

## DISPOSITIONAL CORRELATES OF HYPNOSIS: A PHENOMENOLOGICAL APPROACH<sup>1</sup>

JOHN F. KIHLMSTROM

*University of Arizona, Tucson*

PATRICIA A. REGISTER, IRENE P. HOYT,  
JEANNE SUMI ALBRIGHT<sup>2</sup>, ELLEN M. GRIGORIAN,  
WILLIAM C. HEINDEL,<sup>3</sup> AND CHARLES R. MORRISON<sup>4,5,6</sup>

*University of Wisconsin, Madison*

**Abstract:** An attempt was made to construct and validate a questionnaire measure of hypnotic-like experiences based on Shor's (1979) 8-dimension phenomenological analysis of hypnosis. Separate item pools were developed to measure each disposition: Trance, Nonconscious Involvement, Archaic Involvement, Drowsiness, Relaxation, Vividness of Imagery, Absorption, and Access to the Unconscious. Based on preliminary testing (total  $N = 856$ ), a final questionnaire was produced containing 5 items measuring normal, everyday experiences in each domain. Results from a standardization sample ( $N = 468$ ) showed that each of the subscales, except for Archaic Involvement, possessed satisfactory levels of internal consistency and test-retest reliability. Factor analysis indicated that 6 subscales loaded highly on a common factor similar to the absorption construct (Tellegen & Atkinson, 1974), while items pertaining to Relaxation and Archaic Involvement formed separate factors. Validation testing on 4 samples receiving the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) of Shor and E. Orne (1962) (total  $N = 1855$ ) showed that the Absorption and Trance dimensions correlated most strongly with HGSHS:A; the correlations with Drowsiness, Relaxation, and Nonconscious Involvement approached 0. The scales derived from Shor's analysis, however, did not improve the prediction of hypnotizability over that obtained with the absorption scale (Tellegen & Atkinson, 1974).

Manuscript submitted May 27, 1986; final revision received September 30, 1987.

<sup>1</sup>This research was supported in part by Grant #MH-35856 from the National Institute of Mental Health, and in part by an H. I. Romnes Faculty Fellowship from the University of Wisconsin.

<sup>2</sup>Jeanne S. Albright is now at Northwestern University.

<sup>3</sup>William C. Heindel is now at the University of California, San Diego.

<sup>4</sup>Charles R. Morrison is now at the University of Idaho.

<sup>5</sup>The authors thank Joseph Chorny, William Fleeson, Robert Nadon, and Laura Otto for their comments during the preparation of this paper.

<sup>6</sup>Reprint requests should be addressed to John F. Kihlstrom, Ph.D., Department of Psychology, University of Arizona, Tucson, AZ 85721.

For more than half a century (Barry, MacKinnon, & Murray, 1931), investigators have attempted to uncover correlates of hypnotizability within the wider domain of personality and individual differences (see reviews by Barber, 1964; E. R. Hilgard, 1965a,b, 1975; Kihlstrom, 1985; Shor, M. T. Orne, & O'Connell, 1966). The most reliable finding in this literature is that hypnotizable individuals show a tendency to have experiences resembling hypnosis outside the formal hypnotic context. Building on earlier work by Shor (1960; Shor, M. T. Orne, & O'Connell, 1962), J. R. Hilgard (1970, 1974, 1979; J. R. Hilgard & E. R. Hilgard, 1962), Ås, (1963; Ås & Lauer, 1962; Ås, O'Hara, & Munger, 1962), and Lee-Teng (1965), a number of investigators have focused on *imaginative involvement* or *absorption* as a major dimension underlying individual differences in hypnotizability.

Based on the results of intensive structured interviews, J. R. Hilgard (1970) concluded that hypnotizable individuals tended to be characterized by high levels of involvement in at least one area of imaginative experience—for example, reading, or drama. Other involvements, such as competitive athletics or science, were unrelated to hypnotizability. Later, a questionnaire study by Tellegen and Atkinson (1974) found that hypnotizable individuals were more likely to report experiences where their attention was fully engaged in some object or experience, resulting in an altered sense of reality. While a number of investigators have developed personality inventories for the purpose of measuring individual differences in hypnotic-like experiences, Tellegen's Absorption Scale (TAS) of Tellegen and Atkinson (1974) quickly became the instrument of choice for these studies, and a number of later studies have confirmed the correlation obtained by them (e.g., Crawford, 1982; Finke & Macdonald, 1978; Kihlstrom, Diaz, McClellan, Ruskin, Pistole, & Shor, 1980; Spanos & McPeake, 1975). Others have introduced alternative instruments of a similar nature, with similar results (for a review, see J. R. Hilgard, 1979).

Despite the status of absorption or imaginative involvement as a reliable correlate of hypnotizability, it should be noted that the correlations in question, while of considerable theoretical significance, are too low to be of use in predicting hypnotizability in advance. The fact that the majority of variance in hypnotizability is unexplained by absorption has led other investigators to suggest additional dimensions, such as vividness of mental imagery (Sheehan, 1979, 1982) and creativity (P. G. Bowers, 1979; P. G. Bowers & K. S. Bowers, 1979), that may be relevant. For example, a recent study by Nadon and his associates (Nadon, Laurence, & Perry, 1987) found that considering Ss' preference for an imagic cognitive style as well as their tendencies toward absorption enhanced the prediction of hypnotizability.

