

COMMENTARY

**A Proposal That Does Not Advance
Our Understanding of Hypnosis**

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Abstract—In his paper *Hypnosis Reconsidered, Resituated, and Redefined* (*JSE* 26(2):297–327), Adam Crabtree, a distinguished expert in the history of hypnosis, maintains that contemporary hypnosis research suffers from conceptual disorder. In his words, he attempts to redefine hypnosis in order to provide a stronger ground for future research. We find that his proposed reconsideration of hypnosis as a form of “trance” characterized by a focus on internal stimuli and involving the recruitment of appropriate subliminal resources is neither novel nor helpful to our current understanding of hypnosis. Among the problems we find with his paper is that it is conceptually unclear and is not informed by current research and theory; for instance, it disregards well-established findings such as individual differences in responsiveness to hypnosis and the importance of suggestion for the elicitation of hypnotic phenomena. Historical knowledge of a field is invaluable but is alone insufficient to understand its current status or propose pathways for future research and theory.

Keywords: hypnosis—trance—suggestion

Adam Crabtree is a distinguished historian of hypnosis who has made a number of important contributions to this area including a thorough bibliography of early research on animal magnetism, hypnosis, and putative psi phenomena (Crabtree 1988, see also Dingwall 1967–1968), and a scholarly work on the history of animal magnetism (Crabtree 1993). We believe that knowledge of a field’s history can greatly aid one’s understanding of contemporary issues and controversies (for an excellent example see Laurence and Perry 1988), and it is with this in mind that we looked forward to Crabtree’s (2012) proposal on the need to redefine

hypnosis. However, his historical expertise covering up to the first half of the 20th century does not serve him well when commenting on the current status of hypnosis theory and research. Indeed, we are troubled that Crabtree by and large did not attempt to integrate his musings with contemporary research and theory. In what follows we describe our principal concerns with his ideas and outline why his proposal does not advance our current understanding of hypnosis.

History of Hypnosis

Before delving into the substance of his proposal for a new definition of hypnosis, a couple of comments on his summary of the history of hypnosis are worthy of brief mention. By necessity, Crabtree had to limit his coverage of historical issues, but it is worth reminding the reader of this *Journal* that probably the first examples of controlled, masked trials to evaluate a clinical treatment occurred in the context of testing Mesmer's theory of animal magnetism (Best 2004). One of them consisted in "magnetizing" one of the five trees in Benjamin Franklin's garden. A susceptible patient was brought to the line of trees and promptly became magnetized when in the vicinity of the "wrong" (control) trees. This simple experiment demonstrated that the individual's own beliefs and expectations, and not the putative magnetic fluid, caused his responses. More than 200 years later there are still researchers of complementary and alternative treatments and similar phenomena who fail to include basic controls for demand characteristics and experimenter and placebo effects.

The second comment involves an imprecise account of one of Martin T. Orne's contributions to hypnosis. His development of the simulating control group, in which un hypnotizable participants are instructed to feign the role of a "hypnotized" person, was not to identify "the genuine presence of hypnosis, as opposed to simulation" (Crabtree 2012:302), but

to recognize which aspects of a S's response, if any, were due to hypnosis, as opposed to those that were the result of a combination of the S's prior knowledge and expectations in conjunction with cues provided by the situation. (Orne 1979:523)

Trance

In his proposal Crabtree seeks the "essence" of hypnosis, an attempt that has eminent precedents (e.g., Orne 1959, Weitzenhoffer 1980). His central thesis is that contemporary hypnosis research is in a state of disorder because of unresolved conceptual issues regarding the way in which hypnosis is defined. We firmly disagree that the field is best characterized

