Peter Sedlmeier

The Psychology of Meditation

Varieties, Effects, Theories, and Perspectives

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About the Author

Peter Sedlmeier is professor of psychology at Chemnitz University of Technology, Germany. He mainly teaches research methods and cognitive psychology. Apart from the psychology of meditation, his current areas of interest include intercultural research, time processing, and computer modeling of cognitive and statistical processes. He has been practicing meditation for more than 20 years, mostly Zen, interspersed with some extended excursions into the Theravada world, and some experience in yoga meditation and transcendental meditation (TM).

Preface

The present volume attempts nothing less than to give a state-of-the-art summary of what we currently know about the psychology of meditation. Of course, one volume cannot possibly summarize everything, and as an author I had to make some difficult choices, but the aim of this work is to give a representative overview of what psychological science has achieved so far in this area, as well as which problems are still around. One could say that the main point of the book is to prepare the reader for the suggestions for future research given in the last chapter.

There is much confusion in meditation research about what meditation is, how it is embedded in various practicing contexts, and why people meditate at all. Therefore, this book puts an emphasis on clarifying these questions in Part 1, on the varieties of meditation. Chapter 1 describes the vast diversity of meditation techniques, and Chapter 2 deals with the notoriously problematic issue of *mindfulness*, which is often (wrongly) thought of as synonymous with *meditation*. Chapters 3 and 4 look at meditation in its respective contexts – traditional and Western, respectively. And Chapter 5 reviews the astonishingly few attempts at finding out why people begin to meditate at all and why they stay with it.

Part 2 of the book deals with the effects of meditation. Meanwhile, an incredibly large number of studies have examined the effects of meditation, and it seems that no end is in sight for the exponential growth curve of the number of publications. This forced me to rely mainly on meta-analyses (and even meta-syntheses – that is, summaries of meta-analyses). Chapter 6 gives an overview on the very varied research on the effects of meditation on more or less healthy practitioners. Many more studies have been conducted on the effects of meditation for practitioners from clinical populations, which are reviewed in Chapter 7. There are some exciting new trends in the topics for meditation research, such as the use of meditation apps, adverse outcomes of meditation, differential effects of different practices, and the impact of spirituality and ethics. These are dealt with in Chapter 8.

The usual order of presentation in books on a given scientific topic is to begin with the theory part and then present and discuss the empirical evidence in light of the theories. This book does it the other way round, and there is a justification for that: So far, the bulk of meditation research has been conducted with little or no theoretical background. To be sure, there are *theories of meditation*, and they will be summarized in Part 3 of the book. Chapter 9 presents my understanding of the psychological aspects of four main traditional approaches: Samkhya-Yoga, early Buddhism, Advaita

Vedanta, and Zen. Western attempts at explaining why and how meditation works are reviewed in Chapter 10.

As mentioned above, all of this – that is, a summary of the varieties, the effects, and the theories of meditation – can be seen as a preparation for the last part of the book, presenting perspectives on meditation research (Chapter 11). For seasoned meditation researchers, it might be that not that much in the book will really be new. However, I am not aware of any other book that takes so many pains to prepare the argument that meditation research definitely needs to be improved – regarding which, some suggestions will be offered here. Measured by the number of publications, meditation research is already a success story, but its real success hinges on how well we *understand* the psychology of meditation. Such a profound understanding, which would express itself in a good theory (or in several good theories), will certainly help to improve the practice of meditation. But it also has the potential to reach far beyond meditation research proper, to the enrichment of our understanding of consciousness and cognition.

Although this book officially has only one author, it is in fact the product of many people's efforts who contributed in one way or another. As this is a book on meditation, I begin with my teacher AMA Samy, thanking him for all I learned from him. Many aspects of what is covered in this book only became much clearer to me (still with some room for improvement though) by discussing them with fellow meditators, meditation teachers, and researchers interested in meditation. Some of them deserve special mentions and thanks: Ven. Angulgamuwe Ariyananda, Britta Biedermann, Matthijs Cornelissen, William van Gordon, Carl Hooper, Caroline Jones, Sonali Marwaha, Ven. Nanasiri, Bhikkhuni Agga Nani, Veerachart Nimanong, Ulrich Ott, Ramakrishna Rao, and Ajahn Suphan. I owe much to my friend K. Srinivas who sadly passed away so prematurely. While I was on sabbatical at Pondicherry University, India, he, being a philosophy professor himself, opened the door to Indian philosophy for me. Without him, there would be no Chapter 9 in this book (at least not as it looks now).

