
A Cognitive-Attentional Perspective on the Psychological Benefits of Listening

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Abstract

Contemporary developments in psychotherapy include mindfulness-based interventions and metacognitive therapy. Both of these approaches incorporate attentional training exercises and meditative activity designed to help clients cope better with rumination, worry, and over-analytical conceptual thinking. Notably, they also use focused listening exercises within established, demonstrably effective treatment protocols. These related practices collectively highlight the promising role of listening, sonic awareness, and mindfulness of sound/music as a means to enhance psychological functioning. Moreover, the paradigm provides a cognitive-attentional framework for understanding the well established, salutary benefits of music listening and may appeal to those many professionals who work in cognitive-behavioral modalities. Examples of clinical materials based on these models are included.

Keywords

medical music psychotherapy, music medicine, music psychotherapy, music therapy

Within the United Kingdom the most widely utilized mental health treatment model is cognitive-behavior therapy (CBT), and the recent Improving Access to Psychological Therapies (IAPT) strategy is largely predicated on this intervention modality (Middleton, Shaw, Hull, & Feder, 2005; Roth & Pilling, 2008). Music therapy remains a rare commodity in most mental health care contexts and the mode of treatment often involves complex psychodynamic components (Butterton, 2007). It does seem that a minority of clinicians working in mental health care have an adequate working knowledge of what music therapy can contribute. This article, written by a clinical psychologist, seeks to outline an emergent psychotherapy paradigm that promises common ground and, in some respects, links the work of music therapists and those clinicians for whom music and organized sound is not a regular feature of therapeutic interaction.

Problems With Standard Cognitive-Behavior Therapy

Cognitive-behavior therapy has enjoyed widespread success and has progressively acquired an impressive evidence base. However, there remain many conceptual questions about its primary mode of action. Traditionally, CBT is thought to effect psychological change through alterations in beliefs (i.e., cognitive restructuring), modifications in thought content, and experiential learning—for example, discovering that one can be safe in the presence of a much feared stimulus (Johnstone & Page, 2004). Therapy often involves meticulous revision of ideas and beliefs and, via therapist-led Socratic dialogue (Greenberger & Padesky, 1995), the formulation of new, more adaptive alternatives that fit better with observed reality.

Problematically, however, a range of studies indicates that improvements in well-being are not reliably mediated by changes in belief structure and thought content per se (Longmore & Worrell, 2007). Likewise, the assumed precedence of thought in the determination of emotional states is not an established universal. When the co-morbidity of anxiety and depression are considered (Angold, Costello, & Erkanli, 1999), it begs the question of whether some more fundamental causal process is operating to facilitate change that is not entirely contingent on the details of our passing thoughts or long-term beliefs. In this short article, I argue that “attention” is emerging as a likely solution to this contemporary puzzle and, importantly, it is an aspect of human function over which music has a significantly high degree of influence (e.g., Graham, Robinson, & Mulhall, 2009).

A Cognitive-Attentional Alternative

In recent years, approaches have emerged in contemporary psychotherapy that increasingly veer from long established Beckian cognitive models of psychological disorder (e.g., Beck, Rush, Shaw, & Emery, 1979) and instead focus on adaptation in dynamic, attentional processes (Orsillo, Roemer, Lerner, &

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Tull, 2004). This movement from static aspects of human beliefs and thinking toward the dynamics of human attentional processing is a major paradigm shift. In essence, these approaches (e.g., Kabat-Zinn, 2003; Teasdale, 1999; Wells, 2005, 2008) de-prioritize what we think and, instead, encourage a deliberately limited engagement with conceptual or evaluative thinking styles. Such approaches promote an open, uncritical, attentional focus on raw, perceptual, sensory aspects of experience, rather than imaginal or conceptual cognition. Unlike standard CBT, wherein participants may be encouraged to adopt and actively cogitate on adaptive beliefs, this “new wave” of psychological therapies is much less focused on what we think and much more concerned with the degree to which we entangle ourselves in any sense with the inherently irrational mire of our evolved minds and their spontaneous thinking processes. Mindfulness-based cognitive therapy (Williams, Teasdale, Segal, & Kabat-Zinn, 2007), for example, is an approach to depressive relapse that involves the development of attentional skills and acceptance. Daily practice of meditation is required in this intensive approach to well-being and mental health. Mindfulness is often described as follows:

