

# Chapter 11

## Negative and Positive Mind–Wandering

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### ABSTRACT

*Mind-wandering is considered by many as a sign of an “unhappy mind” and associated with ill-health. Since the mind wanders half of the time, it is unlikely that mind-wandering plays no role in cognitive processing. Mind-wandering can be filled with negative thoughts - negative mind-wandering associated with worry and rumination; or it can be filled with positive thoughts - positive mind-wandering associated with imagination and fantasy, essential elements of a healthy, satisfying mental life. Mind-wandering with positive thoughts enables the mind to escape the constraints of the current situation and explore novel solutions.*

### NEGATIVE AND POSITIVE MIND-WANDERING

Is a wandering mind an unhappy mind, as an article in *Science* is entitled (Killingsworth and Gilbert, 2010)? Using an iPhone app, Killingsworth and colleagues sent 2,250 adults a text randomly during the day that asked: “How are you feeling right now?”, “What are you doing?” and “Is your mind on task or wandering?” In this study, participants reported that their mind wandered almost half the time (46.9%) regardless of the activity they were engaged in—except making love. And the majority of the time their mind-wandering was filled with positive thoughts.

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## Is Mind-Wandering Dysfunctional?

Two categories of mind-wandering involve negative content: *guilty-dysphoric daydreaming*, characterized by ruminating thoughts and unpleasant emotions that drive depression, and *poor attentional control* as in difficulty in focusing one's attention (Antrobus et al., 1970; Singer, 1975). These two categories of negative mind-wandering represent the failure of the executive-control system to deal with the interference of automatically generated thoughts in response to environmental and mental cues (McVay and Kane, 2010).

High levels of negative mind-wandering have been associated with rumination in clinically depressed individuals (Burkhouse et al., 2016){Burkhouse, 2016 #148;Burkhouse, 2016 #197}, increased frequency of false alarms in memory retrieval tasks (Smallwood et al., 2003), poorer performance in sustained attention tasks (Mrazek et al., 2012), reduced working memory capacity (Kane et al., 2007), slower reading times (Foulsham et al., 2013) and reduced comprehension of difficult texts (Feng et al., 2013). Moreover, negative mind-wandering has been associated with poorer performance on time estimation tasks (Terhune et al., 2017) and on measures of fluid intelligence and working memory (Mrazek et al., 2012).

## On the Other Hand

Another category of mind-wandering can be termed positive mind-wandering. This is *positive-constructive daydreaming*, which is dominated by curiosity and future planning, essential elements of mental and physical health (Smallwood and Schooler, 2015). Previous studies that reported a relationship between mind-wandering and depression combined positive mind-wandering, rumination, and worry under the single term “repetitive thinking” (Vess et al., 2016; Hobbiss et al., 2019). This composite variable was related to negative mental and physical health.

However, the negative effects of “mind-wandering” vanish when negative mind-wandering (perseverative cognition) is differentiated from positive mind-wandering. Seventy-three healthy subjects were interviewed about a neutral and a personally-relevant negative event. After the interview they were administered a 20-min tracking task with thought-probes to assess mind-wandering (Ottaviani et al., 2013). Electrocardiogram was continuously recorded during the tracking task to calculate heart rate variability. Perseverative cognition was associated with higher levels of cognitive inflexibility (slower reaction times, higher levels of intrusiveness), autonomic rigidity (lower heart rate variability), and worsening mood (more symptoms of depression) compared to positive mind-wandering (Ottaviani et al., 2013). Another study also separated positive and negative mind-wandering and found no relationship between positive mind-wandering and depression symptoms cross-sectionally at

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