in this way, and we note that considerable progress has been made in integrating the positions of rival factions in the hypnosis community (e.g., Lynn & Green 2011). Crabtree sets himself the goal of overcoming the supposed disorder in the field by reconceptualizing hypnosis. The core of his proposal is to define hypnosis “as a subspecies of trance . . . a state of intense focus on something, accompanied by a diminished awareness of everything else, which evokes appropriate subliminal resources” (Crabtree 2012:311). There are many problems with his adoption of the word *trance* and with his specious claim that this account is somewhat novel. For the sake of brevity, we address only the most problematic. First, with regard to the statement that his definition constitutes a “fresh start,” the idea that hypnosis involves focusing on something and disregarding everything else harkens back at least to Braid’s 19th century theory of *monoideism* (Crabtree 1993). Closer to our time, Barber defined hypnosis as a situation in which individuals are purposefully guided by carefully chosen words and communications (suggestions) to “let go” of extraneous concerns and to feel–remember–think–imagine–experience ideas or events that they are rarely asked to experience. (Barber 1984:69). However, an important distinction between Barber’s and Crabtree’s definitions is that the former includes suggestions about *experiencing* unusual events (see also Tellegen 1981), whereas Crabtree opines that “Trances are part of everyday life” (Crabtree 2012:313).

As for the use of the term *trance*, one of us looked at the various senses of the word in the *Oxford English Dictionary* and concluded that a term that is used to refer to unresponsiveness to stimulation, sleeplike states, spirit possession, ecstasy, dread, and other phenomena muddies rather than clears the conceptual waters (Cardeña & Krippner 2010). This explains why many if not most current hypnosis researchers and theoreticians avoid using the term. It is somewhat ironic that despite stating that theory should be based on research, Crabtree makes no effort to integrate his work with recent attempts to operationalize “trance” during hypnosis using self-report measures (e.g., Pekala & Kumar 2007). Although we have reservations about such endeavors (see Terhune & Cardeña 2010), Crabtree’s proposal would have carried greater weight if it were at least grounded in this research.

Leaving aside the issue of adopting a very vague term, Crabtree defines *trance* as “intense focus or absorption in something” which in the case of hypnosis is “an inner-mind trance characterized by rapport” (Crabtree 2012:313). There is a substantial literature on the construct of absorption (Tellegen & Atkinson 1974; for a recent review, see Ott 2007), defined as openness to absorbing and self-altering experiences, and which seems to involve at least two orthogonal dimensions: a processing or narrowing of

attention, and a focus on “internal” or “external” foci (Tellegen 1992). The research on absorption has provided a more nuanced and rigorous account of the relationship between absorption and hypnotic responding than Crabtree’s, so it is unfortunate that he did not seek to improve his account by further developing the ideas of Tellegen and others. Nonetheless, we can ask whether absorption is related, and all there is, to hypnosis, and whether hypnosis only involves a narrow, internal focus.

Regarding the first question, research has shown that absorption correlates mildly to moderately with responsiveness to hypnotic suggestions (Roche & McConkey 1990, see also Council & Green 2004); thus, absorption cannot be all there is to hypnosis. There is also some experimental research linking attentional abilities with hypnosis (Crawford, Brown, & Moon 1993, Egner & Raz 2007), but again those abilities do not wholly explain hypnosis, and highly hypnotizable individuals vary considerably in their attentional state following a hypnotic induction (Terhune, Cardeña, & Lindgren 2011a). As for the second question, Crabtree disregards the use of, and research on, hyperempiric and other hypnotic induction techniques that actually emphasize focusing on “external” stimuli (Cardeña, Alarcón, Capafons, & Bayot, 1998, Gibbons 1976). Moreover, responding to certain hypnotic suggestions (e.g., positive visual hallucinations) will require attention to exogenous stimuli. Thus, the *direction* of attention is not necessarily as important as Crabtree assumes. Finally, Jamieson and Woody (2007) make the case that, contra Crabtree, states of absorption may reflect poorer, rather than superior, attention.

What Ever Happened to Suggestion and Individual Differences?

When it comes to hypnotic responding, we find Crabtree’s account both confusing and confused since he neglects the absolutely fundamental roles of suggestion and individual differences in responsiveness to suggestions. We address these omissions in turn. Crabtree repeatedly refers to hypnotic phenomena and responses, but never actually mentions the types of responses to which he is referring. Following a hypnotic induction, there are two distinct types of responses that are fundamentally different, those that are spontaneous (Cardeña 2005, Pekala & Kumar 2007) and those that are suggested (Woody & Barnier 2008). Crabtree throughout his paper confounds these two types of responses. It is well-established that a hypnotic induction, even one with minimal suggestions (Cardeña 2005), can produce a wide variety of spontaneous experiences such as alterations in body image, temporal perception, and affect, and that responses vary qualitatively according to the level of hypnotizability (Cardeña, Lehmann, Jönsson, Terhune, & Faber 2007, Pekala & Kumar 2007).

