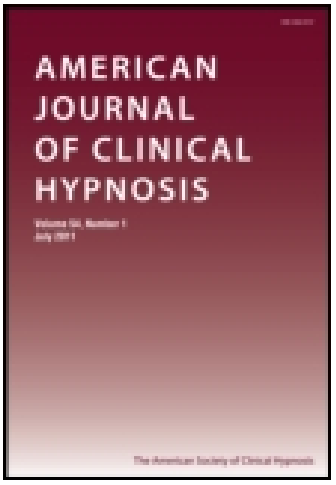

American Journal of Clinical Hypnosis
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/ujhy20

Tossing the Baby With the (Magnetized) Bathwater: Commentary on Jacobson and Colleagues

John C. Mohl[a] & Orin C. Davis[b]
[a] Bucks County Community College, Newtown, Pennsylvania, USA
[b] Quality of Life Laboratory, New York, New York, USA
Published online: 10 Jul 2014.

To cite this article: John C. Mohl & Orin C. Davis (2015) Tossing the Baby With the (Magnetized) Bathwater: Commentary on Jacobson and Colleagues, American Journal of Clinical Hypnosis, 57:1, 3-12, DOI: 10.1080/00029157.2014.909772

To link to this article: http://dx.doi.org/10.1080/00029157.2014.909772

American Journal of Clinical Hypnosis, 57: 3–12, 2014

ISSN: 0002-9157 print / 2160-0562 online
DOI: 10.1080/00029157.2014.909772

Routledge
Taylor & Francis Group

Tossing the Baby With the (Magnetized) Bathwater: Commentary on Jacobson and Colleagues

John C. Mohl
Bucks County Community College, Newtown, Pennsylvania, USA

Orin C. Davis
Quality of Life Laboratory, New York, New York, USA

This article critiques two studies conducted by Jacobson and colleagues whose findings indicated that hypnosis hinders encoding and might not be useful in education. While their findings provide important information about hypnosis and its possible uses in teaching and learning, there are several important methodological and interpretive shortcomings that limit the applicability of the study. It is argued that the authors conflated some components of hypnotic phenomenology, as measured by the Phenomenology of Consciousness Inventory, and consequently failed to assess the hypnotic experience properly. This article argues that the encoding deficits produced by hypnosis may have resulted from the way hypnosis was used and other contextual factors, and highlights some additional concerns with the statistical analyses. This article suggests some more effective uses of hypnosis and suggestion in improving the learning process in light of prior research, and offers some ideas for future research.

Keywords: education, hypnosis, learning, phenomenology, teaching

One of the difficulties faced by the field of hypnosis is that it is still accepted only by a limited audience, which could expand if hypnosis could be proven effective outside of the medical and mental health arenas (Yapko, 2011). In spite of the diverse array of uses for hypnosis in the aforementioned areas, it has yet to find its way to being a plausible tool in other fields involving human interaction that could benefit by the use of suggestion. One possible extension is the use of hypnosis and suggestion in education. Calls for appropriate uses of hypnosis in education go back many decades (Dale, 1972; Hammerman, 1979; Ziegenfuss, 1962), but modern-day pedagogy eschews the use of hypnosis as an adjunct to learning.

Part of the issue is a lack of research regarding whether hypnosis can facilitate the learning process. Jacobson and his colleagues (Jacobson, Kramer, Tharp, Costa, & Hawley, 2011; Jacobson et al., 2013) conducted two investigations that attempted to answer this question. But, while their investigations have yielded interesting findings,

Address correspondence to John C. Mohl, 275 Swamp Road, Newtown, PA 18940, USA. E-mail: mohlj@bucks.edu

we question their conclusions and suggest that the implications of their findings are overstated. We first begin by summarizing their findings, then we describe our concerns, and suggest what we can take from these studies. While this report is primarily a comment on their latter study, we review both studies collectively since (a) the methodologies of both studies are similar, and (b) both studies led to similar conclusions.