In particular, Shor (1959, 1962, 1979) has provided an analysis of the phenomenological experience of hypnosis that may prove a fertile source of additional correlates of hypnotizability. He argued that the essence of

TABLE 1  
PHENOMENOLOGICAL DIMENSIONS OF HYPNOSIS<sup>a</sup>

Dimension	Definition
Trance (TR)	The extent to which there was a temporary elimination of the Generalized Reality Orientation (GRO) from the immediate background of consciousness, leaving the ongoing contents of consciousness isolated, devoid of perspective, devoid of wide abstract interpretive significance.
Nonconscious Involvement (NI)	The extent to which the set of ideas and motives to fulfill the role of hypnotic subject were dissociated beyond the bounds of consciousness and were thus nonconsciously directive.
Archaic Involvement (AI)	The extent to which there occurred a temporary displacement or "transference" onto the person of the hypnotist of core personality emotive attitudes originally formed early in life most typically in regard to parents (i.e., the extent to which there were archaic, primitive modes of relating to the hypnotist that echo back to the love relationships of early life).
Drowsiness (DR)	The extent to which the subject felt subjectively drowsy. Subjective drowsiness manifests itself in one consistent way: namely, as feelings of combined sluggishness, grogginess, sleepiness, and lulling of mental energies.
Relaxation (RE)	The extent to which the subject felt subjectively relaxed. Subjective relaxation manifests itself in one consistent way: namely, as combined feelings of the quieting down of mind and body, the decrease of muscular and mental tensions, calmness, peacefulness, being at ease, and tranquility.
Vividness of Imagery (IM)	The extent to which the mental imagery experienced in hypnosis was equivalent to the vividness of actual percepts as judged in terms of the judgmental standards of the fully intact GRO.
Absorption (AB)	The extent to which the subject was attentively engrossed in the ongoing hypnotic experience.
Access to the Unconscious (AU)	The extent to which there was an availability to consciousness of usually unconscious, usually repressed, primary process content and modes of thought.

<sup>a</sup>After Shor (1979).

hypnosis lies in the suspension of S's "generalized reality orientation," with the result that distal stimulation (whether exteroceptive or interoceptive) no longer is the principal determinant of subjective experience. This isolation of ongoing experience from external reality and critical self-appraisal is called "trance," and the underlying cognitive skill "tranceability." Shor conceived of tranceability as the aptitudinal component contributing to hypnotizability—though it could also be manifest in experiences other than hypnosis, as in the book-reading fantasy. In addition, he conceived of an attitudinal component consisting of situational and interpersonal variables that determine whether a tranceable person would enter trance on a particular occasion. Finally, Shor argued that the experience of a tranceable individual following a hypnotic induction would vary along a number of different dimensions. Table 1 lists eight dimensions of hypnosis, along with Shor's (1979) definition of each.

Three of these dimensions were conceived as essential to hypnosis. *Trance*, as indicated earlier, consists of the loss or suspension of the mental framework (schema) that ordinarily provides the individual with a cognitive context for the interpretation of experience and the organization of action. When it is eliminated or reduced, the boundaries between imagination, illusion, and reality become blurred, and reflective self-awareness is diminished. At this point, imaginative experiences suggested by the hypnotist become subjectively real. Shor (1979) noted, however, that tranceable individuals enter hypnosis only because they are motivated to do so (or, perhaps, because they are *not* motivated *not* to do so): "A hypnotized subject is not a will-less automaton. The hypnotist does not crawl inside a subject's body and take control of his brain and muscles [p. 124]." During hypnosis, Shor argued, S is actively creating the subjective experiences for him- or herself. But this voluntary activity proceeds outside of phenomenal awareness. The product of this *nonconscious involvement* is the experience of involuntariness and effortlessness. Finally, Shor argued that the hypnotist-subject interaction took on the qualities of the parent-child relationship. While the degree of *archaic involvement* is probably higher in the clinical consulting room than in the controlled environment of the psychological laboratory, Shor argued that it was present to some degree in every occurrence of hypnosis.

Five other dimensions were conceived as not essential to hypnosis. For example, there might be some degree of *drowsiness*; of physical and mental *relaxation*; some degree of mental *imagery*; and of *absorption* in the ongoing hypnotic experience. Finally, the person might become aware of ideas and memories that are ordinarily excluded from conscious awareness — what Shor called *access to the unconscious*.

Shor noted that hypnosis, as defined by the traditional induction procedure and suggestions of the type contained in the standardized scales, was not the only place where activity defined by these dimensions could be found. For example, he noted that trance, nonconscious involvement, and archaic involvement were frequent attributes of the "peak experiences" described by Maslow (1959, 1962)<sup>7</sup> — and in the book-reading fantasy and personal heterosuggestion (Shor, 1970). Trance and nonconscious involvement, in the absence of archaic involvement, are to be found in highway hypnosis (Shor & Thackray, 1970; Williams & Shor, 1970). For that reason, Shor suggested that the occurrence of these "hypnotic-like" experiences in domains other than hypnosis would reflect an underlying disposition. In fact, his Personal Experiences Questionnaire, intended to assess the occurrence of trance, nonconscious involvement, and archaic involvement in domains other than hypnosis, is a successful predictor of hypnotizability (Shor, 1960; Shor et al., 1962, 1966). The present research attempted to develop a questionnaire inventory of everyday experiences

<sup>7</sup>Not coincidentally, Maslow was Shor's mentor at Brandeis University.

relevant to each of Shor's eight dimensions, and to determine the utility of such a questionnaire in predicting hypnotizability.

