

Continuity of Reflective Awareness Across Waking and Dreaming States

Ming-Ni Lee and Don Kuiken

University of Alberta

This study explored (a) the continuity between waking mindfulness and dream mindfulness and (b) the effects of dream mindfulness on subsequent waking thoughts and feelings. Results supported a modified version of the hypothesized cross-state continuity. Presleep mindfulness predicted a specific form of dream reflective awareness (the combination of intradream self-reflection and dual perspectives)—but only in mundane dreams. Also, dream mindfulness (the combination of intradream self-reflection, dual perspectives, and lucid mindfulness) predicted postdream increases in self-reflection—especially after transcendent dreams. Finally, transcendent dreams, which contained intradream self-reflection, were followed by reported spiritual transformation, whereas existential dreams, which also contained intradream self-reflection, were followed by reported self-perceptual depth. In sum, for ordinary dreams, presleep mindfulness is continuous with a modified form of dream reflective awareness; for transcendent dreams, intradream self-reflection may precipitate subsequent spiritual transformation; and, for existential dreams, intradream self-reflection may precipitate subsequent self-perceptual depth.

Keywords: impactful dreams, lucid dreaming, mindfulness, self-perceptual depth, spiritual transformation

According to Assagioli (1965, 1974), recognition that one's thoughts, feelings, desires, and so forth are owned by but not identical with the "true Self" is a turning point in the development of spiritual consciousness. Although such moments of "dis-identification" have sometimes been described in Western psychology (usually in other terms; e.g., Deikman, 1982; Frankl, 1969; Jung, 1933; Lilly, 1977; Rogers, 1980; Tart, 1975), they have been extensively studied in Eastern psychology (Hall & Lindzey, 1978; Kornfield, 2008; Lefebvre, 1992; Mikulas, 2007; Rinzler & Gordon, 1980; Taylor, 1988; Walsh, 1999; Welwood, 1996, 2000). In his attempt to

This article was published Online First April 20, 2015.

Ming-Ni Lee and Don Kuiken, Department of Psychology, University of Alberta.

Ming-Ni Lee is now at Department of Counseling and Clinical Psychology, National Dong Hwa University.

This research was supported in part by grants from the Social Sciences and Humanities Research Council (Canada) and from the DreamScience Foundation (in partnership with the International Association for the Study of Dreams).

Correspondence concerning this article should be addressed to Don Kuiken, Department of Psychology, University of Alberta, Edmonton, Alberta, Canada, T6G 2E9. E-mail: dkuiken@ualberta.ca

integrate these traditions, Wilber (1977, 1979) proposed that, in general, consciousness develops through a stepwise process in which a present (higher) consciousness incorporates but dis-identifies with a prior (lower) level of consciousness. In this way, progressively comprehensive forms of reflective awareness move toward self-transcendence.

Rossi (1985) has described a similar evolution of reflective awareness within dreams. Following Assagioli (1965), he proposed that dreams vary along a continuum from those lacking self-representation to those containing hierarchically structured forms of self-representation. At the highest level, for example, one self may participate in dream actions while another self simultaneously observes the participating self. Such hierarchically structured self-representation is “protolucid,” Rossi suggests, because the dreamer is not yet explicitly aware of dreaming while dreaming (the usual definition of lucidity). However, this hierarchical structure may predispose the dreamer not only to full lucidity within the dream but also to a comparably hierarchical form of reflective awareness after awakening from it.

In the present study, we examined whether commitment to a particular form of dis-identifying reflective awareness during waking (specifically, mindfulness) is continuous with comparably complex forms of reflective awareness during dreaming (specifically, intradream self-reflection, dual perspectives, and lucid mindfulness; Lee, 2010; Lee, Kuiken, & Czupryn, 2007). Also, we examined whether these complex forms of reflective awareness during dreaming are continuous with postdream reflective awareness. Finally, by studying these relationships among dreamers living with the effects of loss or trauma, we examined the processes by which complex forms of reflective awareness during dreaming contribute to posttraumatic growth (although these findings will be presented separately).

MINDFULNESS

Mindfulness, a form of reflective awareness central to all branches of Buddhism, involves “simply noticing” whatever arises in consciousness without “attachment.” This two-component characterization is perhaps the most common in the literature (Bishop et al., 2004). The first component, attentive awareness, entails persistently acknowledging whatever emerges in attention. Such awareness blends sustained attentiveness with the capacity to shift attention flexibly to whatever emerges in experience. The second component, “nonattachment,” entails open acceptance of whatever is simply noticed without dwelling on, elaborating, or evaluating what has emerged. Together these components of mindfulness constitute receptive attention—an open awareness to whatever is “given” in experience, including what is “given” as internal (e.g., bodily sensations, feelings, attitudes), what is “given” as external (e.g., perceived objects, actions, others), and the subjectivity of the “given-ness” itself (i.e., its “presence for me”).

The preceding two-component characterization of mindfulness can too easily be assimilated to constructs that refer only to part of the overall process. For example, receptive attention resembles openness to experience (Tellegen & Atkinson, 1974), awareness of what is “given” as internal resembles private self-consciousness (Fenigstein, Scheier, & Buss, 1975), and so on. Also, the

two-component characterization of mindfulness can too easily be assimilated to constructs that describe its potential outcomes, for example, disclosure of freshly altered meanings (Gendlin, 1997), autonomous self-functioning (Ryan & Deci, 2004). Nonetheless, one outcome of the process described in the two-component model is sufficiently integral to mindfulness to justify calling it a third component: the emergence of an acute sense of subjectivity itself. Specifically, receptive attention without attachment to whatever arises in consciousness progressively leads to dis-identification (Assagioli, 1965, 1974), that is, to recognition that receptive attention itself is embedded within an acute sense that whatever is present in experience is “present-for-me.” Attaining this acute sense of subjectivity, that is, this access to the implicit “mineness” of “pure” subject-less and object-less awareness (Thompson, 2014), constitutes self-transcendence.

The nuances of mindfulness, including its self-transcendent culmination, are deeply embedded in various cultural traditions and practices; the description of mindfulness seems to demand poetic rather than literal description; and the experiential intricacy of mindfulness exposes the limitations of objective “self-reports.” So, empirical access to the antecedents and effects of mindfulness remains a challenge. Nevertheless, the intent of the present study is to examine empirically (a) whether being mindful during waking predicts (and perhaps precipitates) complex forms of dream reflective awareness (intradream self-reflection, dual perspectives, and lucid mindfulness) and (b) whether these complex forms of dream reflective awareness, in turn, predict (and perhaps precipitate) increased mindfulness during subsequent waking.