In the first study, participants assigned to the experimental group were hypnotized using a relaxation-based hypnotic induction. They were then given a series of suggestions indicating that they would have an enhanced ability to remember the details of a passage they were about to hear. Following the reading, participants were emerged from hypnosis and given a multiple-choice assessment (10 items in 2011, 15 items in 2013). Those in the control condition did not experience hypnosis, but instead attended to an unrelated task that took about as much time to complete as the hypnotic procedures, but had the passage read aloud with their eyes closed,[1] and then given an assessment. By contrast, the second study used a within-subjects design, so that participants experienced both the experimental and control manipulations. Another difference was that neutral hypnosis (no suggestions for enhanced recall were given) was used. Additionally, participants completed the Phenomenology of Consciousness Inventory (PCI: Pekala, 1991b) to assess whether various components of consciousness could account for encoding deficits during an audio lecture while in hypnosis. Otherwise, the method was roughly the same. The authors found that those in the hypnosis condition performed worse than those in the control group, regardless of whether suggestions were given to facilitate recall. Further, those who experienced a greater degree of altered state of awareness, as measured by that subscale of the PCI, exhibited worse performance. In the latter study, they conclude: "Due to the performance deficits in the hypnosis group, it is not advisable to learn new material in hypnosis. As such, this suggests that hypnosis is not an effective study tool and should not be used to improve study habits" (Jacobson et al., 2013, p. 368). Our concerns are guided by the notion that this conclusion is overarching and not warranted due to issues with the methodology, the theory, and the validity of the studies.

We question the broad contention of Jacobson and colleagues (2013) that it was specifically and exclusively the use of the hypnosis in the experimental condition that led to an encoding impairment. We note that there could have been any number of factors responsible for the effect that were not considered by the authors. In the latter study, Jacobson and colleagues (2013) attributed the performance difference to hypnosis because of within-group differences in the altered state of awareness scores from the PCI (which they used to ensure "that each participant was affected enough to actually qualify them as being hypnotized" [p. 363]). But, this is a flawed assumption for two reasons. First, while Pekala and colleagues (e.g., Kumar & Pekala, 1988) have found that the perception of experiencing an altered state is affected by hypnosis, it is a suboptimal phenomenological measure of hypnotic experience because altered states of experience can happen in many contexts that do not involve hypnosis (see below). Second, if (per Jacobson et al., 2013) hypnosis produced an altered state that hindered encoding and is

independent of relaxation even when suggestions for facilitated learning are given (as in Jacobson et al., 2011), then the findings of other researchers (especially Wark, 1996) become difficult to explain.

Perhaps the most serious weakness of this study is the assumed causality of PCI factors leading to encoding deficits. Jacobson and colleagues (2013) have shown simply that there is a correlation between the amount of altered state and assessment scores, leading them to conclude that the altered state caused the encoding impairment. Indeed, hypnosis can produce an altered state experience as measured by the PCI, and it was the independent variable that was manipulated in this experiment. But, there is no way of ascertaining whether the correlation between altered state and test scores is spurious based on this study's design. That said, even if we were to assume that the altered state was the responsible antecedent for hindered encoding, the validity of the assertion would remain questionable.

For instance, to the point of whether experiencing an altered state reflects being hypnotized, research shows that even the effect produced by hypnosis is not a clear construct, as Pekala (2011) noted:

> Obviously, how people come to feel they have alterations in consciousness (the PCI altered state of awareness dimension) . . . may be a function of the relaxation/deepening procedure, the suggestions that were passed or failed . . . and/or that person's neurobiological constitution, which may make it easier for him or her to have alterations in awareness/ consciousness (Oakley & Halligan, 2010). Because of its phenomenological focus, the correlation or covariation of phenomenological effects with "the effects of the induction per se, with responsiveness to suggestions per se," etc., may well likely be a function of several influences. (p. 214)

Indeed, shifts in altered states, as measured by the PCI, have been found in contexts that differ from typical forms of hypnosis (i.e., those that include an explicit induction process and suggestions), including out-of-body experiences (Maitz & Pekala, 1991) and fire walking (Pekala & Ersak, 1992). In fact, some research shows that reports of altered experience can occur even in waking controls (Pekala & Kumar, 1987; Pekala, Steinberg, & Kumar, 1986). This effect is reflected in Table 1, in which we present the mean altered state of awareness scores of Jacobson and colleagues (2013) in both the hypnosis and waking control conditions, along with normative altered state scores (waking with eyes-open, waking with eyes-closed, and hypnosis) from two older studies (Pekala & Kumar, 1987; Pekala et al., 1986). Analyzing the two earlier studies collectively, it is clear that participants do report experiencing a degree of an altered state simply by sitting quietly in the waking state, with eyes both open and closed.