The second, and better-studied, type of response is that which follows a suggestion for some type of motor, perceptual, or cognitive–emotional change. Suggestion is what enables a whole host of hypnotic phenomena and is almost completely neglected in Crabtree’s account. How is it that absorption facilitates responses to suggestions? Why are high hypnotizables also highly responsive to suggestions outside of a hypnotic context (Braffman & Kirsch 1999)? These are questions of fundamental importance that are ignored.

Relatedly, there is no discussion in his proposal of individual differences in responsiveness to hypnosis. Individuals vary in both their spontaneous response to a hypnotic induction (Pekala & Kumar 2007) as well as to hypnotic suggestions (Woody & Barnier 2008), with approximately 10%–15% of the population meeting criteria for high hypnotizability (McConkey & Barnier 2004). Individual differences in responsiveness to hypnosis have been recognized at least since Faria (1819) and systematically researched since the early 20th century (Laurence, Beaulieu-Prévost, & du Chéné 2008). Today, that there are vast individual differences in hypnotizability is the most widely recognized fact of hypnotic responding. Crabtree mistakenly refers to suggestibility as one of many hypnotic phenomena rather than as a fundamental source of variegation in response to hypnosis. His failures to acknowledge individual differences in responsiveness to hypnosis or the role of an ability underlying individual differences evidence his disconnection from current research and theory on hypnosis.

Furthermore, Crabtree places emphasis on the role of interpersonal context but neglects variability across contexts. For instance, he maintains that hypnosis is a single thing and makes the mistake of assuming that “[w]hat is true of the clinical setting must be equally true of the experimental” (Crabtree 2012:310). This is an oversimplification. Patients are often more motivated than research participants and the dynamics present in clinical settings differ greatly from those of the typical research setting. This helps explain why the correlation between hypnotizability and treatment success is only moderate ($r = .44$, Flammer & Bongartz 2003).

Crabtree also promulgates ideas regarding the effect of an induction that are not accepted by experimental researchers. For instance, he writes: “[h]ere the state-dependent property of memory comes into play, and we might find it difficult to clearly recall our experience of one state of trance after we have moved on to another (Crabtree 2012:313).” This statement seems to be based only on the author’s intuitions and is completely at odds with the finding that spontaneous posthypnotic amnesia is extremely rare (Hilgard & Cooper 1965), even among high dissociative, highly hypnotizable individuals (Terhune, Cardeña, & Lindgren 2011b).

Crabtree elsewhere expresses ideas regarding hypnosis that further demonstrate a fundamental misunderstanding about some of its most basic aspects. For example, he writes that the development of rapport facilitates an experience wherein “the subject experiences the suggestions of the hypnotist as coming from him or herself” (Crabtree 2012:313). Rather, the opposite is the case. Participants experience the suggestions as coming from the hypnotist; this, in turn, produces the extra-volitional phenomenology of hypnotic responding—the experience that the responses are controlled by an external agent rather than by the person him/herself (Bowers 1981, Spanos & Gorassini 1984). He also claims that Ericksonian-type tailored suggestions should make us reevaluate schematized approaches to hypnosis although there is no empirical support for his claim (Matthews, Conti, & Starr 1999). Finally, he asserts that his four categories of trance are empirical (Crabtree 2012:316), but provides no evidence for this assertion.

More Comprehensive Theoretical Models

Crabtree rightly considers that an interpersonal dimension is an essential part of hypnosis but does not develop the idea very much. In contrast, in 1962 in the context of his and others’ dissatisfaction with unidimensional theories of hypnosis, Ronald Shor argued that there are three dimensions of hypnosis that include cognitive, emotional, and cultural processes: hypnotic role-taking involvement (e.g., conscious and unconscious personal and cultural expectations), trance (i.e. alterations in conscious experience), and archaic involvement (i.e. the influence of the socio-emotional history of the individual with significant others on his or her response to the hypnotist) (Shor 1962). He further explicated his notion of “trance” as involving a fading of the “generalized reality orientation,” which is consistent with Barber’s later definition of hypnosis and goes farther than just the mention of focusing of attention with disregard of other concerns.

