

Chapter 11

Mind-Wandering and Emotional Processing in Nondirective Meditation



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The discovery of the brain's default mode network (Raichle et al., 2001) and its link to “stimulus-independent thought” (Mason et al., 2007) has brought about a large amount of research on the wandering mind (Christoff et al., 2016; Smallwood & Schooler, 2015). Initially, this research most often saw mind wandering as a negative force, distractive and destructive, linked to rumination and depression, and some claimed that “a wandering mind is an unhappy mind” (Killingsworth & Gilbert, 2010). It was argued that mind wandering leads to excessive concerns with past troubles and future worries, leading attention away from the present moment. In light of this, research on mindfulness and other forms of meditation often argued that meditating could bring the practitioner back to the present moment (Taylor et al., 2013) and reduce the amount of mind wandering and default mode network activity (Brewer et al., 2011). This view is represented in Didriksen's contribution to this volume.

Gradually, however, an emerging alternative view of mind wandering sees it as a universal phenomenon with important adaptive functions and argues that a wandering mind is not necessarily unhappier than a focused mind (Poerio et al., 2013). If mind wandering were only negative, it would hardly have survived millions of years of evolution and still be such a widespread trait in human beings. Mind wandering taps into our memory of the past and bolsters our ability to plan for the future (Christoff et al., 2011; Limb & Braun, 2008; von Hecker et al., 2013; von Hecker & Meiser, 2005). It helps us understand ourselves and empathize with others (Winters et al., 2021). It makes it easier to shift perspective flexibly and to think and work more creatively (Baird et al., 2012; Chrysikou et al., 2020). It also helps us relax, and the default mode network is therefore often also called the resting state network. The default mode network is exactly that: the *default* mode that applies whenever there is no specific task or stimulus that activates other parts of the brain (Sripada,

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2018). This network is also important in our experience of nature (Gould van Praag et al., 2017), in human communication (Xiao et al., 2021), and in the reading of literature (Fabry & Kukkonen, 2019). The resting brain may even provide the basic building blocks that make consciousness possible (Northoff, 2018). A small but important literature is beginning to emerge around what is sometimes called *nondirective meditation*, which is based on a free mental attitude (see below), and in which mind wandering and default mode network activity are not only accepted but actually stimulated (Davanger et al., 2010; Lagopoulos et al., 2009; Nesvold et al., 2012; Xu et al., 2014; Gutierrez et al., 2015; Solli, 2016; Eifring, 2016, 2019a; Hersoug et al., 2018, 2021; cf. also Solberg, 2004; Travis & Shear, 2010; Carrington et al., 1980; Naranjo, 1971; Paccione & Jacobsen, 2019).

In this chapter, we shall look at one specific function of mind wandering which is more rarely discussed in the research literature, but which turns out to be quite important: *emotional processing*. We have all experienced, perhaps without thinking much about it, how spontaneous thoughts of an unpleasant memory may gradually reduce the emotional tension associated with that memory, e.g., when the recollection of a quarrel at work spontaneously recurs again and again after returning home, until it gradually tapers off and loses some of its emotional charge.

An fMRI study of nondirective meditation suggests that by facilitating mind wandering, such techniques activate the default mode network and brain areas associated with memory retrieval and emotional processing (Xu et al., 2014). This chapter may be read as an attempt to further interpret, explicate, and put in context the results of that particular study, which we shall refer to as *the Xu study*.

Nondirective Meditation

A meditation technique is nondirective to the extent that it facilitates *mind wandering* in a wide sense of the term (Eifring et al., 2019). In this context, the term mind wandering refers to all spontaneous activity of the mind, including thoughts, images, emotions, sensations, and even some spontaneous bodily reactions, such as the natural breathing or involuntary movements – any activity that the meditator does not deliberately set in motion.

In addition to the spontaneous activity of mind wandering, any meditation technique also includes deliberate, voluntary activity. In nondirective meditation, the deliberate activity most often consists of the mental repetition of a meditation sound or a mantra with a free and open mental attitude, but it may also consist of an equally free and open attentional focus on the breath, body sensations, etc. One of the effects of this deliberate activity is to facilitate the spontaneous mental and bodily activities that are beyond conscious control.