Colleagues and students who give critical feedback on one's writings are an indispensable part of scientific work, at least for those persons whose first-draft versions of papers and books are usually far off from how they ideally should look. I am one of those persons. Therefore, I was very fortunate to receive help from many people who read some chapters of the book and provided me with valuable and sometimes (most importantly!) very critical feedback. My thanks to Britta Biedermann, Anna-Nora Fenske, Eva Henschke, Frank Heydel, Carl Hooper, Stefan Ibold, Helmut Kunkel, Ulrich Ott, and Vivien Röder. I am especially indebted to Ritesh Mariadas, Karin Matko, and Isabell Winkler, who looked through most if not all of the chapters. My heartfelt thanks to them all!

The book would not exist had not the folks from Hogrefe encouraged me to write it. I would like to thank especially Robert Dimbleby and Lisa Bennett, who brought the project on its way and accompanied me throughout, as well as Irina Rau for her careful production work and Timothy DeVinney for his excellent copyediting.

Peter Sedlmeier

Chapter 1

What Do People Do When They Say They Meditate?

Meditation grows your brain, enhances empathy, reduces blood pressure, boosts the immune system, reduces anxiety and depression, is the ultimate pain killer, increases positive emotions, and makes you more intelligent. This is just a small sample of the effects of meditation you can read about on the Internet (e.g., Chowdhury, 2019; Dimitrov, 2019; Miller, 2021; Rana, 2021). So, it might indeed be a good idea to meditate, and I will come back to the evidence for these claims in later chapters of the book. But what should you actually do to achieve all these benefits? Such advice sounds like you just have to know what meditation is and then practice it. This uniform view of meditation is also what researchers in the West have mostly adhered to, so far, although some early work already made clear that meditation is far from being a uniform practice (Goleman, 1977; Naranjo & Ornstein, 1972; see also Oman, 2021).

When you ask meditators what they do when they say they meditate, their answers are, however, quite diverse. For instance, when we asked experienced meditators from various traditions and looked into the literature, we eventually obtained a list of 309 different meditation techniques (Matko et al., 2021a). These many techniques are of course not totally different, and Chapter 4 presents a classification system based on these 309 techniques, along with the results of other researchers' attempts to classify meditation techniques. In Chapter 3, we will also have a look at traditional classifications. However, before a summary of the many techniques of meditation, some selected examples should help convey an impression of the huge variety to be found in the meditation landscape. We will see that basically anything can be an object of meditation, but that meditation focuses mostly on bodily or mental processes. We will see that meditating often means observing something or being aware of some process, but it can also mean mentally influencing the body or mind, generating emotions, performing some action repeatedly, moving in a specific way, or combining several of these.

Watching the Breath

The most commonly used object of meditation is the breath. It accompanies us through our whole life, and we can easily observe it. A basic practice is to just place all one's attention on the coming and going of the breath. Hereby, one can focus on the sensation the air creates when passing the nostrils. One may explore where exactly in the nostrils (opening, further inside, or higher up the sinuses) this sensation is perceived most accurately. Usually, between the end of the out-breath and the following in-breath, and also between the end of the in-breath and the following out-breath, breathing is suspended for a moment. This halt should also be noted. The aim is to be clear and calm and not tense while being aware of the breath, but also to do so without relaxing too much, i.e., to the point of falling into a sluggish state (see, for example, Ricard, 2011, p. 76).

Watching the breath at first sounds easy, but when you try it, you will probably notice that your mind wanders very quickly. For instance, if you want to stay with perceiving the sensation of the breath at the opening of the nostrils, it may be difficult to do that for an extended period of time because the sensation is so faint. This will improve with practice, but to strengthen the feeling it may help to watch the feeling in cold weather – for instance, when you leave your home on an icy winter day. You might also want to watch the feeling when your breath is very short as, for instance, when you run or work out.