Because the PCI is a quantitative measure of elements that makes up conscious awareness, a score of one's altered state simply tells how much—or how little—participants reported experiencing an altered state of awareness or consciousness. It does not, however, indicate the *context* in which one experiences the altered state. By contrast, Pekala's (1991a; see also Pekala & Forbes, 1988 and Pekala & Neglar, 1989) hypnoidal state score, which is based on regression analyses (Pekala & Kumar, 1984, 1987) using 10 of

TABLE 1
Altered State of Awareness Scores From Three Studies

Study	*Eyes Open*	*Eyes Closed*	*Hypnosis*
Jacobson et al. (2013)	*Not assessed*	1.1 (1.34) $n = 54$	3.32 (1.63) $n = 61$
Pekala and Kumar (1987)	1.64 (1.49) $n = 110$	2.20 (1.49) $n = 324$	3.80 (1.76) $n = 434$
Pekala, Steinberg, and Kumar (1986)	2.17 (1.63) $n = 112$	2.08 (1.44) $n = 263$ $F(2, 638) = 13.23$ $p < .001$	3.70 (1.91) $n = 263$ $F(2, 755) = 1.94$ ns

Note. Statistics are presented in *M* (*SD*) format with sample sizes below. Jacobson et al. (2013) provided sum values as opposed to means, but the latter is easily calculated given the number of items for each PCI scale.

the PCI (sub)dimensions, can "be construed as a 'general measure of trance'" (Pekala & Kumar, 2000, p. 112), and is less prone to "distortion from response sets and demand characteristics" (Pekala et al., 2010, p. 277) plaguing typical self-report hypnotic depth scales. In fact, Pekala and Ersak (1992) reported roughly equal altered state scores but significantly different hypnoidal scores among participants who participated in a fire-walking exercise compared to those who experienced hypnosis. This demonstrates that hypnoidal scores can differentiate between hypnotic and non-hypnotic contexts, and that the altered state score cannot. Yet, we note that the hypnoidal score was not reported by Jacobson and colleagues (2013), which could have elucidated the differences in experience of participants in both conditions and also shed light on the kind of altered experience the participants may have had. Further, it is a common practice in using the PCI (Ronald J. Pekala, personal communication, June 21, 2013) to have participants rate their phenomenological experience during a 2-minute period of sitting quietly while in hypnosis or while in the waking state. If one restricts measurement to the 2-minute interval, then one can assume that the PCI assessed phenomenology for everyone at the same moment of the hypnotic (and non-hypnotic) experience. The authors did not report doing this, which could mean that some participants may have based their answers on the entire hypnosis experience, others on the lecture, and yet others on some combination of the two, thereby confounding interpretation of the PCI data. Because the PCI was validated using that 2-minute interval, it could mean that Jacobson and colleagues (2013) provided results that were not based on a valid measure.

This difference in measurement could be responsible for what are rather interesting findings with respect to altered state values. Though inducing hypnosis did increase the altered state dimension by less than one point in the Jacobson and colleagues (2013) study, the data present a very interesting contrast. The eyes-closed waking control is more than a point lower than the aforementioned Pekala studies (see Table 1), which is statistically significant, $F(2, 638) = 13.23, p < .001$. The altered state score in the hypnosis condition is also lower, but not statistically significant, $F(2, 755) = 1.94, ns$. It cannot

be determined exactly why such a stark contrast exists in the eyes-closed waking control but not in hypnosis, but the fact that the altered state scores were lower in both conditions compared to previous studies is notable. One major difference in Jacobson's study is that participants were engaged in a cognitive activity, while participants in Pekala's studies sat in silence. Insofar as learning with one's eyes closed is atypical for most American college students, it is possible that this could have led to the encoding deficit instead of the hypnotic induction. We propose, however, that this could be easily tested with control groups that have their eyes open both with and without inductions, and recommend that future studies include this practice.