The spontaneous activity may be *digressive*, as when the meditator forgets to repeat the sound or mantra and is temporarily lost in thought. This is the core meaning of the term mind wandering. However, it may also be *peripheral*, as when the deliberate repetition of the sound or mantra is accompanied by the coming and going of thoughts, usually in the periphery of the attentional field (Eifring, 2016).

Typical examples of nondirective meditation include Acem Meditation (Holen, 2016), Clinically Standardized Meditation (Carrington, 1978), Relaxation Response (Benson, 1975/2000), and Transcendental Meditation (Mahesh Yogi, 1963), as well as online teachings such as Natural Stress Relief (<http://www.natural-stress-relief.com>) and 1 Giant Mind (<https://apps.apple.com/us/app/1-giant-mind-learn-meditation/id990931892>). There are important differences between these methods (see Eifring, 2019b), but they also share a number of features.

An important element in nondirective meditation is the *free mental attitude* with which the technique is practiced. The free mental attitude is characterized by the following three features (cf. Holen & Eifring, 2013, pp. 18 f.):

1. Effortlessness of the practice itself, in most cases by repeating the meditation sound or mantra as gently as possible.
2. An open, wide-angled mode of attention, allowing the coming and going of spontaneous activity in the mind's periphery while the meditation object occupies the center.
3. Acceptance of the fact that digressive thoughts, feelings, images, and sensations sometimes take over the scene completely, so that the meditation object is temporarily forgotten, before one realizes this and gently returns to the meditation object.

These features are not separate but rather constitute three aspects of the same gentle, open, and accepting basic attitude. Without the basic acceptance of digressive mind wandering, an element of strain will replace the effortlessness of the practice, and without this effortlessness the mode of attention will become less open and wide-angled.

A number of studies have shown how meditating with a free mental attitude leads to different results than meditating with some degree of effort, self-observation, or concentration. This holds whether the meditation object is a sound (as in the Xu study; and in Davanger et al., 2010) or, e.g., the breath (Paccione & Jacobsen, 2019). In most cases, however, nondirective meditation is *sound-based*, which may be another factor, besides the free mental attitude, accounting for the deep relaxation such meditation brings about. Furthermore, there is a tendency to prefer *non-semantic* and *non-symbolic* sound combinations, in order to avoid steering the mind's spontaneous activity in pre-set ways (Eifring et al., 2019).

The Relaxation Response

Nondirective meditation differs from most mindfulness practices in emphasizing *relaxation* and *effortlessness* over attentiveness and self-observation (Eifring, 2019c). Much of the early research on meditation was linked to issues related to physiological relaxation (Wallace, 1970; Wallace et al., 1971), the relaxation response (Benson, 1975/2000), including oxygen consumption, lower blood pressure, reduced heart rate, slower brain waves, lower skin conductance, etc. This

research focused largely on nondirective meditation, in particular transcendental meditation, but also Herbert Benson's Relaxation Response and Patricia Carrington's Clinically Standardized Meditation. Later research on Acem Meditation has confirmed many of these early results (Lagopoulos et al., 2009; Solberg, 2004).

As research on the large panoply of mindfulness techniques took hold, the focus on relaxation has become less dominant. It is not clear whether that is because mindfulness techniques are less relaxing or just because the interest has moved on. Most likely, it is a combination of the two. Mindfulness techniques typically involve slightly more effort in taking care to observe the self, and this may reduce the degree of relaxation. Also, there is evidence that some mindfulness techniques require more effort than others, in other words, that they are less relaxing than others (Lumma et al., 2015). They typically involve a certain amount of concentration or self-observing effort.

At the same time, some of the more recent research on the relaxing effects of nondirective meditation has opened new arenas. For instance, a study of heart rate variability shows that the relaxation associated with nondirective meditation is a product both of the reduction of sympathetic activity and the increase of parasympathetic activity. Increased heart rate variability has become a new criterion for the relaxation response, along with other physiological criteria (Nesvold et al., 2012).

