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Cardeña, Etzel

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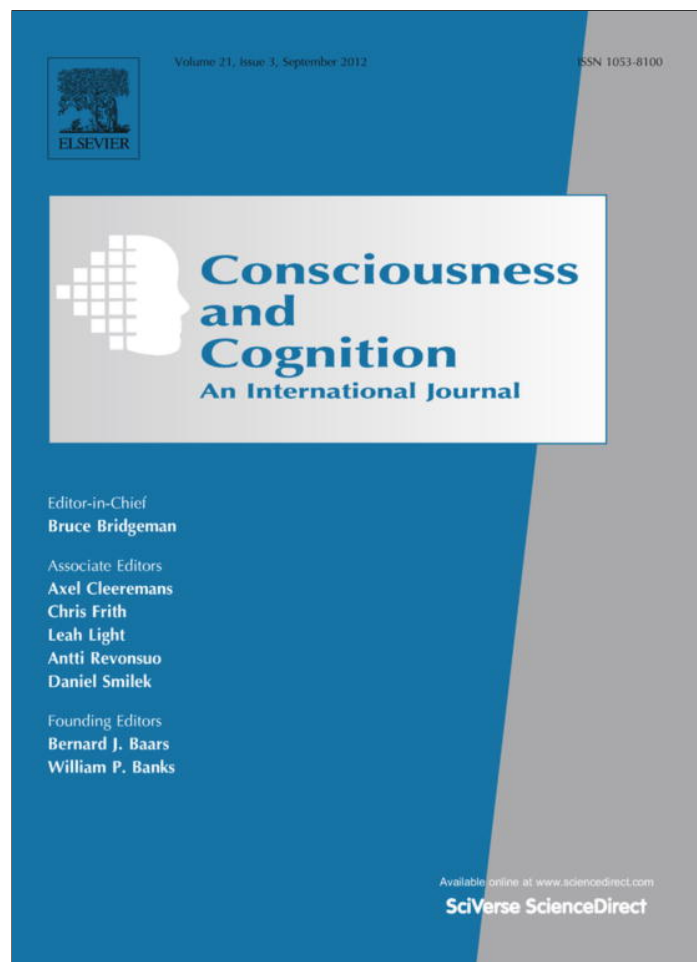
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# Consciousness and Cognition

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## Commentary

### Commentary on “Altered and asymmetric default mode network activity in a “hypnotic virtuoso”: An fMRI and EEG study” ☆

Etzel Cardeña \*

Department of Psychology, Center for Research on Consciousness and Anomalous Psychology (CERCAP), Lund University,  
P.O. Box 213, SE-221 00 Lund, Sweden

A number of recent studies have sought to augment our understanding of consciousness by supplementing careful phenomenological inquiry with brain imaging techniques. For this project to succeed it needs to be a marriage of equals, with as much attention paid to psychological issues as to neuroscientific techniques. This does not always happen because the evaluation of conscious experience gets short shrift while the neurophysiological procedures seem to be the only aspect of real interest, making the ensuing results of very limited value or uninterpretable. Unfortunately that seems to be the case in this paper, in which the lion's share of the writing is devoted to describing EEG and fMRI analyses and results, while the knowledge base and methodological sophistication concerning its substantive theme, hypnotic experience, is tenuous.

I will start with the lack of a thorough description of the hypnotic procedure used. It is essential to know what specific form of induction and suggestions have been used, as it has been established that the participant's phenomenology and correlated brain dynamics are affected by them (e.g., Rainville, Carrier, Hofbauer, Bushnell, & Duncan, 1999; Spiegel & Barabasz, 1988). However, we are only told that the hypnotist, “was well acquainted with the participant,” but not explained in what capacity despite the importance of relationship issues in hypnosis (see Shor, 1962), and that the hypnotist used repetitive sentences such as “let your mind go” and “your mind does not know. . .,” without explaining what the person is not supposed to know. Throughout this procedure, the participant was lying down and the authors state that she achieved “hypnotic catalepsy,” but it is not explained how they could distinguish between a person lying down, resting, and being cataplectic, nor how they determined that she had “reached the maximum level of hypnotic trance,” or what they mean by that level. The authors also write that the hypnotist's role was to maintain the participant in hypnosis, but do not describe how s/he did this, with the only exception being that the participant was told to “avoid specific thoughts.” Suggestions not to experience something, however, are avoided by experienced hypnotists (e.g., Weitzenhoffer, 2000) as they may actually increase the incidence of those events (cf. Wegner, Schneider, Carter, & White, 1987).