A similar three-dimensional model of hypnosis was advanced by Brown and Fromm (1986). Specifically, they emphasized the roles of an altered state of consciousness, specific hypnotic suggestions, and expectation/suggestibility. The aspects delineated by Shor and by Brown and Fromm have produced a substantial amount of theory and empirical work in hypnosis, although transferential and countertransferential issues have received only scant attention (but see Nash & Spinler 1989). For instance, just with regard to the experiential domain, Cardeña and Spiegel (1991) discussed three basic phenomena: increased absorption, a sense of automaticity, and spontaneous alterations of consciousness (see also Cardeña 2005, Pekala & Kumar 2007). Thus, a number of more comprehensive and sophisticated models than that advanced by Crabtree have been proposed for almost 50 years, not to

mention other ones involving response sets, dissociated control, and so on.

More recently, increasing emphasis has been placed on the idea that even among high hypnotizables (contra Crabtree there are substantial behavioral, experiential, and physiological differences in the hypnotizability of individuals) there are two or three different subtypes (Barber 1999, King & Council 1998, Terhune, Cardeña, & Lindgren 2011a) and/or different componential abilities underlying different hypnotic responses (Woody, Barnier, & McConkey 2005).

Crabtree also disregards recent theoretical work on the role of unconscious processes in hypnotic responding in favor of vague speculations. He argues that hypnosis evokes “subliminal resources” (Crabtree 2012:318) but provides no evidence, nor does he fully explicate what he means by this phrase. A better approach would have been to relate his work to the recent proposal that hypnotic responses are supported by unconscious intentions (Dienes & Perner 2007).

Another fundamental problem with Crabtree’s proposal is that he extends so much his concept of trance (“trance states . . . are in play in every type of human experience” [Crabtree 2012:320] and in “All personal relationships” [Crabtree 2012:317]) that he ends up dissolving hypnotic phenomena into irrelevance. If they are an aspect of every experience, there is no reason to even suppose that there is a distinct domain of hypnotic phenomena, and there is nothing special about them (contrary to the observation of *unusual* phenomena that have made the study of hypnosis tantalizing). Of course, this does not deny the fact that episodes of absorption occur in everyday life, but that is not the same as stating that trance states are part of every human experience (which logically would mean that we are perpetually in “trance,” whatever that means), or that absorption experiences are all there is to hypnosis. Crabtree’s ideas are unhelpful and at odds with our current understanding of hypnosis and altered states of consciousness more generally (e.g., Cardeña & Winkelman 2011, Vaitl, Birbaumer, Gruzelier, Jamieson, Kotchoubey, et al. 2005).

Then there is the unfalsifiability problem of his notion that trance evokes “appropriate subliminal resources” (Crabtree 2012:35). One could object that precisely the propensity to inappropriately enter hypnotic–dissociative states helps explain in part post-traumatic and dissociative symptomatology (see Cardeña, Butler, Spiegel, & Reijman 2012), but Crabtree has a reply in that even “neurotic” responses can be considered appropriate from the individual’s conscious or unconscious motivations. Thus, his proposal becomes unfalsifiable because one could always envisage some type of “unconscious” rationale, and because it preempts consideration that there are likely a number of processes evoked by hypnosis, some of which are

appropriate and others not (e.g., negative emotional sequelae following particular hypnotic suggestions, which may be caused by associations with previous negative stimuli, see Cardeña & Terhune 2009).

Finally, Crabtree also makes a categorical mistake by stating that unconscious processes are “physiologically” based whereas subconscious processes are “mentally based.” By definition, subconscious processes are those that are below the level of conscious awareness, and are thus unconscious, and we expect mental processes to have both physiological and mental substrates (e.g., neurophysiological responses to sub-threshold meaningful stimulus).