The Xu study can also be seen in this light. New neuroimaging techniques have supplied the traditional use of EEG to detect the relaxation response on a neural level. In particular, fMRI has helped to detect the activation of the default mode network during meditation. The intensity of this activation exceeds that of everyday, non-meditational mind wandering. This suggests that the degree of relaxation during meditation is significantly higher than during regular rest.

Two Types of Emotional Processing

As already mentioned, the Xu study also suggests that brain activity in centers associated with memory retrieval and, in our context most importantly, emotional processing goes markedly up during nondirective meditation.

What does "emotional processing" mean? In fact, both the Xu study and the literature at large employ this term in at least two quite different meanings, which are both relevant and which we shall see may be more closely related than a superficial look reveals. Our understanding of emotional processing hinges on the catch-all term "processing."

In one meaning, the term refers to *information processing*, i.e., the encoding, storage, and retrieval of information in the brain (cf. Sander, 2013). The brain or the mind is implicitly or explicitly compared to a computer that sends information back and forth between different centers or neurons. Successful information processing gives the various parts of the brain realistic and/or adaptive information input, while less successful information processing gives distorted and/or maladaptive information input. In this sense, "emotional processing" involves the transmission of neural

information regarding emotional experience from one part of the brain to another, e.g., from the amygdala to parts of the prefrontal cortex.

In another meaning, the term “processing” refers to *therapeutic processing*, i.e., the “working through” or “healing” of any kind of psychophysiological stress or disturbance, whether short-term everyday tensions, more severe trauma, or long-term maladaptive personality traits. In this meaning, emotional processing has been defined as “approaching, accepting, tolerating, symbolizing, making narrative sense of, and utilizing or transforming emotions” (Goldman & Greenberg, 2019, p. xi).

The Xu study points in both directions. On the one hand, it is concerned with the brain areas that are typically involved in the informational processing of emotions, such as the amygdala, the prefrontal cortex, the cingulate cortex, the hippocampus, and the basal ganglia. Its concern with memory retrieval also points in this direction. At the same time, the article discusses how nondirective meditation may “reduce stress by increasing awareness and acceptance of emotionally charged experiences,” and this points to the therapeutic version of emotional processing.

The Mechanism Behind

Possibly, these two types of emotional processing should be seen as different aspects of one and the same process. The basic information processing of emotions could be seen as the neurobiological basis for the therapeutic modification of both short-term and long-term stressful emotional experiences. In this sense, the therapeutic modification of stressful emotional experiences could be seen as an extension and continuation of the basic information processing of emotional experiences.

In a simple computer model of the mind and the brain, one could hypothesize that the input of too much or too complex data may cause an overload, so the computer or the computer network crashes. In this way, some types of emotional experience may cause the mental processing system to deteriorate for longer or shorter periods, as in the case of everyday stress (short periods), rumination (often longer periods), trauma (long term), and formative childhood experiences (with possibly lifelong effects). This would result in cases of unsuccessful information processing, which gives distorted and maladaptive information input. When this is the result of formative experiences in childhood, it is likely to shape information input in systematic ways for the rest of one’s life, unless one is at some point able to go through a therapeutic processing and modification of such formative emotional experiences, which might then have a healing effect on the basic mechanisms of information processing.

This model is only intended as a simple metaphor or analogy illustrating the possible connection between the informational and therapeutic processing of emotions. As such, the model is obviously in need of further refinement. For instance, it is not obvious that realistic and adaptive processing should be equated, and the same is true of unrealistic and nonadaptive processing. For instance, it has been argued that “unrealistic optimism” (“predictions made by people in a nonclinical sample [being]

more optimistic than is objectively warranted by the evidence”) is an adaptive trait, while “depressive realism” (people with depression mak[ing] more accurate judgments and realistic predictions than people without depression”) is less adaptive, although the nature of these phenomena is still up for discussion (Bortolotti & Antrobus, 2015). In the same vein, it is not obvious that the input of too much or too complex data actually leads the brain to “crash,” even if it does react in ways that create problems or pain.

