HYPNOTIZABILITY
AND FACETS OF OPENNESS

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Abstract: Absorption, a correlate of hypnotizability, is related to a broader dimension of openness to experience, one construal of the "Big Five" structure of personality. But openness itself is very heterogeneous, and some of its facets may be unrelated to hypnotizability. A total of 651 subjects completed a questionnaire measuring three different aspects of openness—absorption, intellectance, and liberalism—before receiving the Harvard Group Scale of Hypnotic Susceptibility, Form A. The three dimensions were only modestly related to each other, and only absorption was significantly related to hypnotizability. Adding intellectance and liberalism to absorption did not enhance the prediction of hypnotizability. The results indicate that the various facets of openness are rather different from each other and that the "Big Five" structure may need to be expanded. Absorption and hypnosis share a kind of imaginative involvement that is not necessarily part of other kinds of openness, such as intellectance and liberalism.

After over a half-century of effort (e.g., Barry, MacKinnon, & Murray, 1931; Rosenzweig & Sarason, 1942; for a review, see deGroh, 1989; Kirsch & Council, 1992), the only personality correlate of hypnotizability to consistently emerge from research is a tendency toward states of absorption (Tellegen, 1981; Tellegen & Atkinson, 1974; for a review, see Roche & McConkey, 1990) and imaginative involvement (Hilgard, 1970). Absorption is unrelated to extraversion and neuroticism, the two major dimensions running through most personality inventories. But it is conceptually related to a broader construct of openness to experience (McCrae & Costa, 1985, in press), which is one construal of the fifth factor in the popular "Big Five" structure of personality (so named by Goldberg, 1981; for reviews, see Digman, 1990; Goldberg, 1990; John, 1990; Wiggins & Trapnell, in press).

The most common measure of absorption is the 34-item Tellegen Absorption Scale (TAS; Tellegen & Atkinson, 1974) included in the

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Multidimensional Personality Questionnaire (Tellegen, 1982). Openness to experience is commonly measured by the Openness Scale of the Revised NEO Personality Inventory (NEO-PI/O; Costa & McCrae, 1992), a 48-item scale that can be decomposed into six-item subscales measuring various aspects of openness: richness of fantasy life, aesthetic sensitivity, awareness of inner feelings, need for variety in actions, interest in ideas, and liberal value systems; a 12-item Openness Scale, without the facet subscales, is also provided in the NEO Five-Factor Inventory (NEO-FFI/O; Costa & McCrae, 1992). McCrae and Costa (1985) reported that total scores on the NEO-PI/O scale were significantly correlated with TAS scores ($r = .56$).

Recently, Radtke and Stam (1991) examined the specific relations among measures of absorption, openness, and hypnotizability. In their first study, they found a substantial correlation ($r = .62$) between absorption and openness to experience. Although each of the six facets of openness was significantly correlated with absorption, the correlations involving fantasy and aesthetics were substantially higher than those involving feelings, actions, ideas, and values. Their second study also found a correlation between absorption and openness ($r = .42$). This time, however, absorption was correlated with fantasy, aesthetics, feelings, and actions but not with ideas and values. Most surprisingly, however, although absorption was correlated with hypnotizability in the usual manner ($r = .22$), openness was not ($r = -.01$), nor were any facets of openness correlated with hypnotizability.

Working independently, Glisky and her colleagues conducted a detailed analysis of these relationships in a series of studies involving over 2,000 subjects (Glisky, Tataryn, Tobias, Kihlstrom, & McConkey, 1991). Study 1 confirmed absorption as a predictor of hypnotizability ($r = .22$). Study 2 analyzed the relations among the TAS, NEO-PI/O, and an alternative measure of openness, the Coan Experience Inventory (CEI; Coan, 1972, 1977). The three scales were strongly intercorrelated, with $r$s ranging from .71 to .85. A factor analysis provided strong evidence for two factors: Absorption, including all the TAS subscales and the Fantasy, Aesthetic Sensitivity, and Feelings subscales of the NEO-PI/O; and Social-Political Liberalism, including the remaining Actions, Ideas, and Values subscales of the NEO-PI/O. In Study 3, both the TAS and NEO-PI/O scales correlated significantly with hypnotizability ($r = .17$ and .16, respectively). However, scores on the Absorption subscale created by aggregating appropriate TAS and NEO-PI/O items correlated with