#### SCALE CONSTRUCTION

Of the various methods available for the construction of personality questionnaires, current evidence indicates that the rational or intuitive strategy, in which the investigator simply writes items (or chooses them from a larger pool) that possess face validity with respect to the attribute in question, is superior on grounds of validity and utility to the empirical strategy in which the investigator selects items that correlate with some independent criterion of the attribute (Goldberg, 1972; Jackson, 1971). Accordingly, seven item-writers, each with substantial experience with hypnosis, familiarized themselves with Shor's (1979) eight-dimension phenomenological analysis of hypnosis. Then, each member of the group wrote a number of items bearing on each dimension. This initial item pool was then edited and refined through group discussion, yielding eight separate scales, consisting of 26-45 dichotomous items, each pertaining to a different dimension in Shor's scheme.

These eight intuitively derived questionnaires were administered to separate groups of college student volunteers (total  $N = 856$ ) participating in a survey session as part of the extra-credit option in their introductory psychology class. Each of the eight scales was submitted to a separate principal-factor analysis. Within each scale, items were selected that had the highest loadings (positive or negative) on the unrotated first factor. From these reduced sets, items with extremely high or low endorsement rates were excluded from further consideration. Finally, five items were selected for inclusion on the final scale, based on considerations of content validity. The 40 items ultimately selected had average loadings (unsigned) of .53 ( $S.D. = .09$ ) on their respective first factors, and average endorsement rates of .49 ( $S.D. = .09$ ).

#### STANDARDIZATION OF THE SCALE

The resulting eight five-item scales, which came to be known collectively as the Wisconsin Experience Questionnaire (WEQ), were then combined with the 34 items of TAS. This new scale, WEQTAS, was administered the following semester to a random sample of 468 college students who also participated in a survey session as part of the extra credit option of their introductory psychology course.

The mean WEQ subscale scores ranged from 2.05 (on Trance) to 3.26 (Drowsiness), averaging 2.69 on the 5-point scales, or an average endorsement rate of 53.8%. Thus, the average score on each subscale was appropriately located about midway between floor and ceiling, leaving plenty of room for individual differences to manifest themselves. The levels of internal consistency for the subscales (as measured by coefficient alpha) ranged from .39 (Archaic Involvement) to .66 (Trance), with a mean of .58 — fairly good, considering the brief length of the subscales.

TABLE 2  
LOADINGS OF WEQ ITEMS ON FIRST FACTOR

Factor Loading	Subscale	Item
0.57	TR	Sometimes I can't tell if something really happened or if I just imagined it.
0.55	IM	Once in a while, usually when I'm tired, I think that someone's just said something to me, but when I look around, there's no one there.
0.54	IM	There have been times when I thought for sure that I saw something, but it turned out not to be actually there. Maybe it was a mirage or a kind of hallucination, but I still remember seeing it.
0.53	AU	Bizarre or fantastic thoughts that seem to be from old dreams, or from my unconscious run through my mind at times without my trying at all to think about them.
0.53	TR	Sometimes I slip into a state where I am only aware of myself, and oblivious to everything else.
0.53	AB	Sometimes I find people so fascinating, that I stare at them for long periods of time, until my companions shake me out of it.
0.52	DR	There are times when I feel like I'm walking around in a haze, not totally awake.
0.51	TR	Once in a while, just as I'm about to tell someone something that has happened, I suddenly think, "Wait, did that really happen?" and after a few moments I realize it must have been a dream I've had, because it never actually happened.
0.51	TR	At times I lose track of where I am.
0.49	NI	Sometimes when I am doing something, like typing or playing the piano, my mind will start to wander to other things and I will almost forget that I am still doing the activity.
0.48	AU	Sometimes when I'm daydreaming, or even just thinking about nothing in particular, I realize I've been thinking really illogical thoughts, so that I can't make any sense out of what I was just thinking a few seconds before.
0.47	NI	It sometimes seems like the situation is in control of me, instead of me being in control of the situation.
0.47	AB	I can become totally engrossed in nothing at all—like staring out into space.
0.46	NI	There are times when I do something without thinking about it beforehand, and afterwards I'm surprised that I've done it.
0.46	DR	Often, even though I haven't worked very hard, I feel that my mental energies are low.
0.46	TR	Sometimes people have to call my name several times before I can even hear them.
0.46	AU	Sometimes a thought will come to my mind that seems so totally foreign that I wonder what could have possibly made me think of it.
0.45	RE	When I get tense, or anxious, I find it difficult to calm myself down.
0.44	NI	My mind often seems to resist thinking about or attending to what I want it to do.
0.44	IM	Sometimes I can picture myself doing something so vividly that I can actually feel the sensations that go on with the image.
0.43	AU	Without my seeming to direct my thoughts, they sometimes turn to my childhood or to some emotional experience from my past.
0.42	NI	Sometimes when somebody asks me for my opinion, I'll give a reply without thinking and later have to determine whether I really meant what I said.
0.41	AB	I sometimes concentrate on only what I feel or think, and ignore everything else around me.

(TABLE 2 cont. p. 255)

TABLE 2 (cont.)