Conclusion

Despite his undeniable contributions to the history of mesmerism, hypnosis, and their relation to psychical research (Crabtree 1988, 1993), we do not think that Crabtree’s proposal adds helpful new ideas or advances to the study of hypnosis. Rather, it actually does a disservice to the field because non-specialists may assume that his account is a fair description of the field as it currently stands. We hope we have given readers some pause for thought. A thorough analysis of the wealth of theories and findings in hypnosis research over the last few decades would have been necessary to advance a useful critique of assumptions and hypotheses in the field and make a strong case for a novel account. Crabtree’s account is neither novel nor well-informed; regrettably, the proposal could have been written in the 1950s with only minor differences. His descriptions are overly vague and simplistic, offer no novel substantive predictions, and neglect a vast amount of relevant research. We consider it unlikely that any account that does not recognize individual differences among highly hypnotizable individuals (McConkey & Barnier 2004, Terhune, Cardeña, & Lindgren 2011b) or acknowledge a wider variety of processes (e.g., response expectancies, motivation, and individual differences in propensity for automaticity) will provide a comprehensive account of the fascinating set of phenomena called hypnosis. Knowledge of its history is of substantial value to understanding a field but is alone insufficient to address its current issues and controversies.

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References

- Barber, T. X. (1984). Changing “unchangeable” bodily processes by (hypnotic) suggestions. In A. A. Sheikh (Ed.), *Imagination and Healing*, Farmingdale, NY: Baywood, pp. 69–127.
- Barber, T. X. (1999). A comprehensive three-dimensional theory of hypnosis. In I. Kirsch, A.

- Capafons, E. Cardeña-Buelna, & S. Amigo (Eds.), *Clinical Hypnosis and Self-Regulation: Cognitive-Behavioral Perspectives*, Washington, DC: American Psychol. Assn, pp. 21–48.
- Best, M. (2004). Pioneers: Mesmerism, Benjamin Franklin and hypnotism—The 1784 evaluation. *Psychological Hypnosis, 1*, 10–11.
- Bowers, K. S. (1981). Do the Stanford Scales tap the “classic suggestion effect”? *International Journal of Clinical and Experimental Hypnosis, 29*, 42–53.
- Braffman, W., & Kirsch, I. (1999). Imaginative suggestibility and hypnotizability: An empirical analysis. *Journal of Personality and Social Psychology, 77*, 578–587.
- Brown, D. P., & Fromm, E. (1986). *Hypnotherapy and Hypnoanalysis*. Hillsdale, NJ: Erlbaum.
- Cardeña, E. (2005). The phenomenology of deep hypnosis: Quiescent and physically active. *International Journal of Clinical & Experimental Hypnosis, 53*, 37–59.
- Cardeña, E., Alarcón, A., Capafons, A., & Bayot, A. (1998). Effects on suggestibility of a new method of active-alert hypnosis. *International Journal of Clinical and Experimental Hypnosis, 46*, 280–294.