Paying attention in a particular way on purpose, in the present moment, and non-judgmentally. (Kabat-Zinn, 1994, p. 4)

A process of regulating attention in order to bring a quality of non-elaborative awareness to present experience with an orientation of curiosity, experiential openness and acceptance. (Bishop et al., 2004, p. 234)

Mindfulness can be considered an enhanced attention to and awareness of current experience or present reality. Specifically, a core characteristic of mindfulness has been described as open or receptive awareness and attention, which may be reflected in a more regular or sustained consciousness of ongoing events and experiences... Mindfulness is also compromised when individuals behave compulsively or automatically, without awareness of or attention to one’s behaviour. (Brown & Ryan, 2003, pp. 822-823)

Mindful practices include dedicated periods spent in formal meditation in which specific attentional targets are adopted, for example, the breath, areas of the body, feelings of stretching and movement, and so on. In essence, mindfulness requires a considered attentional deployment and a willingness to tolerate negative emotions and thoughts while making a gentle, directive effort to notice authentic aspects of one’s experience. Mindfulness-based approaches have, in recent years, proliferated and can be seen in a range of recommended interventions. These include Acceptance-Commitment Therapy (Hayes, Luoma, Bond, Masuda, & Lillis, 2006), mindfulness-based cognitive therapy/stress reduction (Kabat-Zinn, 2003), and dialectical behavior therapy (Baer, 2005). An evidence base is gathering and these approaches are emerging as established components of mainstream psychotherapy practice. Given the influence of eastern meditative practices in these therapies, it is noteworthy that they have demonstrated such efficacy in light of initial marginalization and intensive scrutiny. Mindfulness-based cognitive therapy (MBCT) is now recommended for management

of depressive relapse and there is a range of postgraduate training programs across the United Kingdom (Teasdale, Segal, & Williams, 2003). Notably, the program incorporates a listening/hearing meditation protocol (Williams et al., 2007). The authors provide the following instructions to participants:

Bring your attention to the ears and then allow the awareness to open and expand so that there is a receptiveness to sounds as they arise, wherever they arise... Be aware of sounds simply as sounds, as bare auditory sensations. When you find that you are thinking about the sounds, reconnect, as best you can, with direct awareness of their sensory qualities (patterns of pitch, timbre, loudness, and duration), rather than their meanings or implications. Whenever you notice that your awareness is no longer featuring sounds in the present moment, gently acknowledge where your mind has drifted to, and then return your attention back to hearing sounds as they arise and pass away moment by moment. (pp. 166-167)

The above listening protocol encourages participants to engage in a process of repeated orientation toward sound. This exercise de-emphasizes active engagement with conceptual, critical, or predictive thinking, for example, “I am no good at this,” or “When will this exercise end?,” or “What time is it now?” Instead, the practice of mindfulness is intended to foster a gentle tolerance of distracting automatic thought and also augment one’s resolve to engage with genuine, unimagined attentional targets—in this case, sound. Williams et al. (2007) also emphasize that attentional focus on sound can help people to conceptualize their thoughts in a similar way—simply as noisy, passing features of their inner soundscape, rather than truths, or fixed, permanent realities that require further analysis:

If we think of the mind as the “ear” for our thoughts, then perhaps we can learn to relate to thoughts that arise in the mind in the same way that we relate to sounds arriving at the ears. Normally we may not even be aware of the extent to which the mind is “receiving” thoughts until we practice intentionally giving them the space to be seen and known for what they are: discrete events in the field of awareness. By analogy, mindfulness of hearing can help us develop a similar sense of openness towards our thoughts, allowing them simply to come and go, without enticing us into the drama they are creating. (p. 166)

Attention Training

The value of listening with attentiveness has been demonstrated by Wells (2007), who has developed a structured, therapeutic listening program referred to as Attention Training (ATT). This specific intervention is a major component in a family of techniques used within “metacognitive therapy” (Fisher & Wells, 2009). As described by Wells (2008),

ATT is an externally focused auditory attention exercise, consisting of selective attention, attention switching and

divided attention instructions. It is designed to reduce self focused attention . . . restore flexible control over thinking, and promote detachment from thoughts. (p. 654)

During formal practice sessions of around 10 to 15 minutes, participants' attention is directed by a narrator toward auditory events occurring ambiently or on a recorded soundtrack. Participants are advised to adopt a relaxed, fixed eye-gaze and to undertake this practice daily. Instructions include direction toward and between individual and collective sounds and the task therefore engages one's capacity for selective, sustained, switching, and divided attentional forms. It is noteworthy that this practice is grounded in an established taxonomy of human attentional function. A series of studies supports the use of ATT alone, as part of a broader metacognitive therapy, and across a transdiagnostic spectrum of conditions that includes hypochondriasis, major depression, auditory hallucinations, panic, and social phobia (Wells, 2007). Major controlled trials have yet to be undertaken, but these preliminary results are highly promising.