TABLE 2  
LOADINGS OF WEQ ITEMS ON FIRST FACTOR

Factor Loading	Subscale	Item
0.36	AU	I have often caught myself flirting with someone, or acting as if I was romantically interested in them, even though I hadn't even consciously realized <i>at all</i> that I was attracted to him (or her), but I really was.
0.36	RE	I often have trouble shutting off my mind and getting relaxed so I can fall asleep.
0.35	AI	When I'm in the company of people who are older than I, I sometimes feel like a small child again.
0.35	AB	When I'm listening to certain pieces of music, I get fully involved, so I'm not aware of other sounds around me.
0.35	IM	When I'm watching a food commercial on TV, like a pizza ad, I sometimes can actually smell the food.
0.33	IM	If I think about some type of food, like a lemon or some fudge, I can really taste it.
0.30	DR	I'm often quite sleepy and either take a nap, or would like to, during the day.
0.27	DR	Sometimes I find it impossible to stay awake, even if it's important that I do so.
0.25	AB	It's hard for me to pay attention to things around me when I'm focusing on one particular task.
0.25	AI	I have a tendency to idealize people who appear to be powerful and successful.
-.22	RE	It's usually easy for me to relax both my mind and body.
-.20	DR	If I just stop what I'm doing and think about relaxing, I relax.
-.19	DR	I'm usually quite alert during waking hours and don't get sleepy until I go to bed at night.
0.17	AI	If I were in an experiment, I would try very hard to please the experimenter.
-.16	RE	When something is on my mind that is getting me upset, I am able to set it aside for a while until I calm down.
0.10	AI	I wanted good grades in school, but in addition my academic work had a strong personal element—that is, I didn't want to disappoint or embarrass my teachers.
0.04	AI	I usually do everything I can to keep people happy.

Note. — TR = Trance; NI = Nonconscious Involvement; AI = Archaic Involvement; DR = Drowsiness; RE = Relaxation; IM = Vividness of Imagery; AB = Absorption; AU = Access to the Unconscious.

The questionnaire items were submitted to a principal factor analysis using varimax rotation. The unrotated solution yielded 11 factors with eigenvalues greater than 1.0, accounting for a total of 52.2% of the variance. Table 2 shows all WEQ items, their intuitive subscale assignments, and their loadings on the first factor. A "First Factor" scale was constructed from those 26 items with factor loadings greater than .35. These items spanned all eight intuitive subscales (Trance, 5 items; Nonconscious Involvement, 5; Archaic Involvement, 1; Drowsiness, 2; Relaxation, 2; Imagery, 3; Absorption, 3; Access to the Unconscious, 5). The First Factor scale constructed from these 26 items (using unit weightings) yielded a coefficient alpha of .87.

Of the 468 Ss who completed WEQTAS questionnaire during the survey session, a subsample of 123 Ss completed the instrument again ap-

proximately 2 weeks later during a formal hypnosis experiment (see below). For TAS, the test-retest reliability coefficient was .85. The corresponding values for WEQ subscales ranged from .59 (Access to the Unconscious) to .74 (Archaic Involvement), with a value of .79 for the 26-item "First Factor" subscale. Therefore, the dispositions measured by WEQ subscales show appreciable stability, at least over a relatively short interval.

#### EXTERNAL VALIDITY OF THE SCALE

In the final phase of the research, various scores derived from WEQ were correlated with a criterion of hypnotizability, the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) of Shor and E. C. Orne (1962, 1963). Although a better criterion for hypnotizability is provided by individually administered scales such as the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C) of Weitzenhoffer and E. R. Hilgard (1962), such scales are uneconomical for present purposes because of the effort required to build a sample of adequate size. In studies such as this, group-administered measures permit the power afforded by large samples to compensate somewhat for HGSHS:A's inadequacy as a sole criterion measure of hypnotizability.

#### METHOD

##### *Subjects*

Data collection for this part of the study extended over a period of four semesters and involved a total of 1855 Ss. All were college students who volunteered for an experiment involving the assessment of hypnotizability. Sample 1 consisted of 486 Ss, including the 123 Ss who served as the basis for the analysis of test-retest reliability reported above. Data collection then continued for the next three semesters: Sample 2,  $N = 456$ ; Sample 3,  $N = 393$ ; and Sample 4,  $N = 520$ . In return for their participation, all Ss received extra credit toward the experimental participation option in the course. In the course of further screening preliminary to other studies in the laboratory, 221 of these Ss also received SHSS:C.

##### *Procedure*

For all subsamples in the validity study, WEQTAS was completed by Ss immediately prior to administration of HGSHS:A. No other questionnaires were administered during this session. The HGSHS:A was then administered by tape-recording and scored employing the revised criterion for posthypnotic amnesia (Kihlstrom & Register, 1984). The entire experimental session lasted approximately 90 minutes.

#### RESULTS

For the total sample of 1855 Ss, the mean HGSHS:A score was 6.45 ( $S.D. = 2.50$ ). The mean total TAS score was 17.65 ( $S.D. = 6.76$ ). These values are comparable to, if not slightly higher than, those obtained in the survey sample. Because ANOVA revealed no significant differences across groups, the subsamples were combined for the purposes of further analysis.



TABLE 3  
INTERCORRELATIONS AMONG WEQ SUBSCALES

Variable	WEQ Subscale								
	TR	NI	AI	DR	RE	IM	AB	AU	FF
TR		0.46	0.20	0.38	-.11	0.47	0.51	0.48	0.79
NI			0.25	0.39	-.22	0.37	0.46	0.47	0.73
AI				0.15	-.14	0.20	0.18	0.23	0.30
DR					-.18	0.26	0.31	0.32	0.50
RE						-.06	-.09	-.11	-.08
IM							0.35	0.47	0.65
AB								0.39	0.62
AU									0.77
TAS	0.50	0.40	0.21	0.26	-.01	0.62	0.49	0.57	0.67
HGSHS:A	0.16	0.03	0.09	0.05	0.05	0.13	0.17	0.11	0.14
SHSS:C*	0.10	-.06	0.16	0.04	-.08	0.18	0.20	0.09	0.12

Note. — TR = Trance; NI = Nonconscious Involvement; AI = Archaic Involvement; DR = Drowsiness; RE = Relaxation; IM = Vividness of Imagery; AB = Absorption; AU = Access to the Unconscious; FF = First Factor. Total  $N = 1855$ .