- Cardeña, E., Butler, L., Spiegel, D., & Reijman, S. (2012). Disorders of extreme stress. In G. Stricker & T. Widiger (Eds.), *Handbook of Psychology*, second edition, New York: Wiley.
- Cardeña, E., & Krippner, S. (2010). The cultural context of hypnosis. In S. J. Lynn, J. W. Rhue, & I. Kirsch (Eds.), *Handbook of Clinical Hypnosis*, second edition, Washington, DC: American Psychological Association, pp. 743–771.
- Cardeña, E., Lehmann, D., Jönsson, P., Terhune, D., & Faber, P. (2007). The neurophenomenology of hypnosis. *Proceedings of the 50th Annual Convention of the Parapsychological Assn.*, 17–30.
- Cardeña, E., & Spiegel, D. (1991). Suggestibility, absorption, and dissociation: An integrative model of hypnosis. In J. F. Schumaker (Ed.), *Human Suggestibility: Advances in Theory, Research and Application*, New York: Routledge, pp. 93–107.
- Cardeña, E., & Terhune, D. (2009). A note of caution on the Waterloo Stanford Group Scale of Hypnotic Susceptibility: A brief communication. *International Journal of Clinical and Experimental Hypnosis, 57*, 222–226.
- Cardeña, E., & Winkelman, M. (2011). *Altering Consciousness: Multidisciplinary Perspectives, Volumes I and II*. Santa Barbara, CA: Praeger.
- Council, J. R., & Green, J. P. (2004). Examining the absorption–hypnotizability link: The roles of acquiescence and consistency motivation. *International Journal of Clinical and Experimental Hypnosis, 52*, 364–377.
- Crabtree, A. (Ed.) (1988). *Animal Magnetism, Early Hypnotism, and Psychical Research, 1766–1925: An Annotated Bibliography*. White Plains, NY: Kraus International.
- Crabtree, A. (1993). *From Mesmer to Freud: Magnetic Sleep and the Roots of Psychological Healing*. New Haven, CT: Yale University Press.
- Crabtree, A. (2012). Hypnosis reconsidered, resituated, and redefined. *Journal of Scientific Exploration, 26*, 297–327.
- Crawford, H. J., Brown, A. M., & Moon, C. E. (1993). Sustained attentional and disattentional abilities: Differences between low and highly hypnotizable persons. *Journal of Abnormal Psychology, 102*, 534–543.
- Dienes, Z., & Perner, J. (2007). Executive control without conscious awareness: The cold control theory of hypnosis. In G. A. Jamieson (Ed.), *Hypnosis and Conscious States: The Cognitive Neuroscience Perspective*, Oxford, UK: Oxford University Press, pp. 293–314.
- Dingwall, E. J. (Ed.) (1967–1968). *Abnormal Hypnotic Phenomena: A Survey of Nineteenth-Century Cases*, four volumes. London: J. & A. Churchill.
- Egner, T., & Raz, A. (2007). Cognitive control processes and hypnosis. In G. A. Jamieson (Ed.), *Hypnosis and Conscious States: The Cognitive Neuroscience Perspective*, Oxford, UK: Oxford University Press, pp. 29–50.
- Faria, C. Abbé de (1819). *De la Cause du Sommeil Lucide: Ou Etude de la Nature de l'Homme* [On the