What this would seem to indicate for those involved in provision of health care is that prescriptive, directed sound/listening practices can contribute to psychological well-being by entraining one's capacity to judiciously disengage from habitual thinking.

ATT soundtracks include commonly encountered sound events—church bells, traffic, water flowing, insects, birdsong, and so on. Everyday sounds such as these have been chosen in order to mimic sonic stimuli experienced routinely in everyday life. To date, research trials have used only non-musical sounds. Concerns over the effect of preferred versus non-preferred music styles and the effect of these parameters on clients' capacity to engage their attention have no doubt been the reason. However, it can be strongly argued that music could be added to the library of sounds used, so long as due consideration is given to the individual's listening preferences. Thus far, no research has been undertaken to explore in detail how music might be used in place of ambient soundtracks, but such an approach would appear entirely justifiable and may conceivably improve adherence rates.

Links With Related Musical Practice

There are parallels between the recommendations of Williams et al. (2007) and what has elsewhere been referred to as "reduced listening" (Schaeffer, 1967), that is, an attempt to focus intensively on the acoustic properties of sound without post hoc conceptual analysis, or critical investigation of compositional features. In such formal listening activities, the intrusive activity of one's mind enters an iterative, oscillating foreground-background relationship with sonic targets and, arguably, this could enhance one's skillful capacity to deflect from excessive ruminative activity. Such listening practices are in stark contrast with the conditioned, rapid meaning-making

that occurs when we are otherwise exposed to musical sound (e.g., Juslin & Vastfjall, 2008; Kendall, 2010).

On a related theme, the composer, teacher, and writer Oliveros (2005) describes the activity of "Deep Listening," which she defines as

a practice that is intended to heighten and expand consciousness of sound in as many dimensions of awareness and attentional dynamics as humanly possible . . . Deep listening is a form of meditation. Attention is directed to the interplay of sounds and silences or the sound/silence continuum. Sound is not limited to musical or speaking sounds, but is inclusive of all perceptible vibrations. (pp. xxiii-xxiv)

Oliveros (2005) provides a series of "listening questions," which are helpful in conveying to participants the kind of attitudinal curiosity around sensory events that may be useful in cultivating an attentional pattern of functioning less entrenched in rumination, worry, or judgment. Paraphrased in the following, these include,

What are you hearing right now? How is it changing? How many sounds can you hear all at once? How far away can you hear these sounds? How is it made? When can you hear it? Are you hearing it now? What is the soundscape of your neighborhood/city? Listen to any sound as if it had never been heard before.

The developing field of Acoustic Ecology (AE; e.g., Truax, 1978) provides guidance on the use of sound-walking—an excellent example of mindful activity using sound stimuli. Such activity, which often involves concurrent sound recording, requires a distinctly focused, attentive mode of engagement with one's sonic environment as one moves through it. Individuals involved in this movement, which in part seeks to address the rampant problems of noise pollution and its effect on quality of life and the environment, suggest that education is required to enable students to develop a much richer and deeper appreciation of their sonic environments (Valentine, 2001). This principle is very much in keeping with the aims of mindfulness and the elaboration of sensory curiosity that can enrich daily life, dampening ruminative, overly conceptual thought habits. In describing the aims and remit of AE as a discipline, Wrightson (2000) highlights the clearly overlapping nature of AE and mindfulness-based approaches to human well-being:

In order to listen we need to stop or at least slow down—physically and psychologically, becoming a human being instead of a "human doing." "Be here now" is one of the main messages to emerge during the 1960s, and a major tenet of the multitude of Eastern philosophies that have been imported into the west ever since. For *homo urbanus*, stopping and listening is a tough call, though many try and keep trying. For others, being here now, listening to the soundscape, valuing the soundscape, is anathema. (p. 13)

Conclusion: Attention, Music, and Listening

Mindfulness-based interventions and the Attention Training Technique used by Wells collectively suggest that human well-being can be enhanced through progressive training of one's attentional capacity. Of marked relevance for music therapy and the promotion of interventions that use sound, music, and listening is the fact that auditory exercises appear to be a highly convenient, effective, and tolerable means of achieving the goal of more mindful functioning. It is also noteworthy that such interventions appear markedly different from dialogic, conversation-focused psychotherapy. Indeed, it could be argued that some accepted aspects of counseling and psychotherapy run directly counter to the spirit of mindfulness as they may indeed reinforce and protract mental operations involving analytical, ruminative, verbal thought.