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4The original NEO Inventory had scales measuring only neuroticism, extraversion, and openness, including six facets of each dimension. In 1985, a revision was published—the NEO Personality Inventory—that included undifferentiated scales of agreeableness and conscientiousness as well; the most recent version, the Revised NEO Personality Inventory, contains facet subscales for agreeableness and conscientiousness as well. Throughout, however, only minor changes have been made to the items on the Openness Scale. For a history of the NEO inventories, see Costa and McCrae (1992).
hypnotizability at \( r = .19 \), whereas the Liberalism subscale correlated only \( r = .10 \); the difference was statistically significant.\(^5\)

Thus, although absorption and openness to experience correlate highly with each other and both correlate significantly with measures of hypnotic susceptibility, there appear to be at least two separate constructs making up the broader dimension of openness. The Absorption facet includes the entire TAS, plus those items from the NEO-PI/O and CEI that relate to aesthetic sensitivity, unusual perceptions and associations, fantasy and dreams, unconventional views of reality, and awareness of inner feelings. This facet correlates with hypnotizability. On the other hand, the Liberalism facet is composed of five items measuring intellectual curiosity, openness to unusual ideas, need for orderly thought, variety in actions, and liberal values. These five aspects were correlated with each other, but their correlations with both absorption and hypnotizability were weaker. Therefore, although Absorption and Liberalism may well be facets of a broader construct of Openness, they also appear to be separable dimensions and differentially related to hypnotizability.

It should be noted, however, that Openness is only one possible interpretation of the fifth "Big Five" factor. In fact, the original construal, by Fiske (1949), was in terms of *inquiring intellect*; other suggested labels have been *culture, intellect, intellectance*, and *intellectance-culture*. One problem in settling on a label is that different construals emerge from different methods of assessment: Studies of the trait lexicon in ordinary language tend to lean toward intellectance and culture, whereas studies of personality questionnaires tend to lean toward openness. Part of the problem is that absorption and liberalism are not represented well in the trait lexicon (McCrae, 1990), so that multimethod studies generally yield low correlations between adjective self-rating and questionnaire self-report measures of Factor 5 (John, 1989; McCrae & Costa, 1987).

Certainly, as Botwin and Buss (1989) noted, Factor 5 is rather more heterogeneous than its siblings in the Big Five. In fact, a series of studies by Kihlstrom, Glisky, and Trapnell (1992), which extensively surveyed the domain of Factor 5 in both self-ratings and self-reports, found evidence for three separate dimensions—Absorption, Intellectance, and

\(^5\)Glisky et al. (1991) declined to test the differences among all the various facet subscales of the NEO-PI/O, on the grounds that the large number of comparisons involved inflated the possibility of Type I errors. In the meantime, however, Meng, Rosenthal, and Rubin (1992) have proposed an extension of the traditional test of the difference between two related correlations that serves our purpose. For the record, the differences among the correlations with any of the six NEO-PI/O facet subscales failed to reach statistical significance, \( \chi^2(5) = 6.72, \text{n.s.} \). However, planned comparisons showed that the correlations involving the Fantasy, Aesthetics, and Feelings subscales were significantly higher than those involving the Actions, Ideas, and Values subscales, \( z = 7.06, p < .001 \). The differences among the TAS factor subscales were not tested, as we had no hypothesis concerning these variables.
Liberalism—whose intercorrelations were remarkably low. This situation calls for a reinvestigation of the relationship between hypnotizability and openness to experience, considering all three facets of the Openness hotchpot. The present study was conceived as a follow up to the earlier work by Glisky et al. (1991). It sought to reexamine the relations among the various construals of Factor 5, including intellectance as well as absorption and liberalism, and their correlations with hypnotizability.