I also found troubling the statement that the hypnotist induced posthypnotic amnesia “in order to prevent the rehearsal of potentially unpleasant material in the post-hypnotic period.” From a procedural perspective this is very problematic because contrary to what the authors claim about using “pure hypnosis,” by which they mean a procedure that would reduce the effects of specific suggestion, they used instead vaguely described but seemingly complex induction and suggestion procedures. A “neutral hypnosis” approach clearly describes and minimizes specific suggestions during induction and afterwards (e.g., Cardeña, Jönsson, Terhune, & Marcusson-Clavertz, *in press*), whereas the suggestions to have post-hypnotic amnesia and to avoid thoughts would be expected to affect cognitive processes, experiences, and concomitant brain dynamics. In addition, the A-B design of this study is extremely weak, as the differences found after the hypnotic induction could be caused by the (not neutral) induction, the suggestions given after the induction, a combination of these, or the mere passage of time and consequent fatigue. Furthermore, since the participant was not probed or interviewed during or after the session, all statements in the paper about her possible imagery, the depth of her hypnotic state, and so on, are no more than speculations based on her experiences in very different contexts. Furthermore, there is evidence that intra-individual experiences vary not only across sessions but even within the same session and have differential effects on brain dynamics (Cardeña

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\* Fax: +46 46 222 4209.

E-mail address: [Etzel.Carden@psychology.lu.se](mailto:Etzel.Carden@psychology.lu.se)

et al., in press). There are a number of introspective methods that the authors might have used during the session (cf. Pekala & Cardeña, 2000), some of which continue to be validated (Fox, Ericsson, & Best, 2011).

This study also raises a number of ethical considerations. A variety of studies show that in general hypnotic virtuosos not only do not experience “unpleasant material” during neutral hypnosis, but actually report meaningful and emotionally positive experiences (see Cardeña, 2005). Thus, a reasonable interpretation is that the participant was given a post-amnesia suggestion because she had had previous negative experiences during hypnosis, yet was asked nonetheless to undergo such a procedure. There is also a statement that the dehypnotization procedure “was quite prolonged and needed repetitive stimulation, after which the participant looked fatigued” and that her “emotional activation was evident” during the session. The participant in this experiment may be a high dissociator who exhibits hypertonia, has difficulties coming out of hypnosis, and has a history of trauma (cf. Barrett, 1992). I find it difficult to justify using an amnesic posthypnotic procedure in order to try to circumvent expected emotional distress. The obvious alternative would have been simply to not expose the participant to this possibility and do research on high hypnotizables who do not have negative reactions to hypnosis, in accord with The International Society of Hypnosis Code of Ethics: 1.2 (Members should always give first priority to the welfare of the patient of experimental subject when using hypnosis). It also seems from the paper’s description that the participant was not debriefed about what happened during the session and apparently never had her post-hypnotic amnesia suggestion cancelled. Although there are circumstances in therapy in which it may be advisable to tell individuals that they may choose not to remember painful experiences that emerge during a session until they can deal with them appropriately (Cardeña, Maldonado, Van der Hart, & Spiegel, 2009), the typical practice is to cancel the posthypnotic suggestion after experimental and clinical sessions (e.g., Barnier & McConkey, 1999; see also Weitzenhoffer, 2000).

To end in a more positive note, I would encourage the authors to continue doing research in hypnosis, but to pay as much amount of attention to phenomenological as to physiological issues and to become more sensitive to ethical concerns.

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