Waking Reflective Awareness

There is now substantial evidence that waking (trait) mindfulness predicts physical health, emotion regulation, psychological well-being, and even social well-being (for reviews, see Brown, Ryan, & Creswell, 2007; Chambers, Gullone, & Allen, 2009; Keng, Smoski, & Robins, 2011). These findings suggest that (trait) mindfulness, understood as a stable commitment to engage in receptive, nonattached reflective awareness, contributes to physical, psychological, and social well-being. In the present study, we identified measures of three fairly stable and distinct forms of waking reflective awareness. In addition to *mindfulness*, as laid out in our three-component account, we also attempted to assess *self-reflection*, defined as open and sustained attention to personal thoughts, feelings, and activities, and *rumination*, defined as inflexibly repetitive attention to personal thoughts, feelings, and activities.

Among the available measures of mindfulness, the Freiburg Mindfulness Inventory (FMI; Walach, Buchheld, Buttenmüller, Kleinknecht, & Schmidt, 2006) most nearly reflects all three of its components—although this instrument’s factor structure remains unclear. On the other hand, the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) assesses mindfulness as a single factor—even though that factor arguably represents only one of its components (attentive awareness). Because they are brief, we used both scales in the present research.

To assess self-reflection and rumination, we chose Trapnell and Campbell’s (1999) Rumination-Reflection Questionnaire (RRQ). Their Reflection subscale,

but not their Rumination subscale, is positively correlated with internal state awareness (Fenigstein, Scheier, & Buss, 1975) and openness to experience (e.g., NEO-Openness). Conversely, the Rumination subscale, but not the Reflection subscale, is positively correlated with psychological distress (e.g., NEO-Neuroticism). Moreover, the Reflection subscale is not significantly correlated with the MAAS (Brown & Ryan, 2003), although its relationship with the FMI is not known. In sum, the RRQ indices of self-reflection and rumination are conceptually and (perhaps) empirically differentiable from mindfulness.

Differentiating between mindfulness (MAAS and FMI), self-reflection (RRQ-Reflection), and rumination (RRQ-Rumination) during waking adds specificity to our examination of the continuity between mindfulness during waking and dreaming. But, what measures of mindfulness during dreaming are best suited to the detection of such continuity?

Dream Reflective Awareness

Purcell, Moffitt, and Hoffmann's (1993) Dream Self-reflection Scale might seem an obvious choice because it relies heavily on Rossi's levels of reflective awareness. However, each "level" of reflective awareness in that scale (e.g., noticed anomalies, dual self-representation, explicit lucidity) may actually be an independently varying form of reflective awareness. To examine this possibility, Lee, Kuiken, and Czupryn (2007) created questionnaire items to reflect the multifaceted forms of reflective awareness described by Rossi (1985) and Purcell et al. (1993), as well as by a number of others (e.g., Barrett, 1992; Cicogna & Bosinelli, 2001; Green & McCreery, 1994; Kahan, LaBerge, Levitan, & Zimbardo, 1997; LaBerge & DeGracia, 2000; LaBerge & Gackenbach, 2000; Tulku, 2000). Exploratory factor analysis revealed a (replicable) factor structure that guided construction of the Dream Reflective Awareness Questionnaire (DRAQ). The DRAQ includes five factorially independent and internally consistent subscales that are readily interpreted as follows: (a) *lucid mindfulness*: a form of reflective awareness, analogous to waking mindfulness, involving explicit lucidity and detached acceptance of ongoing thoughts and feelings; (b) *dual perspectives*: a form of reflective awareness involving two separate and autonomous agents (e.g., two levels of self-representation); (c) *depersonalization*: a form of reflective awareness in which the dreamer's sense of self seems strange or unreal; (d) *intradream self-reflection*: a form of reflective awareness involving attention to personal thoughts, feelings, and activities within the dream (without explicit awareness of dreaming); and (e) *willed appearances*: a form of reflective awareness involving the emergence of dream objects or figures in response to the dreamer's wishes.

Kahan and Sullivan's (2012) Metacognitive, Affective, Cognitive Experience (MACE) Questionnaire has also been designed to assess reflective awareness during dreaming. However, whereas the MACE assesses forms of reflective awareness that are common to waking and dreaming (e.g., self-reflection), the DRAQ assesses some forms of reflective awareness that are distinctively present during dreaming (e.g., willed appearances). Also, whereas item development for the MACE was guided by a theory of metacognition, item development for the DRAQ was guided by a theory of mindfulness. So, in the present study, we used the

DRAQ to assess lucid mindfulness and two other forms of dream reflective awareness (intradream self-reflection, dual perspectives) that may anticipate—or even precipitate—lucid mindfulness.

Postdream Changes in Reflective Awareness

In tests of the continuity hypothesis (Domhoff, 2011; Hall & Nordby, 1972), presleep concerns (e.g., presleep concerns about aggressiveness) are usually considered the cause of subsequent dream content (e.g., dreams involving aggressive interaction); in contrast, dreaming is seldom considered the cause of subsequent waking concerns (e.g., postsleep concerns about aggressiveness). However, awakenings from REM sleep are followed by a brief period during which thinking is systematically altered (e.g., attention shifts more quickly to unexpected stimuli [Doricchi et al., 1991]; weak associations are more readily elicited [Stickgold, Scott, Rittenhouse, & Hobson, 1999]). Although such “carry-over effects” are usually considered informative about the preceding dream (or REM) mentation, they are also plausibly considered a form of waking mentation that has been induced by the preceding dream. By implication, just as dreaming is understood as continuous with—but a transformation of—presleep concerns, so also can concerns immediately after awakening be understood as continuous with—but a transformation of—dream mentation. To test this bidirectional version of the continuity hypothesis, changes from pre- to postsleep mindfulness ratings (using the FMI and MAAS) seem fitting measures of change in the waking commitment to engage in receptive, nonattached reflective awareness.

However, no empirical evidence is available to help determine the optimal interval following awakening for assessing the carry-over effects of self-identified impactful dreams (which are the focus of the present study). The carry-over effects of laboratory dreams last approximately 20 to 30 minutes, but the lingering effects of home-recorded impactful dreams on waking mood, motivation to change, spontaneous dream reminiscences, and so forth, have not, to our knowledge, been documented. Our informal impressions are that it is reasonable to assess the effects of dream reflective awareness on postdream mindfulness during the evening of the first day following the dream.

CONTINUITIES AND TRANSFORMATIONS

One persistent difficulty with the continuity hypothesis is that dreaming also *transforms* representations of the dreamer’s current concerns (Schredl, 2012). If a waking concern is “a latent state occasioned by a person’s commitment to a goal” that “continues until its consummation or abandonment” (Klinger & Cox, 2004, p. 66), dreams may generate enactive representations of personal commitments that are both similar to and different from their waking counterparts. Following this reasoning, concern-constituting commitments to engage in mindfulness during waking may become evident in dreams that enactively represent parts or components of overall mindfulness. Thus, presleep mindfulness may be represented in dreams that only enact intradream self-reflection or that only represent dual

perspectives (the hierarchically structured aspect of dis-identification), as well as in dreams that directly enact mindfulness (lucid mindfulness). Our first hypothesis, then, is that waking mindfulness (the FMI and MAAS) will predict (a) intradream self-reflection, dual perspectives, and lucid mindfulness (DRAQ subscales) and (b) the occurrence of dream types that contain proto-lucid dream features (intradream self-reflection and dual perspectives).