Notably, the non-verbal domain has been the highly fertile context for music therapy for many years and this recent confluence of interest in auditory attention represents an interesting intersection of formerly distant approaches. Methods such as Bonny's Guided Imagery in Music (GIM; Bonny, 2002) have for several decades advocated the use of music to modulate psychological states in therapeutic ways, and music therapists may be ideally placed to take forward applied

research on mindful approaches in a range of populations as they have at their immediate disposal an established palette of sonic techniques that can readily cultivate mindful states among participants.

In the interests of providing tangible examples of how music and attentional/mindful approaches might work together, I have included within the appendices to this article several worksheets from my own clinical work among adults with mental health difficulties (see Appendices A, B, and C). Among a range of other techniques, these provide an example of how music/sound can be used to facilitate mindful states. Initial responses to this mode of work have been broadly positive, and in due course, it is hoped that this work will be fully evaluated and outcomes reported formally.

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Appendix A

Sound-Walking: A Mindful Approach to Moving and Listening

Mindfulness involves bringing attention toward features of our sensory world that exist outside of our automatic thinking, worrying, and wondering. This means moving our attention beyond our habits of conceptual thinking and analysis, criticizing, and judging oneself and the situation and beyond the many and varied debates that go on in our minds.

A convenient way to practice mindfulness is "sound-walking."

Many people choose to shut out environmental sounds by playing music on a personal listening device with headphones. However, on a *sound-walk*, the goal is to pay close, gentle, detailed attention to a range of environmental sounds and noises we hear as we move through our environment. Try to choose a location that has plenty of sounds occurring, but make sure that the soundscape is not dominated by one particular sound. The purpose is not to analyze or devote any great conceptual thought to the process, just focus on listening and hearing. Likewise, the goal is not to criticize anything we hear. It's not important to worry about whether we like or dislike the noises we encounter—just be curious and accepting of what you hear. With mindfulness, we simply keep gently focusing on what we notice with our ears.

You might pick out single sounds—like a siren, a bird song, or a river flowing. Or you may notice a lot of sounds at once—a "soundscape." As you walk, simply keep bringing your attention to the sounds and noises that enter your ears. You will hear contours in pitch, swells and dips in volume, sudden noises like crashes, and smooth long noises. You will notice short and sharp noises and long drawn-out noises. You will notice sounds that seem warm and sounds that seem cold. You may notice that sounds have a kind of texture, color, or feel to them. You may feel sounds resonate in your body. Pay attention to all of this. Be persistently curious and attentive for sound.

You will find that as you do this, you will experience brief periods when you will be so engaged with sound that conceptual/analytical/critical thinking will leave you momentarily. Savor and enjoy these brief moments and be grateful that you are really aware, really present, and fully mindful. With practice, these periods will become longer and easier to cultivate. As you develop this skill, you can be glad that you are getting better at disengaging from unhelpful thinking that can make you depressed or anxious.

Don't worry about analyzing your experience, wondering how well you are doing, or indeed any thinking at all. Try not to get too involved with assessing, rating, or evaluating your performance as this gets in the way of the actual experience itself. Simply, with gentleness and patience, stay curious about what you hear and keep coming back to it by using your attention in a calm and directed way. As you become distracted with thoughts or other events, then gently, repeatedly (probably many hundreds of times) keep returning to sound with calm persistence.

Twenty minutes of walking with mindful listening is an excellent period to aim for.

Appendix B

Mindful Music Listening

The purpose of mindfulness is to become more involved in reality and in events that are detectable through our senses. In so doing, we can reduce the time we spend immersed in depressing over-thinking, worrying, self-criticism, pointless analysis, or other thinking habits that can lead to distress and unhelpful actions.

Instructions

In this exercise, your task is to choose a piece of recorded music that lasts about 4 to 5 minutes.