To the point that Jacobson and colleague's studies contradict earlier findings, we note that other studies have shown successful uses of hypnosis in the education context. One of the recent notables is Wark's (1996) study, in which he taught participants alert self-hypnosis, and in which a self-administered induction based on increased focus and bodily tenseness (as opposed to relaxation) was used along with suggestions for improvement with learning (cf. Banyai & Hilgard, 1976; Barabasz, 2006; Barabasz & Christensen, 2006; Lugwig & Lyle, 1964; Wark, 2011). Wark found that participants with higher suggestibility, as measured by the Creative Imagination Scale (Wilson & Barber, 1978), showed the most gain in GPA, compared to medium and low responsiveness. Since phenomenological experiences were not assessed, it is not known whether Wark's participants experienced an increase in altered state of awareness during hypnosis That said, Cardeña's (2005) study showed that high hypnotizables experienced an altered state of awareness whether in relaxed hypnotic trances or in active-alert hypnosis with eyes closed relative to their respective waking controls. While the focus on high hypnotizables limits it generalizability, it serves as evidence that some will experience an enhanced altered state of awareness, as measured by the PCI, during an active experience of hypnosis.

If active-alert hypnosis enhances the PCI altered state dimension and can augment learning (Wark, 1996), then it is hard to explain Jacobson and colleagues contention that deeper levels of hypnosis hinder encoding. The resolution we propose is rooted in the differences between active-alert hypnosis and relaxation-based hypnosis. Unlike in the Wark study, Jacobson and colleagues induced hypnosis using relaxation-based suggestions and then deepened it with further relaxation suggestions. As such, students may not have been prepared to attend *actively* to a learning task as well as a participant in active-alert hypnosis. Instead of the phenomenological shift produced by hypnotic induction, we suggest that it was the nature of the hypnotic procedure relative to the learning task that hindered participants' ability to encode. This contention is speculative and requires further research, but it could lead to evidence that active-alert hypnosis may be the more effective procedure in a learning and/or encoding context.

Education Requires Purpose-Driven Hypnosis Interventions

One of our major concerns with Jacobson and colleagues (2013) study is the fact that participants were placed in neutral hypnosis and not given any suggestions for learning, which can conflate the *experience* of hypnosis and the *process* of hypnosis. Outside of neurophenomenological studies (e.g., Cardeña, Jönsson, Terhune, & Marcusson-Clavertz, 2013), there is little empirical use for neutral hypnosis outside of utilizing rare and spontaneous abreactions (which is exclusive to the therapeutic context). Consequently, there should be little-to-no expectation for learning to become enhanced simply because of a hypnotic induction and subsequent deepener. Rather, any effects would be due to what is done after hypnosis is induced, and research should focus on this aspect of any education-related hypnotic intervention.

Previous research in this area has delved into many different, and sometimes creative, uses of hypnosis and education. Barrios and Singer (1981) found that hypnotically induced dream and waking imagery, in which participants were given guided visualizations, were more effective in overcoming creative blocks compared to controls. Barrios (2001) used techniques derived from hypnosis to manage stress and impulses, and also to generate a greater sense of self-efficacy. The study found a modest-yet-significant increase in GPA compared to controls who did not participate in the program. Raikov (1992) described research using suggestions for personality alteration with very high hypnotizables to facilitate learning. Native Russian speakers learning English were told in hypnosis that they were either from Great Britain or the United States with no knowledge of their actual native tongue; notable improvements were noticed in fluency.