According to the Xu study, nondirective meditation leads to “significantly increased activity ... in [brain] areas associated with attention, mind wandering, retrieval of episodic memories, and emotional processing.” On the basis of these findings, we could formulate a hypothesis about the causal mechanisms involved:

relaxed attention → mind wandering → episodic memories → emotional processing

One important feature of nondirective meditation is the *relaxed use of attention* involved in the free mental attitude, as implied by its effortlessness, its open and wide-angled nature, and its acceptance of digressions. This mode of attention facilitates an increased amount of *mind wandering*. This, in turn, creates opportunities for the retrieval of *episodic memories* that have been suppressed or relegated to the periphery of consciousness. Since these memories are often emotionally charged, their retrieval implies the resurfacing and *processing of emotions* that have not in the past been processed in a fully satisfactory way.

If this hypothesis is confirmed, the relaxed mode of attention associated with the free mental attitude plays a central role in initiating the entire process. It does so primarily by facilitating mind wandering, including not only the coming and going of thoughts but also of emotions and episodic memories.

In different studies, the *depth of emotional processing* in various forms of psychotherapy, as measured by the Experiencing Scale (Klein et al., 1986), has been associated with a sense of safety (Paulik et al., 2021), a decrease in overall anxiety (Harrington et al., 2018), and the nondirectiveness of the therapeutic approach (Borkovec & Costello, 1993). This gives some support to the assumption that the relaxed (= safe, non-anxious) and open (= nondirective) mode of attention that characterizes the free mental attitude is crucial for the activation of brain areas associated with emotional processing. The importance of a safe setting and a nondirective approach may be one of the reasons why most psychoanalysts emphasize the relaxed posture of the patient “on the couch” (cf. Lable et al., 2010). Kroth and Forrest (1969) link this preference of the couch to an assumption that relaxation reduces repression and increases free association. This is significant in our context, since free association resembles mind wandering in letting one association follow another freely and spontaneously. Both in psychoanalysis and nondirective meditation, this can be seen as a way of increasing the depth of emotional processing.

From Emotional to Structural Processing

How do the perspectives outlined above relate to the actual experience of practicing nondirective meditation? The answer to this question may help us to understand the role of emotional processing in nondirective meditation. The following discussion will not primarily be based on scientific studies but on my own experience as a teacher of Acem Meditation, supplemented by the accumulation of experiences of hundreds of Acem teachers and instructors over more than five decades.

For the majority of meditators, most meditation sessions are reported to be quite calm and not strongly emotional. The most common result of everyday meditations is the plain and well-documented physiological relaxation of muscles and the autonomic nervous system (slower breath, lower heart rate, etc.). This may provide a sense of relief and well-being, but not necessarily strong emotions, though some meditators occasionally report moderate feelings of anxiety, nervousness, sadness, or aggression in connection with the release of stress during daily meditations. At retreats with long meditations, accounts of emotional discharge during meditation sessions are slightly more frequent. However, such experiences are not typical, and to judge from self-reports, the most common experience of nondirective meditation is pleasant but emotionally fairly neutral, apart from the occasional restlessness and muscle aches that are sometimes part of the process.

In contrast to this calm and emotional neutrality, the guidance sessions that follow long meditations on Acem retreats are sometimes much more emotional. Even after emotionally neutral meditation sessions, the ensuing discussions of the meditation practice and the thoughts that pass through the mind during meditation sometimes bring out fairly strong emotions. These typically relate to the retrieval of memories linked to deep-seated personal issues from the recent or more distant past. Neither the emotions nor the memories involved have necessarily been overtly present during meditation itself but have nevertheless become more accessible to conscious cognition and are brought to awareness in post-meditation guidance.

We do not yet have a satisfactory neuroscientific explanation for the contrast between the emotional neutrality of meditation and the stronger emotionality of the ensuing guidance dialogues. From a psychological point of view, one possible answer is that emotions, while important, do not belong to the core of the personal issues involved but to their surface manifestations. In this line of thought, the underlying core is *structural* and may have emotional, cognitive, and behavioral manifestations (Beck et al., 2004; Sandell, 2019). If this is correct, the emotional processing discussed in the Xu study is a surface manifestation of underlying processes involving structural change. The emotional, cognitive, and behavioral manifestations of the issues involved only become accessible during guidance dialogues that take place in a social setting and involve the verbalization of impulses that may have been only latent during meditation.

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