One requirement is that the music has more than one instrument and that this is present during most of the piece. It is probably better if it is a piece of music without lyrics, as these can be very distracting—but you can use songs with words if you so wish. Analyzing lyrics or composition or evaluating the music as good/bad is not the purpose of this exercise at all. This task is not music criticism.

Choose some music that you enjoy, that you find pleasant to listen to, and it may be better to choose a piece that you know reliably improves your mood and sense of well-being rather than a piece that evokes sadness or other distress.

First relax in a chair and sit comfortably.

Headphone listening can make this exercise easier.

Your task is to listen selectively to the chosen instrument for the duration of the music. You should aim to gently filter out the other sounds. Make sure you know what the target is before you begin.

As the music plays, your task is to bring the target sound to the foreground of your mind, allowing the other sounds to move into the background of your awareness.

You will be distracted by other sounds. Just return, gently, to the target.

You will also be distracted by thoughts. Just return, gently, to the target at your ears. Some of these thoughts may be, “I like this song,” or “I wonder how I am doing at this,” or “How long to go?” or “What do those lyrics mean?” Each time, return your attention to the sound of the target instrument.

You will notice emotions and feelings (some pleasant, some unpleasant). Accept their presence and return, gently, to the target sounds at your ears. You may need to make a conscious effort to relax; be calm and patient as you undertake this exercise.

Repeat many times for the duration of the piece of music.

Doing this each day, or whenever you have time to focus singularly on music, is a great way to train your mind in the skillful art of dealing with mental distractibility, which can lead to anxiety, depression, and stress.

Example: You might choose a piece of traditional jazz music, which is up-tempo and sounds happy and bright, and you could perhaps choose to focus closely on the hi-hat used by the drummer. By focusing on this sound, which is often very distinct and persistent in jazz music, you would establish a target for your attention for the duration of the song.

Appendix C

A Day of Sound

As you awaken, first thing in the morning, and gradually gain awareness, gently notice your breathing. Listen to the sounds of air as you inhale and exhale. Be aware of the texture and quality of the sound as you breathe in and out. You do not need to evaluate, rate, or judge these sounds in any way—just try to notice. As you get distracted with your own thoughts or other events, then gently escort your thinking back toward your breathing.

After a few moments, guide your attention toward anything you might hear around you in the room or outside. You may hear birdsong, traffic noise, or other sounds. Some sounds may be pleasant, others less so. Notice, at your ears, your direct perception of the sounds. Engage in this listening with an attitude of calm, gentle observation rather than tense effort.

As you get up, continue to listen. Hear your footsteps on the floor, for example. Notice the sounds and noises of the tap running as you wash. Hear the water flowing from the shower. Observe the variety of sounds you hear around you as the shower flows; you may hear the water moving under pressure through the pipes, you will hear the spray of shower and the collision of water with the shower tray. What do you hear as water moves over your head and ears? Notice these and other sounds with curiosity.

Hear the internal “swoosh” of your toothbrush as you brush your teeth. As you boil the water in the kettle for a cup of tea or coffee, notice the sound—the water bubbling and its turbulence moving around within the kettle. You could perhaps notice the sounds of your spoon “clinking” on your bowl as you eat breakfast. You might hear the sounds of sugar added to your tea or coffee. Can you notice the sounds of the tap running, the cupboard doors opening and closing?

(continued)

Appendix C. (continued)

As you dress, can you hear your clothing as it unfolds and moves?

As you set about your day, do you travel? If so, notice the sounds involved in your mode of transport? Can you hear the car door open, the seatbelt click, the bicycle spokes turn? Can you perhaps detect static as you put on the car radio? Notice the indicator lights clicking on the dashboard—how do they sound?

If you cook food during the day, how does it sound as you prepare it? You may primarily notice smells and associated flavors, but can you hear the water boil, the toast crackle as you spread butter on it and crunch as you bite it? Can you hear a glass of sparkling water? Notice all of these things where you can.

Be aware of the depth of sounds—of sounds that are close and those that are far away. Be aware how you can, especially in city areas, be aware of the general activities going on in an area despite the fact that you cannot see them. Do you hear sirens or motor vehicles some distance away? Notice what your ears can detect about depth, distance, and activity.