Jacobson and colleagues (2011) did make use of suggestions for enhanced learning, but still found impaired performance. Participants were told the following prior to awakening from hypnosis:

> Your mind is capable of retaining all the information it is presented with. I am about to read you a passage. Later you will be asked to recall details from the passage, so listen carefully to my voice. All that you hear, you will be able to remember. You will be able to know everything you are presented with. When you are asked to recall any information that you have heard; it will come to you easily. All things will stay in your mind until they are needed. Everything will be remembered easily now. Easier and easier. Listening and remembering will come very naturally to you now. Memory is easy, easy, easy. All the information you need is in your mind. It will come to you very easily. Everything you have heard is easy for you to remember. And now, I am about to read you a passage. All the information in it will stay in your mind. This will stay with you until you answer all the questions. This will be very easy. (p. 250)

The authors did suggest that the script used may have been ineffective. The only true gauge of its effectiveness is to compare the use of a script to hypnosis without a script (neutral hypnosis). But, we suggest that the script was insufficient in improving memory. The given suggestions are intended to facilitate memory, but it gives no specific strategy or method for doing so. We do not question the scientific merit of assessing the effectiveness of using a script with motivational instructions, but we do not find it surprising that

it failed to facilitate better test performance. Simply suggesting to a smoker that (s)he will never smoke again is not likely to be as effective as employing a number of strategies aimed at enhancing one's motivation to stop (Spiegel, 1970; cf. Locke & Latham, 1990). Similarly, studies that found successful academic improvements with hypnosis employed multiple *specific* strategies. Wark (1996) used suggestions for students to review assignments and improved retention during lessons. de Vos and Louw (2006) used suggestions to assist participants in correcting negative self-talk and reduce anxiety. Hagedorn (1969) suggested to participants that they would find material they were about to learn to be interesting and that they would be free of distractions. Thus, the participants may have not had an improvement in encoding because the suggestions given were simply not salient enough. For hypnosis to be effective in learning, it needs to be used in such a way as to employ cognitive abilities and talents that many people may not even know that they have (Mohl, 2013). To date, no research has shown how hypnosis can facilitate a student's interest in a curriculum (as opposed to a lecture, as in the study above), enhance intrinsic motivation to learn, or instill a desire to study.

Another concern that we have is in the comparison of the actual scores. In an N-item multiple choice test with Q possible responses to each question, we would expect scores to vary by $(N/Q)^*(1-[1/Q])$ just due to random chance (at 15 items with four choices, this is a variance of about 2.81, or a standard deviation of about 1.68). In the results of the study, the control condition got a mean score of 8.11, while the experimental group had a mean score of 7.44, which is *not even a difference of a whole question*. Given the potential fluctuation due to chance, even a statistically significant difference would not be a meaningful one in this case. We concede that a lengthy test that would compensate for this is not a viable option, but, as a consequence, we must be extremely cautious in interpreting the results.

There are some additional methodological concerns that we did not feel that the authors addressed in their study. For one, we contend that the small sample size warranted a power analysis, and we are concerned that the small sample size does not provide enough power to detect differences reliably. Likewise, the number of statistical tests run presents a family-wise error problem that could render the results non-significant. Although the difference in the altered state of awareness score between the control and experimental groups still remains significant following a conservative Bonferroni adjustment (at least using a critical value of .05), running that many comparisons, with relatively so few participants further undermines statistical power (see Nakagawa, 2004). Plus, authors used ACT scores to control for academic aptitude, but the challenge at hand was more one of memory than of academic aptitude or critical reasoning (the latter of which are supposedly measured by the ACT—a contention we will stipulate here but do not necessarily concede—cf. Kaufman, 2013). There is also the possibility that hypnosis, at least employed as it was in this study, hinders encoding based on what is being taught and only with certain types of people. Jacobson and colleagues (2013) claimed that their data "confirm[ed] Halsband (2006) and Jacobson at al.'s (2011)

findings, suggesting that learning in hypnosis is significantly worse than learning in a control condition" (p. 367). Halsband actually reported that high hypnotizables had better recall of high-imagery word pairs when in hypnosis compared to the waking state. But, when abstract word pairs were presented, there was no effect. While we cannot say for certain how much imagery each of the given lectures in Jacobson and colleagues contained, it could be assumed that typical lecture lacks the rich imagery that high hypnotizables could utilize as part of some encoding strategy, thereby clouding the potential benefit hypnosis could provide. Given these contentions, and the very small differences between the groups, we must stress the need for reservation in interpreting and generalizing the results of Jacobson and colleagues studies.