\*Subsample  $N = 221$ .

#### *Intercorrelations among WEQ Subscales*

Table 3 shows the intercorrelations among the eight 5-item WEQ content subscales, plus the 26-item "First Factor" subscale, based on the entire sample of 1855 Ss. Five subscales—Trance, Nonconscious Involvement, Vividness of Imagery, Absorption, and Access to the Unconscious—were highly correlated with the First Factor, although each seems to represent a somewhat different domain of experience. As in the original factor analysis, Relaxation and Archaic Involvement comprised two domains quite separate from the First Factor. The correlations between each of these scales and the others were relatively low (though statistically significant because of the large  $N$ ), and they were not strongly correlated with each other.

#### *Correlations with Absorption*

Table 3 also shows the correlations between each WEQ subscale and total score on TAS. Three WEQ subscales, Archaic Involvement, Drowsiness, and Relaxation, showed very low correlations with TAS. The correlation between TAS and the First Factor subscale was about as high as is permitted by the reliabilities of the two scales in question, indicating that TAS and WEQ-First Factor are alternative measurements of the same construct.

#### *Correlations with Hypnotizability*

Finally, Table 3 shows the correlations between each of the nine predictor variables—the eight rational WEQ subscales plus the "First Factor" subscale—with HGSHS:A score. Because of the large sample size, even very low correlations proved to be statistically significant. For the entire sample, the correlation with HGSHS:A score was .20 ( $p < .001$ ) for the total TAS score, and .14 ( $p < .001$ ) for the "First Factor" subscale of WEQ. For the four subsamples, the correlations for TAS ranged from .17 to .22, and for WEQ-First Factor from .13 to .17.

Among WEQ subscales, the highest correlation was for Absorption ( $p < .001$ ), underscoring the importance of this dimension to hypnosis. The correlation with Trance ( $p < .001$ ), however, was almost as high. Somewhat lower correlations were obtained for Imagery, Access to the Unconscious, and Archaic Involvement (all  $p < .001$ ). Of the remaining subscales represented on the first factor, the correlations for Drowsiness and Relaxation were substantially lower ( $p < .05$ ). The correlation for Nonconscious Involvement was not statistically significant, even with the large sample size.

#### *Subsample Receiving SHSS:C*

As noted, a selected subsample of 221 Ss returned to the laboratory for an individual administration of SHSS:C. Because of the manner in which these Ss were selected, their scores on HGSHS:A were somewhat higher than for the whole sample of 1855 ( $\bar{X} = 8.56$ ,  $S.D. = 3.02$ ). The mean SHSS:C score was 7.44 ( $S.D. = 3.36$ ). The correlation between HGSHS:A and SHSS:C was .72—a figure that, again, is somewhat inflated because of sample selection (Register & Kihlstrom, 1986). The scores of the subsample on TAS and on the various WEQ subscales, however, were closely comparable to those in the larger sample from which they had been drawn.

Table 3 shows correlations between TAS and the various WEQ-TAS scales and subscales with SHSS:C scores. The pattern of results closely resembled that observed with HGSHS:A: among WEQ subscales, the highest correlations were with Absorption, Vividness of Imagery, and Trance; the correlation with Archaic Involvement increased somewhat. The correlations between SHSS:C and both TAS and WEQ-First Factor were not substantially different from those observed with HGSHS:A (TAS,  $r = .21$ ; WEQ-First Factor,  $r = .12$ ).

#### *Multiple Regression Analysis*

In order to examine the differential contribution of WEQ items to the prediction of hypnotizability, the score from the First Factor subscale was entered, along with TAS scores, as predictor variables in a stepwise multiple regression analysis, with HGSHS:A score serving as the criterion variable. Because TAS is an established predictor of hypnotizability it was entered first. The WEQ subscales, in order of their entry into the multiple regression, were: Absorption, Nonconscious Involvement, Trance, Vividness of Imagery, Archaic Involvement, Relaxation, Access to the Unconscious, and Drowsiness. The final multiple correlation, however, yielded by this analysis ( $R = .20$ ), represented no improvement over the initial value. Therefore, WEQ-First Factor accounted for no unique variance in the prediction of hypnotizability.

#### DISCUSSION

Following a pattern established by a host of prior investigators, the studies reported here searched for correlates of hypnotizability within those normal, everyday experiences that resemble hypnosis. In contrast

to the currently popular emphasis on imaginative involvement and absorption, the present research cast a somewhat broader net, exploring other dimensions of personality that might tap aspects of the hypnotic experience. Nevertheless, consideration of these additional variables did not improve the prediction of hypnotizability, over and above what was achieved by TAS alone.

Although many previous investigators have conceptualized hypnotic-like experiences as multifaceted in nature, their questionnaires typically yielded only a single aggregate score. Accordingly, most empirical attempts to predict hypnotizability have involved only bivariate correlation coefficients (for a recent exception, see Nadon et al., 1987). Following the example of Lee-Teng (1965; see also E. R. Hilgard, 1965), the present authors attempted to write eight homogeneous subscales, each tapping a separate dimension relevant to hypnosis, and to utilize each variable as a predictor in a multiple regression analysis. Six of the eight variables in Shor's phenomenological theory, at least as operationalized in this study, however, appeared to share a considerable amount of variance in common among themselves, and with TAS, and added little or nothing to TAS as predictors of hypnotizability. These results indicate that TAS, by itself, provides a fairly comprehensive sample of nonhypnotic perceptual-cognitive experiences relevant to hypnosis.