References

- Angold, A., Costello, E., & Erkanli, A. (1999). Comorbidity. *The Journal of Child Psychology and Psychiatry and Allied Disciplines*, 40(1), 57-87.
- Baer, R. (2005). *Mindfulness-based treatment approaches: Clinician's guide to evidence base and applications*. Boston: Academic Press.
- Beck, A., Rush, A., Shaw, B., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford.
- Bishop, S., Lau, M., Shapiro, S., Carlson, L., Anderson, N., Carmody, J., ... Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science & Practice*, 11(3), 230-241.
- Bonny, H. L. (2002). *Music consciousness: The evolution of guided imagery and music*. Gilsum, NH: Barcelona Publishers.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822-848.
- Butterton, M. (2007). *Listening to music in psychotherapy*. New York: Radcliffe.
- Fisher, P., & Wells, A. (2009). *Metacognitive therapy*. London: Routledge.
- Graham, R. G., Robinson, J., & Mulhall, P. (2009). Effects of concurrent music listening on emotional processing. *Psychology of Music*, 37(4), 485-493.
- Greenberger, D., & Padesky, C. (1995). *Clinician's guide to mind over mood*. New York: Guilford.
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, 44(1), 1-25.
- Johnstone, K. A., & Page, A. C. (2004). Attention to phobic stimuli during exposure: The effect of distraction on anxiety reduction, self-efficacy and perceived control. *Behaviour Research and Therapy*, 42(3), 249-275.
- Juslin, P. N., & Vastfjäll, D. (2008). Emotional responses to music: The need to consider underlying mechanisms. *Behavioral and Brain Sciences*, 31(5), 559-575.
- Kabat-Zinn, J. (1994). *Wherever you go there you are: Mindfulness meditations in everyday life*. New York: Hyperion.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science & Practice*, 10(2), 144-156.
- Kendall, G. S. (2010). Meaning in electroacoustic music and the everyday mind. *Organised Sound*, 15(1), 63-74.
- Longmore, R., & Worrell, M. (2007). Do we need to challenge thoughts in cognitive behavior therapy? *Clinical Psychology Review*, 27(2), 173-187.
- Middleton, H., Shaw, I., Hull, S., & Feder, G. (2005). *NICE guidelines for the management of depression*. London: BMJ Publishing Group Ltd.
- Oliveros, P. (2005). *Deep listening: A composer's sound practice*. New York: iUniverse.
- Orsillo, S., Roemer, L., Lerner, J., & Tull, M. (2004). Acceptance, mindfulness, and cognitive-behavioral therapy: Comparisons, contrasts, and application to anxiety. In S. C. Hayes, V. M. Follette, & M. M. Linehan (Eds.), *Mindfulness and acceptance: Expanding the cognitive-behavioral tradition* (pp. 66-95). New York: Guilford.
- Roth, A. D., & Pilling, S. (2008). Using an evidence-based methodology to identify the competences required to deliver effective cognitive and behavioural therapy for depression and anxiety disorders. *Behavioural and Cognitive Psychotherapy*, 36, 129-147.
- Schaeffer, P. (1967). *La musique concrete*. Paris: Presses universitaires de France.
- Teasdale, J. D. (1999). Metacognition, mindfulness and the modification of mood disorders. *Clinical Psychology & Psychotherapy*, 6(2), 146-155.
- Teasdale, J. D., Segal, Z. V., & Williams, J.M.G. (2003). Mindfulness training and problem formulation. *Clinical Psychology: Science & Practice*, 10(2), 157-160.
- Truax, B. (1978). *Handbook of acoustic ecology*. Vancouver: Arc Publications.
- Valentine, V. (2001). Soundscape education as an essential part of integral music education. *Soundscape: The Journal of Acoustic Ecology*, 2(2), 9-10.
- Wells, A. (2005). Detached mindfulness in cognitive therapy: A metacognitive analysis and ten techniques. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 23(4), 337-355.

- Wells, A. (2007). The attention training technique: Theory, effects, and a metacognitive hypothesis on auditory hallucinations. *Cognitive and Behavioral Practice, 14*(2), 134-138.
- Wells, A. (2008). Metacognitive therapy: Cognition applied to regulating cognition. *Behavioural and Cognitive Psychotherapy, 36*, 651-658.
- Williams, J., Teasdale, J., Segal, Z., & Kabat-Zinn, J. (2007). *The mindful way through depression: Freeing yourself from chronic unhappiness*. New York: Guilford.
- Wrightson, K. (2000). An introduction to acoustic ecology. *Soundscape: The Journal of Acoustic Ecology, 1*(1), 10-13.

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