Although we have concerns about the nature of both studies conducted by Jacobson and colleagues, the results from both studies remain noteworthy. Contrary to their initial expectations, participants who encoded information while in hypnosis not only failed to outperform those who were not hypnotized, but they actually performed worse when their memory was assessed. This is an important precedent to consider for anyone wishing to investigate hypnotically based interventions in education. That said, some methodological and analytical shortcomings lead us to question some of their interpretations. Some of the elements associated with hypnosis (but not exclusive to it), such as eye closure, may have accounted for the some of the observed effects, while aspects like the novelty of learning with eyes closed might be a confound. Their contention that hypnosis should not be used to improve learning is correct *if* it entails inducing hypnosis and doing nothing else. But, the implication that hypnosis should serve no purpose in education is shortsighted. Hypnosis, combined with properly-targeted suggestions, could enhance encoding, and potentially other aspects of the learning experience, as well. Future research needs to investigate these possibilities, because as far as hypnosis in education is concerned, there is much we have yet to learn.

Note

1. It was not stated in either article that control condition participants had their eyes closed during the learning task, nor that the study uses a within-subjects design, but was provided by Nicholas Jacobson in personal communications (January 2014, March 2014). The authors are grateful to him for providing this information.

References

Banyai, E. I., & Hilgard, E. R. (1976). A comparison of active- alert hypnotic induction with traditional relaxation induction. *Journal of Abnormal Psychology*, *85*, 218–224.

Barabasz, A. (2006). Whither spontaneous hypnosis: A critical issue for practitioners and researchers. *American Journal of Clinical Hypnosis*, *48*, 91–97.

Barabasz, A., & Christensen, C. (2006). Age regression: Tailored versus scripted inductions. *American Journal of Clinical Hypnosis*, *48*, 251–261.

Barrios, A. A. (2001). A theory of hypnosis based on principles of conditioning and inhibition. *Contemporary Hypnosis*, *18*, 163–203. doi:10.1002/ch.230

Barrios, M. V., & Singer, J. L. (1981). The treatment of creative blocks: A comparison of waking imagery, hypnotic dream, and rational discussion techniques. *Imagination, Cognition, and Personality*, *1*, 89–109.

Cardeña, E. (2005). The phenomenology of deep hypnosis: Quiescent and physically active. *International Journal of Clinical & Experimental Hypnosis*, *53*, 37–59.

Cardeña, E., Jönsson, P., Terhune, D. B., & Marcusson-Clavertz, D. (2013). The neurophenomenology of neutral hypnosis. *Cortex*, *49*, 375–385.

Dale, R. A. (1972) *Hypnosis and education*. (Report No. SP 007 678). Surfside, FL. (ERIC Document Reproduction Service No. ED087710). Retrieved from EBSCOHost ERIC database (ED087710).

de Vos, H. M., & Louw, D. A. (2006). The effect of hypnotic training programs on the academic performance of students. *American Journal of Clinical Hypnosis*, *49*, 101–112. doi:10.1080/00029157.2006.10401562

Hagedorn, J. W. (1969). *The use of post-hypnotic suggestions for recall for amnesia to facilitate retention and to produce forgetting for previously learned materials in classroom situations*. Unpublished doctoral dissertation. University of Tulsa, Tulsa, OK.

Hammerman, M. (1979). *Hypnosis and Language Learning*. Retrieved from ERIC database (ED181741).

Jacobson, N. C. Kramer, S., Tharp, A., Costa, S., & Hawley, P. (2011). The effects of encoding under hypnosis and post-hypnotic suggestion on academic performance. *American Journal of Clinical Hypnosis*, *53*, 247–254.

Jacobson, N. C. Kramer, S., Tharp, A., Harmon, K. A., Cejas, G. P., & Costa, S. (2013). Deficit of encoding in hypnosis: A result of altered state of awareness. *American Journal of Clinical Hypnosis*, *55*, 360–369.