The continuity between dream reflective awareness and mindfulness *after* awakening may involve a complementary cross-state transformation. While presleep personal commitments to mindfulness may become manifest in dreams that enact parts or aspects of mindfulness, postsleep commitments to mindfulness may be accentuated when dreamed parts or aspects of mindfulness evoke mindfulness as a whole. Our second hypothesis, then, is that DRAQ indices of intradream self-reflection, dual perspectives, and lucid mindfulness will predict the accentuation of waking mindfulness after awakening (change scores on the FMI and MAAS).

DREAMS WITH PROTO-LUCID FEATURES

Our research design requires the identification of dream types in which proto-lucid features are regularly present. In a series of studies, Kuiken and his colleagues (Busink & Kuiken, 1996; Kuiken, Lee, Eng, & Singh, 2006; Kuiken & Sikora, 1993) systematically classified dreams according to their profiles of attributes. They identified three types of impactful dreams, each with distinctive feelings and emotions, motives and goals, sensory phenomena, movement characteristics, dream transitions, and dream endings: (a) *nightmares* involved fear, harm avoidance, auditory anomalies, vigorous activity, physical metamorphoses, and intense affect at the end (arousal); (b) *existential dreams* involved sadness and despair, separation, light/dark contrast, inhibition (fatigue), affective shifts, and intense affect at the end (enactment); and (c) *transcendent dreams* involved ecstasy and awe, magical success, extraordinary light, vigorous activity, shifts in perspective, and moderately intense affect at the end. *Mundane dreams*, in contrast, generally lacked all these features.

Potentially proto-lucid features (e.g., external self-observation, depersonalization) regularly occur in existential dreams and transcendent dreams (Busink & Kuiken, 1996; Kuiken & Sikora, 1993; Lee et al., 2007). For that reason, we expected that presleep waking mindfulness would predict the occurrence of these two dream types.

METHOD

Design Summary

During an initial laboratory session, participants completed baseline measures of waking reflective awareness (including mindfulness, self-reflection, and rumination). Then, during the following month, they described their first impactful dream (including intradream self-reflection, dual perspectives, and lucid mindfulness) and,

as soon as possible after awakening, the immediate effects of their impactful dream on waking thoughts and feelings. In the evening of that same day, they again completed the measures of waking reflective awareness.

Participants

Participants were initially recruited using information provided during mass testing in introductory psychology courses at the University of Alberta ($N = 3,617$). Students were eligible to participate in the first laboratory session (a) if, during the preceding year, they had remembered at least one dream per month, including at least one that affected their waking thoughts and feelings, and (b) if, during the preceding seven years, they had experienced either a significant loss or trauma (or neither of these).

Participants ($n = 178$) attending the first laboratory session described their loss and trauma histories more thoroughly, enabling the identification of individuals who had experienced loss or trauma (but not both) within the preceding 6 months, 6 to 24 months, or 3 to 7 years. (The results involving loss and trauma will be presented in a separate report.) After excluding those who did not complete all the research procedures, the data from 131 participants (60.3% female, 39.7% male, mean age = 19.97 years; ethnic background: 61.0% Euro-North American and European, 29.0% East and South Asian, 10.0% other) were included in the analyses.

Measures

Freiburg Mindfulness Inventory (FMI)

The 14-item FMI (Walach et al., 2006; Cronbach's alpha = .85) was used as one measure of mindfulness. The FMI includes items such as "I am open to the experience of the present moment" and "I am impatient with myself and with others" (reverse-scored).

Mindful Attention Awareness Scale (MAAS)

The 15-item MAAS (Brown & Ryan, 2003; Cronbach's alpha = .86) was used as a second measure of waking levels of mindfulness. The MAAS includes items such as "I find myself doing things without paying attention" (reverse-scored).

Rumination-Reflection Questionnaire (RRQ)

The 24-item RRQ (Trapnell & Campbell, 1999) was used to measure two other styles of waking reflective awareness (Rumination: Cronbach's alpha = .90; Reflection: Cronbach's alpha = .89). The Rumination subscale is composed of 12 items, such as "Long after an argument or disagreement is over with, my thoughts

keep going back to what happened” and “It is easy for me to put unwanted thoughts out of my mind” (reverse-scored). The Reflection subscale is also composed of 12 items, such as “My attitudes and feelings about things fascinate me” and “Contemplating myself isn’t my idea of fun” (reverse-scored).

Impactful Dream Report (IDR)

This form was designed to obtain reports of original dream experiences. Participants were asked to record a single impactful dream, that is, a dream that significantly influenced their thoughts and feelings after awakening (see below). They were asked to describe their dream as exactly and as fully as they could remember it, in their own words, and without interpretation or explanation. They were told to describe, if possible, the following: (a) all the objects, places, characters, and events in the dream; (b) the entire sequence of actions and events, from the beginning to the end of the dream; (c) their moment-to-moment thoughts and feelings, from the beginning to the end of the dream; and (d) any unusual, incongruous, or implausible dream thoughts, feelings, objects, places, characters, or events.

Impactful Dream Questionnaire (IDQ)

The 26-item IDQ is based on previous phenomenological studies of impactful dreams (i.e., Busink & Kuiken, 1996; Kuiken et al., 2006; Kuiken & Sikora, 1993). Items were designed to represent the feelings and emotions, motives and goals, sensory phenomena, movement characteristics, dream transitions, and dream endings that had previously distinguished three types of impactful dreams (e.g., “In my dream, I experienced the spontaneous emergence of clear and distinct feelings”; “In my dream, I repeatedly tried to avoid harm to myself or others”; “My dream involved unusual forms of or sources of light”).

Post-Dream Questionnaire (PDQ)

This questionnaire is composed of five subscales used previously to measure dream-induced changes in waking thoughts and feelings (Kuiken et al., 2006). It includes (a) a 4-item subscale measuring Self-Perceptual Depth (e.g., “After my dream, I felt sensitive to aspects of my life that I usually ignore”; Cronbach’s alpha = .63); (b) a 3-item subscale measuring Existential Disquietude (e.g., “After my dream, I began to reconsider my existential convictions”; Cronbach’s alpha = .80); (c) a 5-item subscale assessing Global Spiritual Potential (e.g., “After my dream, I felt a new sense of my spiritual potential”; Cronbach’s alpha = .78), (d) a 3-item subscale assessing Spiritual Release (e.g., “After my dream, I felt an inner freedom, a sense of liberation from life’s tangles and hindrances”; Cronbach’s alpha = .57), and (e) a 2-item subscale assessing Inclusive Enlivenment (e.g., “After my dream, I had the sense that all things [people, animals, plants, and even objects] were alive”; Cronbach’s alpha = .47).