Over time, meditation teachers have devised innumerable specific ways to watch the breath. For an illustration, one can again have a look at some of the variations proposed by Matthieu Ricard, a very experienced monk and scholar who was mainly trained in one of the Tibetan Buddhist traditions (Ricard, 2011, pp. 70–81). An easy way of watching the breath is to count it (please note that counting itself comes in many variations – you can, for instance, vary the number up to which you count, whether you count at the end of the out-breath or the beginning of the in-breath, or both). Then you could "fill" the in- and out-breath by mentally repeating 1, 1, 1, 1, 1, ... during the course of an in-breath (the number of repetitions depending on the length of the breath), and 2, 2, 2, 2, 2, ... during the course of the next out-breath, and do that until you arrive, say, at 10, 10, 10, 10, 10, ... and then begin again. Another variation consists of filling the breath with mentally expressed wishes such as "May all beings be happy," while breathing out, and "May all their suffering be dispelled," when breathing in. Breathing can also be "filled" with mantras, see the section Repeating Words or Sentences, in this chapter).

For some, it might be easier to watch the effect of breathing instead of the breath itself – the place to look at for that could be your abdomen, which

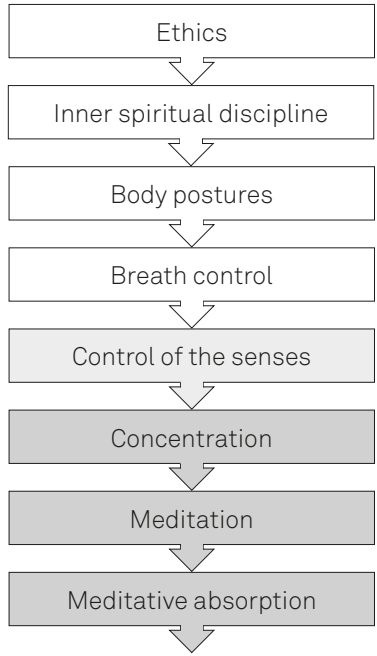

Figure 3.1. The eight limbs of the classical yoga path. Reprinted with permission from "Psychological theories of meditation in early Buddhism and Sāṃkhya/Yoga" by P. Sedlmeier & K. Srinivas (2019), in M. Farias, D. Brazier, & L. Mansur (Eds.), *The Oxford handbook of meditation*, Oxford Handbooks Online, p. 11. https://doi.org/10.1093/oxfordhb/9780198808640.013.27

tion from entering the mind – can be seen as a meditation technique. The central meditation techniques are contained in the last three limbs. Concentration (*dharana*) should be permanently held on a given object while avoiding all other thoughts, although the meditator is still aware of the act of themselves doing it and of the object of meditation. There are many choices of objects (see Sivananda, 1945; Vishnu-Devananda, 1995). In the next limb, often rendered as *meditation* or *contemplation* (*dhyana*), the awareness of the act of meditating disappears. Finally, in *meditative absorption* (*samadhi*), the meditator, with the awareness of themselves dissolved, becomes one with the object of meditation.

In sum, one could describe the central meditation techniques of the eightfold yoga path as variants of concentrative meditation. But the four books of the *Yogasutras* also contain more advice on how to meditate, such as practicing the *brahmaviharas* (loving kindness, compassion, sympathetic joy, and equanimity – YS 1.33; see Chapple, 1990, p. 64). Other techniques consist of devotion to a personal god (YW 1.23), or of practicing disinterested-

Chapter 8
Hot Topics in Meditation Research

Most current studies seem to pursue this question: "Does mindfulness meditation (in its different varieties) have an effect on [insert basically anything, but most commonly some kind of problematic mental or somatic condition]?" However, some of the recent research also concentrates on theoretical underpinnings (see the next two chapters) and on other interesting but so far underresearched topics. This chapter will focus on the results for four such topics: (1) the use of digital forms of meditation instruction, (2) the negative effects of meditation, (3) comparisons of effects of different kinds of meditation or different components within a given approach, and (4) the impact of spiritual and ethical contexts, which are always included in traditional meditation approaches, but (almost) never in Western ones.

Is the Future of Meditation Training Digital?

The use of apps and online-based interventions to teach how to meditate has been going on for some time now, and Mrazek et al. (2019) suggest in the title of their paper that "The Future of Mindfulness Training Is Digital, and the Future Is Now." What does the evidence say?