Kaufman, S. B. (2013). *Ungifted: Intelligence redefined*. New York, NY: Perseus Books Group.

Kumar, V. K., & Pekala, R. J. (1988). Hypnotizability, absorption, and individual differences in phenomenological experience. *International Journal of Clinical and Experimental Hypnosis*, *36*, 80–88.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice-Hall.

Ludwig, A. W., & Lyle, W. H. (1964). Tension induction and the hyperalert trance. *Journal of Abnormal and Social Psychology*, *69*, 70–76.

Maitz, E., & Pekala, R. J. (1991). Phenomenological quantification of an out-of-the-body experience associated with a near-death event. *Omega*, *22*, 199–214.

Mohl, J. C. (2013). Are highly hypnotizable people aware of their hypnotic talents? Implications for human potentialities. *International Journal of Clinical and Experimental Hypnosis*, *61*, 251–270.

Nakagawa, S. (2004). A farewell to Bonferroni: The problems of low statistical power and publication bias. *Behavioral Ecology*, *15*(6), 1044–1045.

Pekala, R. J. (1991a). Hypnotic types: Evidence from a cluster analysis of phenomenal experience. *Contemporary Hypnosis*, *8*, 95–104.

Pekala, R. J. (1991b). *The Phenomenology of Consciousness Inventory*. West Chester, PA: Mid-Atlantic Educational Institute.

Pekala, R. J. (2011). Reply to Wagstaff: "Hypnosis and the relationship between trance, suggestion, expectancy, and depth: Some semantic and conceptual issues." *American Journal of Clinical Hypnosis*, *51*, 207–227.

Pekala, R. J., & Ersek, B. (1992). Fire-walking versus hypnosis: A preliminary study concerning consciousness, attention, and fire immunity. *Imagination, Cognition, and Personality*, *12*, 207–229.

Pekala, R. J., & Forbes, E. J. (1988). Hypnoidal effects associated with several stress management techniques. *Australian Journal of Clinical & Experimental Hypnosis*, *16*(2), 121–132.

Pekala, R. J., & Kumar, V. K. (1984). Predicting hypnotic susceptibility by a self-report phenomenological state instrument. *American Journal of Clinical Hypnosis*, *27*, 114–121.

Pekala, R. J., & Kumar, V. K. (1987). Predicting hypnotic susceptibility via a self-report instrument: A replication. *American Journal of Clinical Hypnosis*, *30*, 57–65.

Pekala, R. J., & Kumar, V. K. (2000). Operationalizing "trance" I: Rationale and research using a psychophenomenological approach. *American Journal of Clinical Hypnosis*, *43*, 107–135.

Pekala, R. J., & Nagler, R. (1989). The assessment of hypnoidal states: Rationale and clinical application. *American Journal of Clinical Hypnosis*, *31*, 231–236.

Pekala, R. J., Steinberg, J., & Kumar, V. K. (1986). Measurement of phenomenological experience: Phenomenology of Consciousness Inventory. *Perceptual and Motor Skills*, *63*, 983–989.

Raikov, V. L. (1992). Hypnosis as an active creative act and posthypnotic development of enhanced creativity. *Journal of Creative Behavior*, *26*, 148–155.

Spiegel, H. (1970). Termination of smoking by a single session. *Archives of Environmental Health*, *20*, 736–742

Wark, D. M. (1996). Teaching college students better learning skills using self-hypnosis. *American Journal of Clinical Hypnosis*, *38*, 277–287.

Wark, D. M. (2011). Traditional and alert hypnosis for education: A literature review. *American Journal of Clinical Hypnosis*, *54*, 96–106.

Wilson, S. C., & Barber, T. X. (1978). The creative imagination scale as a measure of hypnotic responsiveness: Applications to experimental and clinical hypnosis. *American Journal of Clinical Hypnosis*, *20*, 235–249.

Yapko, M. D. (2011, August). *Address given by Michael D. Yapko*. Paper presented at the annual meeting of the American Psychological Association, Washington, DC.

Ziegenfuss, W. (1962). Hypnosis: A tool for education. *Education, 82*, 505–507. Retrieved from Education Research Complete (19123743).