Although the present study failed to improve the prediction of hypnotizability, it does offer positive evidence of the convergent validity of Tellegen's absorption construct. That is, test items derived from Shor's (1959, 1962, 1970, 1979) phenomenological analysis of hypnosis appear to sample the same universe of content as Tellegen's intuitive analysis of the experience of absorption. Similar evidence was offered by Finke and Macdonald (1978), who found a comparable correlation between TAS and a measure of attentional involvement developed by Swanson (1978). More recently, McCrae and Costa (1983, 1985) have defined a major dimension of personality, "openness to experience," that combines elements of absorption with intelligence and culturedness. Openness to experience may be measured by either self-reports or rating scales, but it remains to be seen how it relates to absorption as defined by Tellegen, or to hypnosis itself.

Although absorption is the single focus of TAS, and only one element in Shor's phenomenological analysis, content analyses of TAS indicate, in fact, that its items bear on more than the individual's tendency to commit attentional resources to a single object or event (Roche, 1986; Tellegen, 1981). They also tap a disposition toward experiential (as opposed to instrumental) mental sets. Finally, TAS items seem to measure the individual's capacity for dissociative and holistic experiences involving, respectively, the narrowing and broadening of attentional focus. With "absorption" construed this broadly, it is not surprising that tendencies and experiences that are not explicitly absorptive in nature are captured in its net.

## REFERENCES

- Ås, A. Hypnotizability as a function of non-hypnotic experiences. *J. abnorm. soc. Psychol.*, 1963, 66, 142-150.
- Ås A., & LAUER, L. W. A factor-analytic study of hypnotizability and related personal experiences. *Int. J. clin. exp. Hypnosis*, 1962, 10, 169-181.
- Ås A., O'HARA, J. W., & MUNGER, M. P. The measurement of subjective experiences presumably related to hypnotic susceptibility. *Scand. J. Psychol.*, 1962, 3, 47-64.
- BARBER, T. X. Hypnotizability, suggestibility, and personality: V. A critical review of research findings. *Psychol. Rep.*, 1964, 14, 299-320.
- BARRY, H., MACKINNON, D. W., & MURRAY, H. A. Hypnotizability as a personality trait and its typological relations. *Hum. Biol.*, 1931, 3, 1-36.
- BOWERS, P. G. Hypnosis and creativity: The search for the missing link. *J. abnorm. Psychol.*, 1979, 88, 564-572.
- BOWERS, P. G., & BOWERS, K. S. Hypnosis and creativity: A theoretical and empirical rapprochement. In E. Fromm & R. E. Shor (Eds.), *Hypnosis: Developments in research and new perspectives*. (Rev. 2nd ed.) New York: Aldine, 1979. Pp. 351-379.
- CRAWFORD, H. J. Hypnotizability, daydreaming style, imagery vividness, and absorption: A multidimensional study. *J. Pers. soc. Psychol.*, 1982, 42, 915-926.
- FINKE, R. A., & MACDONALD, H. Two personality measures relating hypnotic susceptibility to absorption. *Int. J. clin. exp. Hypnosis*, 1978, 26, 178-183.
- GOLDBERG, L. R. Parameters of personality inventory construction and utilization: A comparison of prediction strategies and tactics. *Multivariate behav. Res. Monogr. No. 72-2*, 1972.
- HILGARD, E. R. *Hypnotic susceptibility*. New York: Harcourt, Brace, & World, 1965. (a)
- HILGARD, E. R. Hypnosis. *Ann. Rev. Psychol.*, 1965, 16, 157-180. (b)
- HILGARD, E. R. Hypnosis. *Ann. Rev. Psychol.*, 1975, 26, 19-44.
- HILGARD, J. R. *Personality and hypnosis: A study of imaginative involvement*. Chicago: Univer. of Chicago Press, 1970.
- HILGARD, J. R. Imaginative involvement: Some characteristics of the highly hypnotizable and the non-hypnotizable. *Int. J. clin. exp. Hypnosis*, 1974, 22, 138-156.
- HILGARD, J. R. *Personality and hypnosis: A study of imaginative involvement*. (2nd ed.) Chicago: Univer. of Chicago Press, 1979.
- HILGARD, J. R., & HILGARD, E. R. Developmental-interactive aspects of hypnosis: Some illustrative cases. *Genet. Psychol. Monogr.*, 1962, 66, 143-178.
- JACKSON, D. N. The dynamics of structured personality tests: 1971. *Psychol. Rev.*, 1971, 78, 229-248.
- KIHLLSTROM, J. F. Hypnosis. *Ann. Rev. Psychol.*, 1985, 36, 385-418.
- KIHLLSTROM, J. F., DIAZ, W. A., MCCLELLAN, G. E., RUSKIN, P. M., PISTOLE, D. D., & SHOR, R. E. Personality correlates of hypnotic susceptibility: Needs for achievement and autonomy, self-monitoring, and masculinity-femininity. *Amer. J. clin. Hypnosis*, 1980, 22, 225-230.
- KIHLLSTROM, J. F., & REGISTER, P. A. Optimal scoring of amnesia on the Harvard Group Scale of Hypnotic Susceptibility, Form A. *Int. J. clin. exp. Hypnosis*, 1984, 32, 51-57.
- LEE-TENG, E. Trance susceptibility, induction susceptibility, and acquiescence as factors in hypnotic performance. *J. abnorm. Psychol.*, 1965, 70, 383-389.
- MASLOW, A. H. Cognition of being in the peak experiences. *J. genet. Psychol.*, 1959, 94, 43-66.
- MASLOW, A. H. *Toward a psychology of being*. Princeton: Van Nostrand, 1962.
- MCCRAE, R. R., & COSTA, P. T. Joint factors in self-reports and ratings: Neuroticism, extraversion, and openness to experience. *Pers. ind. Diff.*, 1983, 4, 245-255.
- MCCRAE, R. R., & COSTA, P. T. Validation of the five-factor model of personality across instruments and observers. *J. Pers. soc. Psychol.*, 1987, 52, 81-90.