- Cause of Lucid Dreams? Or Study on the Nature of Man*]. Paris: Mme Horiac.
- Flammer, E., & Bongartz, W. (2003). On the efficacy of hypnosis: A meta-analytic study. *Contemporary Hypnosis, 20*, 179–197.
- Gibbons, D. (1976). Hypnotic vs. hyperempiric induction procedures: An experimental comparison. *Perceptual and Motor Skills, 42*, 834.
- Hilgard, E. R., & Cooper, L. M. (1965). Spontaneous and suggested posthypnotic amnesia. *International Journal of Clinical and Experimental Hypnosis, 13*, 261–273.
- Jamieson, G. A., & Woody, E. Z. (2007). Dissociated control as a paradigm for cognitive neuroscience research and theorising in hypnosis. In G. A. Jamieson (Ed.), *Hypnosis and Conscious States: The Cognitive Neuroscience Perspective*, Oxford, UK: Oxford University Press, pp. 111–129.
- King, B. J., & Council, J. R. (1998). Intentionality during hypnosis: An ironic process analysis. *International Journal of Clinical and Experimental Hypnosis, 46*, 295–313.
- Laurence, J.-R., Beaulieu-Prévost, D., & du Chéné, T. (2008). Measuring and understanding individual differences in hypnotizability. In M. R. Nash & A. Barnier (Eds.), *Oxford Handbook of Hypnosis*, Oxford, UK: Oxford University Press, pp. 225–253.
- Laurence, J.-R., & Perry, C. (1988). *Hypnosis, Will, and Memory: A Psycho-Legal History*. New York: The Guilford Press.
- Lynn, S. J., & Green, J. P. (2011). The sociocognitive and dissociation theories of hypnosis: Toward a rapprochement. *International Journal of Clinical and Experimental Hypnosis, 59*, 277–293.
- Matthews, W. J., Conti, J., & Starr, L. (1999). Ericksonian hypnosis: A review of the empirical data. *Sleep and Hypnosis, 1*, 47–56.
- McConkey, K. M., & Barnier, A. J. (2004). High hypnotizability: Unity and diversity in behavior and experience. In M. Heap, R. J. Brown, and D. A. Oakley (Eds.), *The Highly Hypnotizable Person*, New York: Brunner-Routledge, pp. 61–84.
- Nash, M. R., & Spinler, D. (1989). Hypnosis and transference: A measure of archaic involvement. *International Journal of Clinical and Experimental Hypnosis, 37*, 129–144.
- Orne, M. T. (1959). The nature of hypnosis: Artifact and essence. *Journal of Abnormal and Social Psychology, 58*, 277–299.
- Orne, M. T. (1979). On the simulating subject as a quasi-control group in hypnosis research: What, why, and how. In E. Fromm & R. E. Shor (Eds.), *Hypnosis: Research Developments and Perspectives*, revised second edition, Chicago: Aldine-Atherton, pp. 519–565.
- Ott, U. (2007). States of absorption: In search of neurobiological foundations. In G. A. Jamieson (Ed.), *Hypnosis and Conscious States: The Cognitive Neuroscience Perspective*, Oxford, UK: Oxford University Press, pp. 257–270.
- Pekala, R. J., & Kumar, V. K. (2007). An empirical–phenomenological approach to quantifying consciousness and states of consciousness: With particular reference to understanding the nature of hypnosis. In G. A. Jamieson (Ed.), *Hypnosis and Conscious States: The Cognitive Neuroscience Perspective*, Oxford, UK: Oxford University Press, pp. 167–194.
- Roche, S. M., & McConkey, K. M. (1990). Absorption: Nature, assessment, and correlates. *Journal of Personality & Social Psychology, 59*, 91–101.
- Shor, R. E. (1962). Three dimensions of hypnotic depth. *International Journal of Clinical and Experimental Hypnosis, 10*, 23–38.
- Spanos, N. P., & Gorassini, D. R. (1984). Structure of hypnotic test suggestions and attributions of responding involuntarily. *Journal of Personality and Social Psychology, 46*, 688–696.
- Tellegen, A. (1981). Practicing the two disciplines for relaxation and enlightenment: Comment on Qualls & Sheehan. *Journal of Experimental Psychology: General, 110*, 217–226.
- Tellegen, A. (1992). Notes on the structure and meaning of the MPQ absorption scale. University of Minnesota, Department of Psychology.
- 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.
- Terhune, D. B., & Cardeña, E. (2010). Methodological and interpretative issues regarding the Phenomenology of Consciousness Inventory—Hypnotic Assessment Procedure: A comment on Pekala et al. (2010a, 2010b). *American Journal of Clinical Hypnosis*, 53, 105–113.
- Terhune, D. B., Cardeña, E., & Lindgren, M. (2011a). Dissociated control as a signature of typological variability in high hypnotic suggestibility. *Consciousness and Cognition*, 20, 727–736.
- Terhune, D. B., Cardeña, E., & Lindgren, M. (2011b). Dissociative tendencies and individual differences in high hypnotic suggestibility. *Cognitive Neuropsychiatry*, 16, 113–135.
- Vaitl, D., Birbaumer, N., Gruzelier, J., Jamieson, G. A., Kotchoubey, B., Kubler, A., Lehmann, D., Miltner, W. H. R., Ott, U., Putz, P., Sammer, G., Strauch, I., Strehl, U., Wackermann, J., & Weiss, T. (2005). Psychobiology of altered states of consciousness. *Psychological Bulletin*, 131, 98–127.
- Weitzenhoffer, A. M. (1980). Hypnotic susceptibility revisited. *American Journal of Clinical Hypnosis*, 22, 130–146.
- Woody, E. Z., & Barnier, A. J. (2008). Hypnosis scales for the twenty-first century: What do we need and how should we use them? In M. R. Nash & A. Barnier (Eds.), *Oxford Handbook of Hypnosis*, Oxford, UK: Oxford University Press, pp. 255–281.
- Woody, E. Z., Barnier, A. J., & McConkey, K. M. (2005). Multiple hypnotizabilities: Differentiating the building blocks of hypnotic response. *Psychological Assessment*, 17, 200–211.