Dream Reflective Awareness Questionnaire (DRAQ)

The 19-item DRAQ (Lee et al., 2007) measures five different forms of dream reflective awareness: (a) Lucid Mindfulness (e.g., “During my dream, I became aware that I was dreaming and I allowed dream events to unfold without influencing them in any way”; Cronbach’s alpha = .75); (b) Dual Perspectives (e.g., “During my dream, I became split into two parts; I was able to experience the dream world from either perspective”; Cronbach’s alpha = .74); (c) Depersonalization (e.g., “For at least a moment during my dream, it seemed that my ongoing thoughts were just ‘not me’”; Cronbach’s alpha = .64); (d) Intra-Dream Self-Reflection (e.g., “For at least a moment during my dream, I explicitly reflected on the way I was acting within the dream”; Cronbach’s alpha = .76); and (e) Willed Appearances (e.g., “On at least one occasion, when I thought about certain characters, places, or objects, they spontaneously appeared in my dream”; Cronbach’s alpha = .67).

Loss/Trauma Questionnaire (LTQ)

The 61-item LTQ (Eng, Kuiken, Temme, & Sharma, 2005) was used during the first laboratory session to obtain detailed information about participants’ loss and trauma history. It includes items that helped to determine (a) whether they had experienced significant loss or trauma, (b) how long ago their loss or trauma occurred, and (c) how severely their loss or trauma had affected them.

Procedure

At the beginning of the first laboratory session, participants were informed of the nature of the study, assured of the anonymity and confidentiality of their participation, and asked for written and informed consent. Then, participants completed the RRQ, MAAS, FMI, and LTQ. At the conclusion of this session, participants were told how to obtain access to the online research materials from their homes. Specifically, they were told how to record, immediately after awakening, the first impactful dream that they experienced after the initial session (i.e., the first dream that seemed at least as impactful as their most impactful dream during the preceding four weeks [one month]). Participants were instructed to record their impactful dreams (IDR) and to complete the related IDQ, DRAQ, and PDQ. Participants were allowed up to one month to report an impactful dream and complete these questionnaires.

For their final task, which was undertaken on the evening following the report of their impactful dream, participants completed the RRQ, MAAS, and FMI again. To ensure that participants completed the entire protocol, we monitored at what time each participant completed the initial lab session (pretest waking reflective awareness measures), the first home (morning) session (impactful dream report and dream reflective awareness measures), and the second home (evening) session (posttest waking reflective awareness measures). We removed from the analyses

those who did not complete the morning and evening sessions at the appropriate times.

Identifying Dream Types

Each reported dream was classified according to its similarity to the attribute profiles that define nightmares, existential dreams, transcendent dreams, and mundane dreams. Using results from previous classificatory studies (Busink & Kuiken, 1996; Kuiken et al., 2006; Kuiken & Sikora, 1993), Kuiken (2009) estimated the average attribute profile for each dream type, enabling use of a profile matching strategy to identify dream types in a new sample. Specifically, the squared Euclidean distances between each participant's IDQ response profile and the attribute profiles for all four dream types were calculated to determine which dream type profile was most similar to (least distant from) the reported dream. If, for example, the response profile of a reported dream was most similar to the transcendent dream profile, it was placed in that category. The 131 participants in our final sample reported 29 transcendent dreams, 30 nightmares, 39 existential dreams, and 33 mundane dreams.

RESULTS

Preliminary Analyses

Waking Mindfulness

We first examined evidence that mindfulness is empirically differentiable from self-reflection and rumination. Analysis of the (baseline) measures of waking reflective awareness indicated that (a) the FMI and MAAS were positively correlated, $r = .53, p < .001$, suggesting their close relationship (but not equivalence); (b) the FMI and MAAS were hardly at all correlated with RRQ-Reflection ($r_{\text{FMI}} = .17, p < .05$; $r_{\text{MAAS}} = -.03, ns$), affirming the distinction between mindfulness and self-reflection; and (c) the FMI and MAAS were negatively correlated with RRQ-Rumination ($r_{\text{FMI}} = -.51, p < .001$; $r_{\text{MAAS}} = -.61, p < .001$), supporting the contrast between mindfulness and rumination. In sum, mindfulness (the FMI and MAAS) seems empirically differentiable from self-reflection (RRQ-Reflection) and rumination (RRQ-Rumination).

Dream Types and Mindfulness

We also confirmed that transcendent dreams and existential dreams regularly contain the DRAQ measures of the hypothetically "proto-lucid" components of mindfulness (see Table 1). One-way ANOVAs with dream type as the independent variable confirmed that both intradream self-reflection and dual perspectives occurred more often in transcendent and existential dreams than in mundane dreams. Also, transcendent dreams (but not existential dreams) were more likely to

Table 1. Mean Scores for Dream Mindfulness as a Function of Dream Type

Dream mindfulness	Mundane dreams ($n = 33$)	Transcendent dreams ($n = 29$)	Nightmares ($n = 30$)	Existential dreams ($n = 39$)
Lucid mindfulness	0.88 ^a	1.41 ^b	0.48 ^a	0.81 ^a
Intra-dream self-reflection	1.27 ^a	1.99 ^b	1.19 ^a	1.81 ^b
Dual perspectives	0.33 ^a	1.29 ^b	0.69 ^{ab}	1.05 ^b
Simple dream reflexivity	0.80 ^a	1.63 ^b	0.94 ^a	1.43 ^b
Dream mindfulness (composite)	-0.01	0.36	0.06	0.42

Note. Means with different superscripts within rows differ significantly from each other ($p < .05$; LSD).

involve lucid mindfulness. Finally, we created a composite index of dream mindfulness (the interactive combination [i.e., the cross-product of the centered scores] of intradream self-reflection, dual perspectives, and lucid mindfulness), although this composite index of mindfulness did not significantly differ across dream types.

Waking Mindfulness and Dream Mindfulness

We initially assessed the continuity between presleep mindfulness and dreaming mindfulness using a two factor ANOVA in which our interactive index of dream mindfulness (continuous) and dream type (categorical) were between-subjects variables and presleep mindfulness (FMI, MAAS) was the dependent variable. Although ANOVAs involving categorical variables are usually considered appropriate for experimental designs involving random assignment to condition, the general linear model (e.g., GLM in SPSS), with appropriate model specification, is also suited to examination of the effects of categorical variables that do not result from random assignment to condition. Moreover, the selection of and calculation of beta values from the output of an appropriately executed ANOVA with categorical and continuous variables provides results identical to the partial correlations that result from multiple regression models (e.g., in SPSS).

When this model involving our interactive index of dream mindfulness failed for both the FMI and MAAS measures, we explored alternative measures of reflective awareness during dreaming. Specifically, we created a simpler measure of what might be called dream reflexivity from the average of DRAQ intradream self-reflection and dual perspectives scores. Replacing dream mindfulness with dream reflexivity in the preceding model provided a dream type main effect, $F(3, 123) = 2.75, p = .045$. That is, presleep mindfulness was greater among mundane dreamers ($M = 2.51$) than among transcendent dreamers ($M = 2.15, p = .051$), existential dreamers ($M = 2.19, p = .047$), and nightmare dreamers ($M = 2.04, p = .006$). Moreover, a dream type by dream reflexivity interaction, $F(3, 123) = 4.14, p = .008$, indicated that, specifically among those reporting mundane dreams, dream reflexivity predicted presleep FMI scores ($\beta = .61, p = .007$). We found no comparable effects when the MAAS was used as the predicted measure of presleep mindfulness.