- NADON, R., LAURENCE, J.-R., & PERRY, C. Multiple predictors of hypnotic susceptibility. *J. Pers. soc. Psychol.*, 1987, 53, 948-960.
- REGISTER, P. A., & KIHLSSTROM, J. F. Finding the hypnotic virtuoso. *Int. J. clin. exp. Hypnosis*, 1986, 34, 84-97.
- ROCHE, S. Absorption ability and experience: Theory and data. Unpublished B. A. (Hons.) thesis, Macquarie University, 1986.
- SHEEHAN, P. W. Hypnosis and the processes of imagination. In E. Fromm & R. E. Shor (Eds.), *Hypnosis: Developments in research and new perspectives*. (Rev. 2nd ed.) New York: Aldine, 1979. Pp. 381-411.
- SHEEHAN, P. W. Imagery and hypnosis — Forging a link, at least in part. *Res. Comm. Psychol., Psychiat., Behav.*, 1982, 7, 257-272.
- SHOR, R. E. Hypnosis and the concept of the generalized reality orientation. *Amer. J. Psychother.*, 1959, 13, 582-602.
- SHOR, R. E. The frequency of naturally occurring "hypnotic-like" experiences in the normal college population. *Int. J. clin. exp. Hypnosis*, 1960, 8, 151-163.
- SHOR, R. E. Three dimensions of hypnotic depth. *Int. J. clin. exp. Hypnosis*, 1962, 10, 23-38.
- SHOR, R. E. The three-factor theory of hypnosis as applied to the book-reading fantasy and to the concept of suggestion. *Int. J. clin. exp. Hypnosis*, 1970, 18, 89-98.
- SHOR, R. E. A phenomenological method for the measurement of variables important to an understanding of the nature of hypnosis. In E. Fromm & R. E. Shor (Eds.), *Hypnosis: Developments in research and new perspectives*. (Rev. 2nd ed.) New York: Aldine, 1979. Pp. 105-135.
- SHOR, R. E., & ORNE, E. C. *Harvard Group Scale of Hypnotic Susceptibility, Form A*. Palo Alto, CA: Consulting Psychologists Press, 1962.
- SHOR, R. E., & ORNE, E. C. Norms on the Harvard Group Scale of Hypnotic Susceptibility, Form A. *Int. J. clin. exp. Hypnosis*, 1963, 11, 39-47.
- SHOR, R. E., ORNE, M. T., & O'CONNELL, D. N. Validation and cross-validation of a scale of self-reported personal experiences which predicts hypnotizability. *J. Psychol.*, 1962, 53, 55-75.
- SHOR, R. E., ORNE, M. T., & O'CONNELL, D. N. Psychological correlates of plateau hypnotizability in a special volunteer sample. *J. Pers. soc. Psychol.*, 1966, 3, 80-95.
- SHOR, R. E., & THACKRAY, R. I. A program of research on "highway hypnosis": A preliminary report. *Acc. Anal. Prev.*, 1970, 2, 103-109.
- SPANOS, N. P., & MCPHAKE, J. D. Involvement in everyday imaginative activities, attitudes toward hypnosis, and hypnotic suggestibility. *J. Pers. soc. Psychol.*, 1975, 31, 594-598.
- SWANSON, G. E. Travels through inner space: Family structure and openness to absorbing and self-altering experiences. *Amer. J. Sociol.*, 1978, 83, 890-919.
- TELLEGEN, A. Practicing the two disciplines for relaxation and enlightenment: Comment on "The role of the feedback signal in electromyographic feedback: The relevance of attention" by Qualls and Sheehan. *J. exp. Psychol.: Gen.*, 1981, 110, 217-226.
- TELLEGEN, A., & ATKINSON, G. Openness to absorbing and self-altering experiences ("absorption"), a trait related to hypnotic susceptibility. *J. abnorm. Psychol.*, 1974, 83, 268-277.
- WEITZENHOFER, A. M., & HILGARD, E. R. *Stanford Hypnotic Susceptibility Scale, Form C*. Palo Alto, CA: Consulting Psychologists Press, 1962.
- WILLIAMS, G. W., & SHOR, R. E. An historical note on highway hypnosis. *Acc. Anal. Prev.*, 1970, 2, 223-225.

