen, 2009, for a review), where participants are instructed to carry a small booklet in their everyday living context

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