In sum, dream type moderated a positive relationship between presleep mindfulness and dream reflexivity in the mundane dreams condition. Unexpected-

edly, the positive correlation between presleep mindfulness and dream reflexivity was significant only among mundane dreams.

Dream Mindfulness and Changes in Waking Mindfulness

Hypothesized Effects

Similarly, we assessed the continuity between dream mindfulness and pre- to postdream changes in mindfulness using a two-factor ANOVA in which our interactive index of dream mindfulness (continuous) and dream type (categorical) were between subject variables and pre- to postdream changes in FMI and MAAS scores were the dependent variables. However, neither dream mindfulness, dream type, nor their interaction predicted pre- to postdream changes in either the FMI or MAAS scores. Nonetheless, extending this model to predict pre- to postdream changes in RRQ-Reflection was more fruitful. A significant dream mindfulness main effect, $F(1, 123) = 3.92, p = .050$, indicated that the interactive combination of intradream self-reflection, dual perspectives, and lucid mindfulness was correlated with pre- to postdream increases in RRQ-Reflection ($\beta = .16, p = .067$). Although the dream mindfulness by dream type interaction was not significant, it should be noted that this correlation was significant among transcendent dreams ($\beta = .44, p = .010$) and neither among mundane dreams ($\beta = .15, ns$), nightmares ($\beta = .25, ns$), nor existential dreams ($\beta = .11, ns$).

Extensions of this two-factor model to changes in RRQ-Rumination produced no significant effects. Also, lucid control (“During my dream, I became aware that I was dreaming and I chose to change dream events in the way I wanted to”) did not contribute to prediction of pre- to postdream changes in RRQ-Reflection. That is, when lucid control replaced lucid mindfulness in the preceding two-factor model, the interactive combination of intradream self-reflection, lucid control, and dual perspectives did not predict pre- to postdream changes in increases in RRQ-Reflection.

In sum, dream mindfulness (but not lucid dream control) predicted changes in waking self-reflection, rather than in waking mindfulness. This relationship was most clearly evident for transcendent dreams.

Other Forms of Dream Impact

Pre- to postdream changes in waking reflective awareness might be expected to accompany other forms of dream impact (e.g., spiritual potential, self-perceptual depth). Extension of our two-factor model to other forms of dream impact suggests that separate *components* of dream mindfulness facilitate spiritual transformation. That is, we examined the decomposition of dream mindfulness by using a three-factor ANOVA in which intradream self-reflection, dual perspectives, and lucid mindfulness were treated as separate between subject variables (with dream type as a covariate). Using this model with spiritual potential as the dependent variable, we found a significant effect for intradream self-reflection, $F(1, 120) = 8.01, p = .005$; intradream self-reflection was positively correlated with postdream

spiritual potential ($\beta = .26$). Similarly, with spiritual release as the dependent variable, we found a significant effect for intradream self-reflection, $F(1, 120) = 9.51, p = .003$; intradream self-reflection was positively correlated with postdream spiritual release ($\beta = .27$). Finally, with inclusive enlivenment as the dependent variable, we found a significant effect for lucid mindfulness, $F(1, 113) = 4.88, p = .029$; lucid mindfulness was positively correlated with inclusive enlivenment ($\beta = .24$). In sum, intradream self-reflection predicted (and perhaps facilitated) both spiritual potential and spiritual release, whereas lucid mindfulness predicted (and perhaps facilitated) inclusive enlivenment.

Intradream self-reflection also played a role in the facilitation of self-perceptual depth. With self-perceptual depth as the dependent variable, we found a significant main effect for intradream self-reflection, $F(1, 120) = 30.36, p < .001$ ($\beta = .48$). Similarly, with existential disquietude as the dependent variable, we found a significant main effect for intradream self-reflection, $F(1, 120) = 13.40, p < .001$ ($\beta = .33$). In sum, intradream self-reflection predicted (and perhaps facilitated) both self-perceptual depth and existential disquietude.

Effects of Dream Type

Dream type was consistently a factor in the prediction of the forms of dream impact measured in the present study. As summarized in Table 2, one-way ANOVAs with dream type as the independent variable indicated that self-reported spiritual potential and spiritual release were greater after transcendent dreams than after mundane dreams, nightmares, and existential dreams. Also, self-perceptual depth and existential disquietude were greater after existential dreams than after mundane dreams, although existential disquietude was also greater after transcendent dreams than after mundane dreams. In general these observations mirror those obtained in previous studies (e.g., Kuiken et al., 2006).

DISCUSSION

The results of this study confirmed that waking mindfulness (as measured by the FMI and MAAS) is a distinct form of waking reflective awareness. Both of these measures of mindfulness were largely unrelated to self-reflection (as measured by RRQ-Reflection), and both were inversely related to rumination (as

Table 2. Mean Scores for Dream Impact as a Function of Dream Type

Dream impact	Mundane dreams (<i>n</i> = 33)	Transcendent dreams (<i>n</i> = 29)	Nightmares (<i>n</i> = 30)	Existential dreams (<i>n</i> = 39)
Self-perceptual depth	1.01 ^a	1.38 ^{ab}	1.33 ^{ab}	1.62 ^b
Existential disquietude	0.34 ^a	0.92 ^b	0.68 ^{ab}	0.95 ^b
Spiritual potential	0.11 ^a	0.75 ^b	0.26 ^a	0.29 ^a
Spiritual release	0.34 ^a	0.96 ^b	0.33 ^a	0.39 ^a
Inclusive enlivenment	0.19 ^a	0.77 ^b	0.72 ^b	0.58 ^b

Note. Means with different superscripts within rows differ significantly from each other ($p < .05$; LSD).

measured by RRQ-Rumination). So, assessing the continuity between waking and dreaming reflective awareness plausibly requires *separate* consideration of each of these three forms of reflective awareness—both during waking and during dreaming. Thus, it might be expected that mindfulness during waking would predict mindfulness during dreaming, that self-reflection during waking would predict self-reflection during dreaming, and that rumination during waking would predict ruminative thinking during dreaming.

But, these expectations are complicated by factors that go beyond such a tripartite decomposition of reflective awareness. First, assessing the continuity between waking and dreaming is a challenge because the incorporation of waking thoughts and concerns into dreaming regularly involves transformation of the former into the latter (e.g., “metaphoric” incorporations) (cf. Hoelscher, Klinger, & Barta, 1981). Second, some forms of reflective awareness occur during dreaming but have no common counterparts during wakefulness (e.g., willed appearances). Third, perhaps for these reasons, evidence for continuity between trait-like individual differences (e.g., personality traits) and dream content is meager at best (cf. Domhoff, 2011).