### Dispositionskorrelate der Hypnose: Ein phänomenologisches Verfahren

John F. Kihlstrom, Patricia A. Register, Irene P. Hoyt, Jeanne Sumi Albright, Ellen M. Grigorian, William C. Heindel und Charles R. Morrison

**Abstrakt:** Ein Versuch wurde unternommen, ein Maßsystem von hypnoseähnlichen Erlebnissen in Form eines Fragebogens zu konstruieren und zu validieren, das auf Shors (1979) 8-Dimensionen phänomenologischer Analyse der Hypnose basiert ist. Getrennte Datensammelbecken wurden entwickelt, um jede Disposition zu messen: Trance, Nichtbewusste Beteiligung, Archaische Beteiligung, Schläfrigkeit, Entspannung, Lebhaftigkeit der Bildvorstellung, Absorption und Zugang zum Unterbewußtsein. Auf der Basis von vorläufigen Proben (Summe  $N = 856$ ) wurde ein endgültiger Fragebogen hergestellt, der 5 Details enthält, die normale, alltägliche Erlebnisse in jedem Bereich messen. Resultate an einem standardisierten Muster ( $N = 468$ ) zeigten, daß jede der untergeordneten Skalen, mit Ausnahme der Archaischen Beteiligung, befriedigende Ebenen von innerer Konsistenz und Test- und wiederholte Testverläßlichkeit besaßen. Eine Faktorenanalyse zeigte an, daß 6 untergeordnete Skalen hoch mit einem gemeinsamen Faktoren beladen waren, der Absorptionsstruktur (Tellegen & Atkinson, 1974) ähnlich, während Details, die sich auf Entspannung und Archaische Beteiligung bezogen, abgesonderte Faktoren formten. Gültigkeitsproben an 4 Mustern, die der Harvard-Gruppenskala für Hypnoseempfindlichkeit, Form A (HGSHS:A) von Shor und E. Orne (1962) ausgesetzt wurden (Summe  $N = 1855$ ), zeigten, daß die Absorptions- und Trancedimensionen am stärksten mit HGSHS:A in wechselseitiger Verbindung standen; die Korrelate mit Schläfrigkeit, Entspannung und Nichtbewußter Beteiligung näherten sich 0. Die Skalen, die von Shors Analyse abgeleitet worden waren, verbesserten jedoch nicht die Vorhersage von Hypnotisierbarkeit über denen, die mit Absorptionsskalen (Tellegen & Atkinson) erhalten wurden.

### Les corrélats prédisposant à l'hypnose: une approche phénoménologique

John F. Kihlstrom, Patricia A. Register, Irene P. Hoyt, Jeanne Sumi Albright, Ellen M. Grigorian, William C. Heindel et Charles R. Morrison

**Résumé:** Cette étude visait à développer et valider une mesure par questionnaire de l'expérience hypnotique, en se basant sur les 8 dimensions de l'analyse phénoménologique de l'hypnose, de Shor (1979). Des bassins indépendants de questions furent développés afin de mesurer chaque dimension: transe, implication non consciente, implication archaïque, somnolence, relaxation, vivacité de l'imagerie, absorption, et accès à l'inconscient. Après des études préliminaires ( $N = 856$ ), un questionnaire final de cinq items par domaine a été développé afin d'évaluer les expériences normales quotidiennes de chaque domaine. Les résultats d'une étude de normalisation ( $N = 468$ ) montrent que chaque sous-échelle, exceptée celle d'implication archaïque, présente une consistance interne et une fiabilité test-retest satisfaisante. L'analyse factorielle montre que six des sous-échelles sont fortement corrélées, constituant un facteur similaire à l'absorption (Tellegen & Atkinson, 1974), alors que les items reliés à la relaxation et à l'implication archaïque forment des facteurs séparés. Une étude de validation avec quatre échantillons recevant l'Échelle de Susceptibilité Hypnotique de Harvard, Forme A (ESHH:A) de Shor et Orne (1962) ( $N = 1855$ ) a montré que les dimensions d'absorption et de transe étaient les plus corrélées avec l'ESHH:A, tandis que les corrélations avec la somnolence, la relaxation, et l'implication non consciente tendaient vers 0. Par contre, les échelles dérivées de l'analyse de Shor n'ont pas amélioré la prédiction de l'hypnotisabilité telle que prédite par l'échelle d'absorption (Tellegen & Atkinson, 1974).

## Correlatos disposicionales de la hipnosis: un enfoque fenomenológico

John F. Kihlstrom, Patricia A. Register, Irene P. Hoyt, Jeanne Sumi Albright, Ellen M. Grigorian, William C. Heindel y Charles R. Morrison

**Resumen:** Se intentó construir y validar un cuestionario que mide las experiencias de tipo hipnótico basadas en el análisis fenomenológico de las 8 dimensiones de Shor (1979) para la hipnosis. Se desarrollaron grupos de ítems separados con el objeto de medir cada disposición: Estado hipnótico, Compromiso no conciente, Compromiso arcaico, Somnolencia, Relajación, Intensidad de la imaginación, Absorción y Acceso al Inconciente. Se implementó un cuestionario final, basado en un test preliminar ( $N$  total = 856), el que contenía 5 ítems que medían experiencias normales y diarias de cada dominio. Los resultados obtenidos a partir de una muestra estandarizada ( $N = 468$ ) mostraron que cada una de las subescalas, excepto la de Compromiso arcaico, poseían niveles satisfactorios de consistencia interna y confiabilidad test-retest. El análisis factorial indicó que 6 subescalas cargaron fuertemente un factor común similar al constructo de absorción (Tellegen y Atkinson, 1974) mientras que los ítems pertenecientes a Relajación y Compromiso arcaico formaron grupos separados. Un test de validación efectuado con 4 muestras a las que se les administró la Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) de Shor y E. Orne (1962) con un  $N$  total = 185, mostró que las dimensiones de Absorción y Estado Hipnótico se correlacionaron más intensamente con la HGSHS:A; las correlaciones con Somnolencia, Relajación y Compromiso inconciente se aproximaron a 0. Sin embargo, las escalas derivadas del análisis de Shor no mejoraron la predicción de la sugestibilidad hipnótica respecto de la obtenida mediante la escala de absorción (Tellegen y Atkinson, 1974).