An early meta-analysis (Spijkerman et al., 2016) summarized the effects of 17 digital mindfulness-based interventions (MBIs) – mostly mindfulness-based stress reduction (MBSR), mindfulness-based cognitive therapy (MBCT), and acceptance and commitment therapy (ACT), partly in modified versions – intended to improve mental health. Most interventions (14 out of 17) were delivered via a website, while one was delivered via a smartphone app, and two via a virtual online classroom. In nine comparisons, therapist guidance was also offered digitally. Effects (calculated for from 9 to 12 studies for each measure) were reliable (95% confidence intervals did not cross 0) but somewhat smaller than those found in conventional studies (cf. results in Chapter 7): depression ($\bar{g} = 0.29$), anxiety ($\bar{g} = 0.22$), well-being ($\bar{g} = 0.23$) and mindfulness, ($\bar{g} = 0.32$), with the exception of stress ($\bar{g} = 0.51$). For stress and mindfulness, guided meditations showed larger effects than unguided ones.

A more recent meta-analysis (Gál et al., 2021), including 34 randomized controlled trials (RCTs), examined the effects of mindfulness apps and found similar results (comparison of post-test results): depression ($\bar{g} = 0.33$),

Chapter 9
Traditional Theories of Meditation

Traditional theories of meditation are not theories in the sense we usually have in mind. Instead, they have to be extracted from ancient texts in which religion, philosophy, and psychology are all rolled into one to provide pathways to salvation. The author of this present work was fortunate to have K. Srinivas, a philosophy professor from Pondicherry University, India – who sadly deceased so young – to help me through the initially seemingly impenetrable jungle of often drastically different translations and interpretation of those ancient texts. Our aim was to extract the psychology part and do justice, as much as possible, to the other parts of the texts (see Sedlmeier & Srinivas, 2016, 2019). Some (short) parts in the paragraphs referring to Samkhya-Yoga and early Buddhism below are slight reformulations of portions of texts in these two sources. What I present below will, in all likelihood, not find unanimous agreement. This will not be surprising, however, given the vast diversity of opinion to be found among both ancient and contemporary scholars in the two traditions, Hindu and Buddhist, with which this chapter will be mainly concerned. And what will be presented here will not be one more of the innumerable exegeses of those texts, but rather an attempt to formulate testable psychological theories that can provide a basis for understanding the effects of meditation. Such a fundamental building block may eventually allow for arriving at one or more comprehensive theories of meditation, in combination with the Western approaches (see Chapter 10).

As I understand them, from the perspective of psychological research, traditional theories can be characterized foremost as theories about cognitive change. So, for each of the four theories to be discussed in this chapter, we will begin with an outline of the basic theory of cognition (cognition understood in a wide sense) and then go on to describe the respective model of cognitive change, presumably brought about by meditation practice (also understood in a wide sense). In this, the chapter will concentrate on two approaches each from Hinduism and Buddhism: Samkhya-Yoga, Advaita Vedanta, early Buddhism, and Zen. Actually, some experts might object to grouping Samkhya-Yoga and also Advaita Vedanta under "Hinduism," because when these thought systems originated, the term "Hindu" did not yet exist. Moreover, Hinduism is an external name, initially mainly used for political reasons (Singh, 2008). Nonetheless, to not complicate things more than necessary, this chapter will follow common usage.