Waking Mindfulness and Dream Reflexivity

Nonetheless, the present results are compatible with a *modified* version of the hypothesized continuity of reflective awareness across dreaming and waking states. Although we found no evidence of a direct relationship between mindfulness during waking and mindfulness during dreaming, we did find a relationship between waking mindfulness (as measured by the FMI) and an index of dream reflexivity (the average of the dual perspectives and intradream self-reflection scores). This index may reflect what Rossi (1985) described as follows: “the dreamer is present as an observer in the dream but takes no active part in its drama.” This form of cross-state continuity was circumscribed in yet another way: the correlation between waking mindfulness and our index of dream reflexivity was specific to mundane dreams.

In general, mundane dreams involved low levels of reflective awareness (see Table 1), but they did not simply and uniformly lack reflective awareness. For example, in one mundane dream, a rather complex reflexive stance seemed to transcend spatial and temporal separation: the dreamer reported dreaming about being in bed but somehow still able to see and hear what was going on somewhere beside a cliff that had been present in an earlier dream episode. Thus, the dreamer seemed to be “viewing” the cliff scene not only from a spatial distance (not near her bed) but also a temporal distance (in the dream past).

Another mundane dream manifested an interpersonal (rather than spatial) separation but it similarly had a temporal component:

I was at my old high school, visiting, and saw the mother of my ex–best friend, who I have had a huge falling out with. She told me that they got a new puppy, and their cats and other dog really misses me, as well as the ex-friend’s sisters. I was told that the ex-friend is not home, and I should visit now. I took a detour and dropped my things off at my house, and arrived at the friend’s house without the mother. I rang the door bell, and the youngest sister of the friend opened the door, but didn’t make a sound. Just as I was about to call out a greeting, the friend walked out of the hallway perpendicular to the

door, as if going to get it, and saw me. In the dream, it has been about three or four months since the friend and I have stopped talking and completely avoided each other. When she saw me, her eyes started getting teary and she reached out as if to hug me. I don't remember if she said, "I'm sorry too." or something along the lines of thinking I was there to apologize, but I knew that was what she thought I was doing, so I stepped back, out of the reach of her hug and said, "I'm not here for you." She started crying and stood and stared at me for a while before going back to her room. Her sister looked at me, not accusingly but sad and resigned. I was still invited in, and after playing with her pets for a while, and joking with the sisters, I left.

In this dream, although the dreamer visited an ex-friend's home, she was not intending to resume that broken friendship. Her unattached acceptance of how things had been and readiness to let things go suggests a high level of reflexivity.

Perhaps the types of "nonattachment" evident in these two mundane dreams are a manifestation of mindfulness: a passing or past moment is recognized and acknowledged—without becoming a preoccupation. Both reflect a form of nonattachment/detachment that is distinguishable from dissociation, which suggests suppression or repression. But, if so, are these reflexive dreams truly "mundane"? Although mundane dreams are not impactful in the same dramatic sense as existential dreams, transcendent dreams and nightmares, neither are they without import for the dreamer. All participants in the present study were asked to identify a dream that was as impactful as the most impactful dream they could recall from the preceding month; thus, the dreams they reported were still probably more impactful than, for example, dream reports gathered from systematic awakenings in a sleep laboratory. In other words, the interaction between dream type and dream reflexivity that followed presleep mindfulness should take into account that some mundane dreams were nonetheless "exceptional."

Dream Mindfulness and Changes in Waking Self-Reflection

Although the sources of mindfulness during dreaming were apparently not the dreamers' prior waking commitments to mindfulness, dream mindfulness (whatever its sources) nonetheless anticipated (and perhaps altered) subsequent waking reflective awareness. Specifically, dream mindfulness, perhaps especially in transcendent dreams, predicted pre- to postdream changes in waking self-reflection (as measured by RRQ-Reflection). It is significant that the index of dream mindfulness predicting pre- to postdream changes in waking self-reflection was the interactive combination of intradream self-reflection, dual perspectives, and lucid mindfulness that we described in the introduction. The specific components of our index of dream mindfulness matter: the effect of dream mindfulness on changes in waking self-reflection was *not* evident when *lucid mindfulness* was replaced by *lucid control* (i.e., when the predictor was the interactive combination of intradream self-reflection, dual perspectives, and lucid control). This contrast reinforces the notion that the culture-specific emphasis on lucid control rather than lucid mindfulness (see Tedlock, 2004) matters precisely because the latter but not the former facilitates the "power" of subsequent waking self-reflectiveness.

And yet, the effect of dream mindfulness in the present study was limited to the "power" of increased waking self-reflection. The interaction of dream mindful-

ness and dream type did *not* predict postdream reports of spiritual potential, spiritual release, or inclusive enlivenment; neither did the interaction of dream mindfulness and dream type predict postdream reports of self-perceptual depth or existential disquietude. Instead, dream type was the most robust predictor of these spiritually and personally transformative effects—even though the separate components of dream mindfulness, rather than dream mindfulness per se, apparently contribute to—and perhaps mediate—aspects of them.

Reflective Awareness and Impactful Dreams

Although our index of dream mindfulness (the interactive combination of intradream self-reflection, dual perspectives, and lucid mindfulness) was not differentially distributed across dream types, the three components of dream mindfulness were. The present results affirm that both transcendent dreams and existential dreams contain two hypothetically “proto-lucid” features. First, dual perspectives (dual self-representations) were more common in transcendent dreams and existential dreams than in mundane dreams, replicating a pattern previously observed by Lee et al. (2007). Similarly, Kuiken and colleagues (Busink & Kuiken, 1996; Kuiken, 2009; Kuiken & Sikora, 1993) found that “external self-observation” is more prevalent in transcendent dreams and existential dreams than in mundane dreams.

Second, we found that intradream self-reflection, reflection on the thoughts, feelings, and actions unfolding *within* the dream (cf. Kahan & LaBerge, 2011) was more common in transcendent dreams and existential dreams than in mundane dreams and nightmares. Kahan (personal communication) has indicated that she has similarly observed that “significant” dreams contain evidence of more metacognition. This pattern is of particular importance because, independently of dream type, intradream self-reflection predicted the spiritual potential and spiritual release that reportedly follow transcendent dreams and the self-perceptual depth and existential disquietude that reportedly follow existential dreams. Although the association between transcendent dreams and spiritual transformation and the association between existential dreams and self-perceptual depth have been reported previously (cf. Kuiken et al., 2006), the present study points to intradream self-reflection as a potential mediator of these relationships.