**METHOD**

*Subjects*

The subjects for the present research were 651 undergraduates (230 men, 421 women; mean age = 19.19 years, range = 16-51 years) at the University of Arizona, who volunteered to participate in a study of individual differences in hypnotic responsiveness. In return for their participation, subjects received credit toward the research experience component of their introductory psychology course.

*Construction of Personality Questionnaire*

The instrument used to assess absorption, intellectance, and liberalism (known locally as the AIT Questionnaire, with the "T" standing for traditionalism, the reflection of liberalism) was developed in the course of other research on the five-factor model of personality: Details are given in that report (see Kihlstrom et al., 1992). Briefly, three 12-item scales measuring absorption, intellectance, and liberalism were derived from analyses of items from personality inventories developed elsewhere: the NEO Five Factor Inventory (NEO-FFI; Costa & McCrae, 1989) and the larger NEO Personality Inventory (NEO-PI; McCrae & Costa, 1985, 1987) from which the NEO-FFI was derived, the Hogan Personality Inventory (HPI; Hogan, 1986), and the Absorption Scale of the Multidimensional Personality Questionnaire (Tellegen, 1982). The items from these scales were interleaved to create new 36-item instrument for use in the present study (see Table 1).

**PROCEDURE**

On arrival at the experimental session, subjects completed the 36-item questionnaire and then received a tape-recorded administration of the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGS;Shor & Orne, 1962). Thus the subjects completed the personality questionnaire in an explicitly hypnotic context.

**RESULTS**

The average AIT subscale and HGS;A scores, and the correlations obtained between them are shown in Table 2. The mean HGS;A score of 6.83 (SD = 2.41) for the 651 subjects who had complete data, was similar to those typically obtained from large samples of college students
Table 1
Absorption, Intellectance, and Traditionalism Questionnaire

1. It is sometimes possible for me to be completely immersed in nature or in art and to feel as if my whole state of consciousness has somehow been temporarily altered.
2. I have a lot of intellectual curiosity.
3. I believe that loyalty to one’s ideals and principles is more important than “open-mindedness.”
4. Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement.
5. Even as a child I was interested in how things work.
6. I think that if people don’t know what they believe in by the time they’re 25, there’s something wrong with them.
7. Certain kinds of music have an endless fascination for me.
8. I often enjoy playing with theories or abstract ideas.
9. I’m pretty set in my ways.
10. I enjoy concentrating on a fantasy or daydream and exploring all its possibilities, letting it grow and develop.
11. I enjoy working on “mind twister”-type puzzles.
12. I prefer to spend my time in familiar surroundings.
13. Some music reminds me of pictures or changing color patterns.
15. I follow the same route when I go someplace.
16. Different colors have distinctive and special meanings for me.
17. I enjoy solving problems or puzzles.
18. I believe letting students hear controversial speakers can only confuse and mislead them.
19. When listening to organ music or other powerful music I sometimes feel as if I am being lifted into the air.
20. I have taken things apart just to see how they work.
21. On a vacation, I prefer going back to a tried and true spot.
22. I often take delight in small things (like the five-pointed star shape that appears when you cut an apple across the core or the colors in soap bubbles).
23. I like doing things that no one else has done.
24. I believe we should look to our religious authorities for decisions on moral issues.
25. The sound of a voice can be so fascinating to me that I can just go on listening to it.
26. I would like to be an inventor.
27. I believe that the different ideas of right and wrong that people in other societies have may be valid for them.
28. Sometimes, thoughts and images come to me without the slightest effort on my part.
29. I enjoy the excitement of the unknown.
30. I consider myself broad-minded and tolerant of other people’s life-styles.
31. I can be greatly moved by eloquent or poetic language.
32. I am interested in science.
33. I believe that laws and social policies should change to reflect the needs of a changing world.
34. The crackle and flames of a wood fire stimulate my imagination.
35. I am not very inventive.
36. I often try new and foreign foods.

Note. Items 1, 4, 7, and so on comprise the Absorption Scale; Items 2, 5, 8, and so on comprise the Intellectance Scale; and Items 3, 6, 9, and so on comprise the Traditionalism Scale.