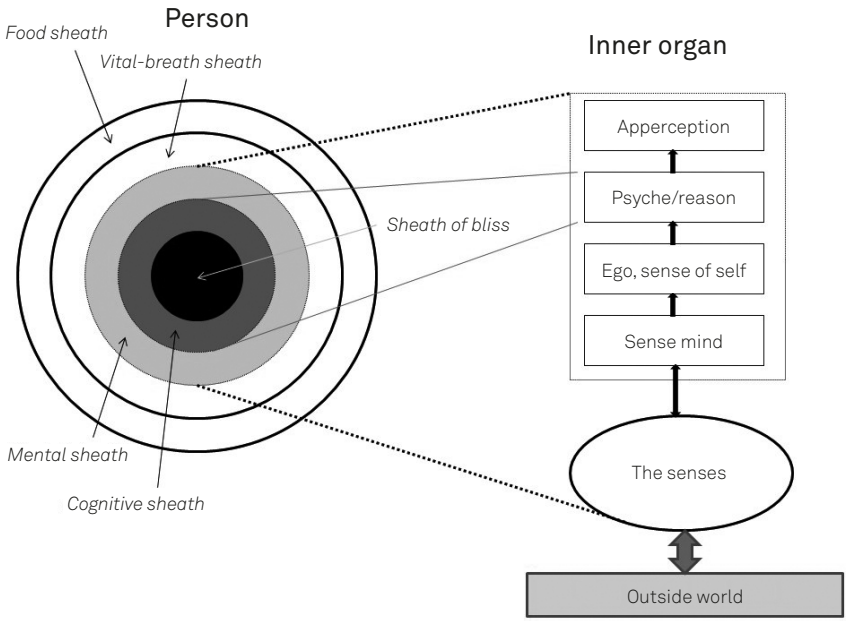

Figure 9.3. Cognition in Advaita Vedanta.

(*anandamaya kosha*), which is considered the seat of consciousness or the true *Self* (often written with a capital "S").

Figure 9.3 shows that especially the third and fourth layers of the person (mental and cognitive sheaths) contain the totality of the mind or "inner organ" (*antahkarana*) that perceives and thinks. How does this work? Like in Samkhya-Yoga, the sense mind (*manas*) analyses and synthesizes what is perceived by the senses. Again, if, for instance, the senses are presented with a banana, the sense mind gets all the impressions of color, shape, taste, and so forth, combines them, and separates the total unified object built in this way from other objects. Then the ego function (*ahamkara*) appropriates the objects as its own as in "*I* see a banana." At this stage of perception, the object in question (e.g., a banana) is an object of one's experience but is not seen as an object of the objective world. Intellect or reason (the *buddhi*) makes it such an object through an assertion or a decision yielding something like "This banana is food!" as the result of that process. Then the inner organ (*antahkarana*) finally invokes the apperception part (*citta*), which collects different aspects of the banana, such as the banana tree, my eating it, its price, its nutrients, and so forth, and relates them to the perceived banana. However, the whole process only works with the help of consciousness, situated in the sheath of bliss (*anandamaya kosha*), whose light is (similar to purusha in Samkhya-Yoga) reflected in the mind and senses. Hereupon, the sense mind (*manas*), acting

Chapter 11
Perspectives on Meditation Research

Before we have a look at future prospects of meditation research, let me quickly recapitulate. In Chapter 1, we have seen that there are hundreds of different ways to practice meditation. It is hard to see how all of these techniques can be subsumed under one single term. But indeed, they are, and there might even be some justification to it. If meditation has a common aim, if the choice of practice does not make a difference, and if all practices lead to the same or similar results, one might as well give them the same term. However, none of these "ifs" really holds.

Practitioners of meditation differ widely in the aims they pursue by practicing meditation, as we have seen in Chapter 5. And comparing Eastern and Western theoretical approaches (in Chapters 9 and 10), one might conclude that the two central aims propagated there, enlightenment and well-being, cannot be reduced to a single aim. It also seems to make a difference which practices are chosen. As we have seen in Chapters 3 and 4, both traditional and secular approaches usually suggest not a single practice but a bundle of practices. But even these bundles differ widely across approaches (Matko et al., 2021a). Moreover, meditators' personal predilections seem to differ considerably (e.g., Anderson & Farb, 2018; Burke, 2012). Unfortunately, the fit between meditators' personalities and motivations, on the one hand, and the choice of practice, on the other, seems not to have received much attention in research, so far. Finally, there is growing evidence (briefly summarized in Chapter 8) that different meditation techniques may yield different effects. In sum, we have no generally agreed-upon conclusion of what meditation is, how it should be practiced, what effects can be expected from different techniques, and no general agreement about what its aim should be. Many practitioners might not be particularly bothered by that state of affairs, and content with their practice. They may even say "my teacher reacts flexibly to my needs and those of my co-meditators – what else do I need?" This is, of course, a fully acceptable point of view, but curious meditation researchers might want to know why the teacher reacts in which way to which diagnostic signs of the student under which circumstances, to better understand what is going on.

Then there is the issue of mindfulness. Chapter 2 sets apart the different meanings of the term – as a state, a trait, and a process – and finds no clear