Finally, we found that transcendent dreams were associated with lucid mindfulness, providing empirical evidence of a *distinctive* association between lucid mindfulness and transcendent (or archetypal) dreams (Hunt, 1991; Spadafora & Hunt, 1990). This is perhaps the first study with a sufficient sample size to detect this difference, which may explain the (marginally significant) evidence that lucid mindfulness predicts (and may precipitate) increased self-reflection specifically following transcendent dreams. Replication and consolidation of this finding may help explain the continued attention given to dreams in mindfulness meditative traditions. The lucid mindfulness of transcendent dreams may support the continuing self-reflection that, with proper training, can evolve into self-transcending reflective awareness (cf. Gackenbach & Bosveld, 1989).

Some Qualifications

The pattern of results involving waking mindfulness depended entirely on the FMI, rather than the MAAS. One reason may be that the items in the MAAS more nearly reflect concentration than mindfulness (see Mikulas, 2007); another may be that numerous reverse-scored items on the MAAS elicit contaminating self-criticism (Bergomi, Tschacher, & Kupper, 2013). But the FMI is not ideal either; participants from a university student sample may consider the terminology describing mindfulness as reference to an esoteric meditative discipline (Bergomi et al., 2013). The resulted restricted variance may preclude detection of correspondence between mindfulness during dreaming and mindfulness during waking. Perhaps continuities in mindfulness across dreaming and waking states will require study of more informed research populations (e.g., novice and experienced meditators).

Conclusion

Despite these limitations, the present results are compatible with a modified version of the hypothesized cross-state continuity. Presleep mindfulness predicted a specific form of dream reflective awareness (the combination of intradream self-reflection and dual perspectives)—although only in mundane dreams. Dream mindfulness (the interactive combination of intradream self-reflection, dual perspectives, and lucid mindfulness) predicted postdream increases in self-reflection—especially after transcendent dreams. Finally, transcendent dreams, which contained high levels of intradream self-reflection, were followed by reported spiritual potential and spiritual release, whereas existential dreams, which also contained high levels of intradream self-reflection were followed by reported self-perceptual depth and existential disquietude. Closer examination of the continuities and discontinuities that mediate these dream effects seems warranted.

REFERENCES

- Assagioli, R. (1965). *Psychosynthesis: A manual of principles and techniques*. New York, NY: Hobbs, Dorman.
- Assagioli, R. (1974). Jung and psychosynthesis. *Journal of Humanistic Psychology, 14*, 35–55. <http://dx.doi.org/10.1177/002216787401400104>
- Barrett, D. (1992). Just how lucid are lucid dreams? *Dreaming, 2*, 221–228. <http://dx.doi.org/10.1037/h0094362>
- Bergomi, C., Tschacher, W., & Kupper, Z. (2013). The assessment of mindfulness with self-report measures: Existing scales and open issues. *Mindfulness, 4*, 191–202. <http://dx.doi.org/10.1007/s12671-012-0110-9>
- Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., . . . Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice, 11*, 230–241. <http://dx.doi.org/10.1093/clipsy.bph077>
- 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*, 822–848. <http://dx.doi.org/10.1037/0022-3514.84.4.822>
- Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*, 211–237. <http://dx.doi.org/10.1080/10478400701598298>
- Busink, R., & Kuiken, D. (1996). Identifying types of impactful dreams: A replication. *Dreaming, 6*, 97–119. <http://dx.doi.org/10.1037/h0094449>

- Chambers, R., Gullone, E., & Allen, N. B. (2009). Mindful emotion regulation: An integrative review. *Clinical Psychology Review, 29*, 560–572. <http://dx.doi.org/10.1016/j.cpr.2009.06.005>
- Cicogna, P. C., & Bosinelli, M. (2001). Consciousness during dreams. *Consciousness and Cognition, 10*, 26–41. <http://dx.doi.org/10.1006/ccog.2000.0471>
- Deikman, A. J. (1982). *The observing self: Mysticism and psychotherapy*. Boston, MA: Beacon Press.
- Domhoff, G. W. (2011). Dreams are embodied simulations that dramatize conceptions and concerns: The continuity hypothesis in empirical, theoretical, and historical context. *International Journal of Dream Research, 4*, 50–62.
- Doricchi, F., Ippoliti, C., Braibanti, P., Violani, C., Hobson, J. A., & Bertini, M. (1991). Behavioral states and selective attention: Preliminary evidence for a deficit in maintenance of attentional focus upon REM awakenings [abstract]. *Sleep Research, 20*, 140.
- Eng, T. C., Kuiken, D., Temme, K., & Sharma, R. (2005). Navigating the emotional complexities of two cultures: Bicultural competence, feeling expression, and feeling change in dreams. *Journal of Cultural and Evolutionary Psychology, 3*, 267–285. <http://dx.doi.org/10.1556/JCEP.3.2005.3-4.4>
- Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self-consciousness: Assessment and theory. *Journal of Consulting and Clinical Psychology, 43*, 522–527. <http://dx.doi.org/10.1037/h0076760>
- Frankl, V. E. (1969). *The doctor and the soul: From psychotherapy to logotherapy*. New York, NY: Bantam Books.
- Gackenbach, J., & Bosveld, J. (1989). *Control your dreams*. New York, NY: Harper & Row.
- Gendlin, E. T. (1997). *A process model*. Spring Valley, NY: The Focusing Institute.
- Green, C., & McCreery, C. (1994). *Lucid dreaming: The paradox of consciousness during sleep*. New York, NY: Routledge.
- Hall, C. S., & Lindzey, G. (1978). *Theories of personality*. Oxford, England: Wiley.
- Hall, C., & Nordby, V. (1972). *The individual and his dreams*. New York, NY: New American Library.
- Hoelscher, T., Klinger, E., & Barta, S. (1981). Incorporation of concern- and nonconcern-related verbal stimuli into dream content. *Journal of Abnormal Psychology, 90*, 88–91. <http://dx.doi.org/10.1037/0021-843X.90.1.88>
- Hunt, H. (1991). Lucid dreaming as a meditative state: Some evidence from long-term meditators in relation to the cognitive-psychological bases of transpersonal phenomena. In J. Gackenbach & A. A. Sheikh (Eds.), *Dream images: A call to mental arms*. Amityville, NY: Baywood.
- Jung, C. G. (1933). *Modern man in search of a soul*. San Diego, CA: Harcourt.
- Kahan, T. L., & LaBerge, S. P. (2011). Dreaming and waking: Similarities and differences revisited. *Consciousness and Cognition, 20*, 494–514. <http://dx.doi.org/10.1016/j.concog.2010.09.002>
- Kahan, T. L., LaBerge, S., Levitan, L., & Zimbardo, P. (1997). Similarities and differences between dreaming and waking cognition: An exploratory study. *Consciousness and Cognition, 6*, 132–147. <http://dx.doi.org/10.1006/ccog.1996.0274>
- Kahan, T. L., & Sullivan, K. T. (2012). Assessing metacognitive skills in waking and sleep: A psychometric analysis of the Metacognitive, Affective, Cognitive Experience (MACE) questionnaire. *Consciousness and Cognition, 21*, 340–352. <http://dx.doi.org/10.1016/j.concog.2011.11.005>
- Keng, S.-L., Smoski, M. J., & Robins, C. J. (2011). Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review, 31*, 1041–1056. <http://dx.doi.org/10.1016/j.cpr.2011.04.006>
- Klinger, E., & Cox, W. M. (2004). Motivation and the theory of current concerns. In W. M. Cox & E. Klinger (Eds.), *Handbook of motivational counseling* (pp. 3–27). Chichester, UK: Wiley.
- Kornfield, J. (2008). *The wise heart: A guide to the universal teachings of Buddhist psychology*. New York, NY: Bantam Books.
- Kuiken, D. (2009). *Criteria for the classification of impactful dreams: Existential dreams, nightmares, and transcendent dreams*. Paper presented at the 26th annual conference of the International Association for the Study of Dreams, Chicago, IL.
- Kuiken, D., Lee, M.-N., Eng, T., & Singh, T. (2006). The influence of impactful dreams on self-perceptual depth and spiritual transformation. *Dreaming, 16*, 258–279. <http://dx.doi.org/10.1037/1053-0797.16.4.258>
- Kuiken, D., & Sikora, S. (1993). The impact of dreams on waking thoughts and feelings. In A. Moffitt, M. Kramer, & R. Hoffmann (Eds.), *The functions of dreaming*. Albany, NY: SUNY.
- LaBerge, S., & DeGracia, D. J. (2000). Varieties of lucid dreaming experience. In R. G. Kuzendorf & B. Wallace (Eds.), *Individual differences in conscious experience* (pp. 269–307). Amsterdam, The Netherlands: John Benjamins. <http://dx.doi.org/10.1075/aicr.20.14lab>
- LaBerge, S., & Gackenbach, J. (2000). Lucid dreaming. In E. Cardena, S. J. Lynn, & S. Krippner (Eds.), *Varieties of anomalous experience: Examining the scientific evidence* (pp. 151–182). Washington, DC: American Psychological Association. <http://dx.doi.org/10.1037/10371-005>
- Lee, M.-N. (2010). *Reflective awareness in dreams following loss and trauma* (PhD dissertation). University of Alberta, Edmonton, Alberta, Canada.
- Lee, M.-N., Kuiken, D., & Czupryn, J. (2007). *Reflective awareness in impactful dreams and dream-induced changes*. Paper presented at the 24th annual conference of the International Association for the Study of Dreams, Sonoma, CA.

