



Flashbacks, intrusions, mind-wandering – Instances of an involuntary memory spectrum: A commentary on Takarangi, Strange, and Lindsay (2014)

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ABSTRACT

In their paper, [Takarangi, Strange, and Lindsay \(2014\)](#) showed in two experiments that participants who had witnessed a shocking film frequently “mind-wandered without awareness” about the content of the film. More importantly, they equated this effect with the occurrence of traumatic intrusions. In this commentary, we argue that the authors adhered to conceptually ambiguous terms, and thereby unintentionally contribute to an already existing conceptual blur in the trauma-memory field. We postulate that clear definitions are urgently needed for phenomena such as intrusions, flashbacks, and mind-wandering, when using them in the context of trauma memory. Furthermore, our proposal is that these phenomena can fall under a spectrum of different involuntary memory instances. We propose that by adopting stricter definitions and viewing them as separate, but interrelated phenomena, different lines of trauma-memory research can be reconciled, which would considerably advance the field.

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1. Introduction

[Takarangi, Strange, and Lindsay \(2014\)](#) examined whether individuals who had just witnessed a shocking film would think about this film during an unrelated reading task without being aware of it. For this purpose, participants in two separate experiments were instructed to press a button each time they caught themselves thinking about the trauma film while performing the reading task. The authors referred to these self-reports as “mind-wandering with awareness”. In each study, a subset of participants were additionally asked, at unpredictable times and independently of the self-caught mind wandering, whether they were currently thinking about the trauma film. When participants affirmed these probes, the researchers counted this as “mind-wandering without awareness”. In the two experiments, the authors found that participants “mind-wandered without awareness” on average on 29% and 40% of the probes.

Mind-wandering without awareness also had cognitive side effects, in that it correlated with deteriorated performance on the reading task. This correlation did not emerge for self-caught mind wandering. The authors subsequently discussed that their findings bring together two lines of research; one using paradigms that probe meta-awareness during mind-wandering ([Schooler, 2002](#); for review, see [Smallwood & Schooler, 2015](#)), and another one using the trauma-film paradigm ([Holmes & Bourne, 2008](#)) to study involuntary negative memories that serve as a laboratory analogue for trauma memories in post-

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traumatic stress disorder (PTSD). Thereby, their article suggests new and interesting routes of research on uncharted territory.

In this commentary, we argue that while [Takarangi et al. \(2014\)](#) describe a promising new line of research, the authors have used certain terminology in a rather liberal, and perhaps even conceptually ambiguous, way. Essentially, in our opinion, mind-wandering without awareness is distinct from other forms of involuntary memory. More importantly, we believe that not distinguishing between mind-wandering and other types of involuntary memory has the potential to unlock a conceptual fuzziness in the trauma-memory literature. Below, we elaborate on our main objection to the way the authors presented their findings. Then, we sketch in what way phenomena such as mind-wandering, intrusions, and flashbacks should be viewed in order to avoid confusion and unnecessary controversy. Finally, we briefly outline implications for future research and indicate how clearer definitions may advance the field.

2. The giant leap from mind wandering to trauma intrusions

[Takarangi et al. \(2014\)](#) claimed to investigate whether “people would sometimes fail to recognise the occurrence of traumatic intrusions” (p. 298). Based on the observation that participants were sometimes caught mind-wandering without reporting it, the authors came to the conclusion that “self-report may underestimate intrusions” (title). We argue that equating mind wandering with traumatic intrusions is a conceptually big leap, which carries with it the risk of exacerbating an already existing confusion and conceptual blur around the term *intrusion*. In our view, mind-wandering without awareness should not be equated with other forms of involuntary trauma memory, such as intrusions. Rather, we propose to interpret it as a separate phenomenon that can be distinguished from, but also shares features with, fairly common involuntary autobiographical memories. Furthermore, we show that it may nonetheless be remotely related to more severe intrusive flashbacks that are experienced by trauma victims who suffer from PTSD.

The idea that mind-wandering in the absence of awareness can be equated to traumatic intrusions likely traces back to the recent work of [Baird, Smallwood, Fishman, Mrazek, and Schooler \(2013\)](#). These authors used a similar probe-catching method as [Takarangi](#) and colleagues and showed that participants frequently mind-wander towards emotional memories without being aware of it, even though they are explicitly trying to suppress these memories. Baird and colleagues gave this phenomenon the provocative name “unnoticed intrusions”. From the perspective of consciousness research, this term makes perfect sense because it reflects the idea that unwanted thoughts intrude into *experiential consciousness* in the absence of *meta-awareness*. However, this wording is problematic in the context of trauma, because it gives the false impression of alluding to *intrusive trauma memory*, a term that is often used interchangeably with *involuntary autobiographical memory*, or *intrusive flashback*. The field has yet to agree on clear definitions and distinctions between these concepts ([Brewin, 2014b](#); [Kvavilashvili, 2014](#)). Using the term mind-wandering as another substitute or interchangeable term for intrusive trauma memory incites the impression that the processes underlying these phenomena are identical.

However, it is clear that mind-wandering without awareness does not qualify as any of these phenomena. Intrusions elicited with the trauma-film paradigm ([Holmes & Bourne, 2008](#)) are a self-reported phenomenon that is defined by introspection. Typically, participants are instructed to record sudden, unwanted memories of the film footage (e.g., when images from the film suddenly pop into mind). Notably, the analogy of mind-wandering suggests a smooth transition rather than a sudden popping into mind. In line with this, non-conscious cognitive processes are thought to be continuous, whereas meta-awareness is considered to occur intermittently ([Schooler, 2002](#)). Besides, although non-conscious mental processes may be considered involuntary, the person experiencing them cannot appraise them as unwanted, let alone intrusive, unless he or she becomes aware of them. Thus, trauma-film intrusions require meta-awareness.

A similar case can be made for some of the re-experiencing symptoms in PTSD. According to the DSM-V ([American Psychiatric Association, 2013](#)), these comprise “spontaneous or cued recurrent, involuntary, and intrusive distressing memories of the traumatic event(s)” that are similar to trauma-film intrusions in terms of meta-awareness. In addition, the DSM-V lists “dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings)”. According to this definition, meta-awareness can be present or absent, depending on the severity of the symptoms.¹ Nonetheless, the presence of all re-experiencing symptoms is established by questioning (e.g., using structured interviews or questionnaires), which requires at least retrospective meta-awareness. Therefore, it is clear that PTSD re-experiencing symptoms, as defined in research and clinical practice, do not include phenomena akin to unnoticed intrusions.

3. The spectrum of involuntary trauma memories

Despite the above-mentioned critique that mind-wandering should not be fully equated with intrusions and traumatic flashbacks, we agree with [Takarangi et al. \(2014\)](#) that these phenomena are spontaneous thought processes that may be closely related to each other. Studying similarities and differences between these phenomena can yield important insights in

¹ We thank the reviewers (Dr. Takarangi, Prof. Lindsay, and Dr. Strange) for making the excellent observation that re-experiencing symptoms can occur without meta-awareness. Indeed, an overwhelming sense of re-living and of “nowness” may moderate meta-awareness about the memory experience. Therefore, individuals can have a flashback without meta-awareness of the fact that they are having a flashback.

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