- Lefebvre, A. (1992). *Transpersonal psychology: A new paradigm for psychology*. Taipei, Taiwan: Guei-Guan.
- Lilly, J. C. (1977). *The deep self: Profound relaxation and the tank isolation technique*. New York, NY: Warner.
- Mikulas, W. L. (2007). Buddhism & western psychology: Fundamentals of integration. *Journal of Consciousness Studies*, *14*, 4–49.
- Purcell, S., Moffitt, A., & Hoffmann, R. (1993). Waking, dreaming, and self-regulation. In A. Moffitt, M. Kramer, & R. Hoffmann (Eds.), *The functions of dreaming*. Albany, NY: SUNY.
- Rinzler, C., & Gordon, B. (1980). Buddhism and psychotherapy. In G. Epstein (Ed.), *Studies in non-deterministic psychology*. New York, NY: Human Sciences Press.
- Rogers, C. R. (1980). *A way of being*. Boston, MA: Houghton Mifflin.
- Rossi, E. (1985). *Dreams and the growth of personality*. New York, NY: Brunner/Mazel.
- Ryan, R. M., & Deci, E. L. (2004). Autonomy is no illusion: Self-Determination Theory and the empirical study of authenticity, awareness, and will. In J. Greenberg, S. Koole, & T. Pyszczynski (Eds.), *Handbook of experimental existential psychology* (pp. 449–479). New York, NY: Guilford Press.
- Schredl, M. (2012). Continuity in studying the continuity hypothesis of dreaming is needed. *International Journal of Dream Research*, *5*, 1–8.
- Spadafora, A., & Hunt, H. T. (1990). The multiplicity of dreams: Cognitive-affective correlates of lucid, archetypal, and nightmare dreaming. *Perceptual and Motor Skills*, *71*, 627–644. <http://dx.doi.org/10.2466/pms.1990.71.2.627>
- Stickgold, R., Scott, L., Rittenhouse, C., & Hobson, J. A. (1999). Sleep-induced changes in associative memory. *Journal of Cognitive Neuroscience*, *11*, 182–193. <http://dx.doi.org/10.1162/089892999563319>
- Tart, C. (1975). *Transpersonal psychologies*. New York, NY: Harper & Row.
- Taylor, E. (1988). Contemporary interest in classical eastern psychology. In A. C. Paranjpe, D. Y. F. Ho, & R. W. Rieber (Eds.), *Asian contributions to psychology* (pp. 79–119). New York, NY: Praeger.
- Tedlock, B. (2004). The poetics and spirituality of dreaming: A Native American enactive theory. *Dreaming*, *14*, 183–189. <http://dx.doi.org/10.1037/1053-0797.14.2-3.183>
- Tellegen, A., & Atkinson, G. (1974). Openness to absorbing and self-altering experiences (“absorption”), a trait related to hypnotic susceptibility. *Journal of Abnormal Psychology*, *83*, 268–277. <http://dx.doi.org/10.1037/h0036681>
- Thompson, E. (2014). *Waking, dreaming, being: Self and consciousness in neuroscience, meditation, and philosophy*. New York, NY: Columbia University Press.
- Trapnell, P. D., & Campbell, J. D. (1999). Private self-consciousness and the five-factor model of personality: Distinguishing rumination from reflection. *Journal of Personality and Social Psychology*, *76*, 284–304. <http://dx.doi.org/10.1037/0022-3514.76.2.284>
- Tulku, T. (2000). Lucid dreaming: Exerting the creativity of the unconscious. In G. Watson, S. Batchelor, & G. Claxton (Eds.), *The psychology of awakening: Buddhism, science, and our day-to-day lives*. York Beach, ME: Samuel Weiser.
- Walach, H., Buchheld, N., Büttenmüller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness—The Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences*, *40*, 1543–1555. <http://dx.doi.org/10.1016/j.paid.2005.11.025>
- Walsh, R. (1999). Asian contemplative disciplines: Common practices, clinical applications, and research findings. *Journal of Transpersonal Psychology*, *31*, 83–107.
- Welwood, J. (1996). Reflection and presence: The dialectic of self-knowledge. *Journal of Transpersonal Psychology*, *28*, 107–128.
- Welwood, J. (2000). Reflection and presence: The dialectic of awakening. In T. Hart, P. L. Nelson, & K. Puhakka (Eds.), *Transpersonal knowing: Exploring the horizon of consciousness*. Albany, NY: SUNY Press.
- Wilber, K. (1977). *The spectrum of consciousness*. Wheaton, IL: Theosophical Pub. House.
- Wilber, K. (1979). A developmental view of consciousness. *Journal of Transpersonal Psychology*, *11*, 1–21.