(e.g., Glisky et al., 1991). With \( n = 651 \), correlations of \( r = .08 \) or greater were significant, \( p < .05 \).

**Measurement of Absorption, Intellectance, and Liberalism**

As a check on the measurement of the three personality dimensions, the AIT items were submitted to a principal components analysis, extracting three factors. When rotated orthogonally, these three factors corresponded to the Absorption, Intellectance, and Liberalism subscales. Only one item failed to load on its intended factor: "I often try new and foreign foods" (liberalism item), which loaded onto the intellectance factor (.28). Nevertheless, the high reliabilities (Carmine's theta) of the original subscales were confirmed in the present sample: .84, .84, and .69, for Absorption, Intellectance, and Liberalism, respectively. These reliabilities were comparable to those found in the original derivation study. The reliability of the HGS:SA scores was .65, perhaps reflecting the vagaries of administration to large groups.

**Correlations With Hypnotizability**

As predicted, the Absorption subscale correlated significantly with hypnotizability at \( r = .15, \ p < .001 \). Neither the Intellectance nor the Liberalism subscale correlated significantly with hypnotizability \( (r = .05 \) and .03, respectively). Absorption correlated positively with intellectance and with liberalism, as did intellectance, all at \( p < .001 \). A \( t \) test of the difference between dependent correlations showed that the correlation between hypnotizability and absorption was significantly greater \( (p < .05) \) than those obtained with intellectance, \( t(649) = 2.28 \) and liberalism, \( t(649) = 1.96 \). The intellectance and liberalism correlations did not differ significantly from each other, \( t < 1 \).

A multiple regression was performed to determine the differential contribution of the Absorption, Intellectance, and Liberalism subscales to the prediction of hypnotizability. The multiple \( R \) was .17. Thus pre-

\(^6\)It should be noted that the reliability of the Liberalism subscale was relatively low, compared to the Absorption and Intellectance subscales. Because reliability sets a ceiling on validity, this low reliability might have attenuated the correlation between liberalism and hypnotizability (although this would not explain the failure to obtain a significant correlation with intellectance, which was measured reliably). Accordingly, we corrected the liberalism correlation, taking into account the reliabilities of the two measures (Nunnally, 1978): The corrected correlation between liberalism and hypnotizability was \( r = .04 \).
dictive validity was not substantially increased by the addition of the Intellectance and Liberalism subscales.

A number of investigators have reported gender differences in the correlation between absorption and hypnotizability (for reviews, see deGroh, 1989; Glisky et al., 1991). Accordingly, the correlational analyses were repeated, with the subjects classified by gender. In this sample, the correlation between absorption and hypnotizability was higher for men ($r = .21$) than for women ($r = .11$), although the difference was not statistically significant ($z = 1.21$). There were no gender differences for the correlations between hypnotizability and intellectance (men, $r = .07$; women, $r = .09$) or liberalism (men, $r = .02$; women, $r = .05$). As in the study by Glisky et al. (1991), there was no support for the hypothesis that the absorption-hypnotizability correlation is stronger for women than for men.

**DISCUSSION**

The results of this study clarify those of Radtke and Stam (1991) and Glisky et al. (1991), both of whom obtained at least suggestive evidence that hypnotizability is differentially correlated with absorption and openness to experience. Although the two traits are conceptually and empirically related, absorption is a generally better correlate of hypnotizability than is openness to experience. Moreover, absorption correlates more highly with some facets of openness than with others, and these facets appear to be more strongly related to hypnotizability. Our reanalysis of the Glisky et al. data (see Footnote 5) showed that hypnotizability correlated more strongly with the fantasy, aesthetics, and feelings facets of openness than with the actions, ideas, and values facets. Similarly, the present study found that hypnotizability was correlated with a scale measuring absorption, but not with scales of intellectance and liberalism.

It goes without saying that correlations of the size obtained in this study are too low to allow paper-and-pencil measures of absorption to substitute for the usual measures of hypnotic response. The only way to
measure hypnotizability is to administer a work-sample of hypnotic suggestions. On the other hand, even low correlations extracted from large samples can have both practical and theoretical significance (Rosenthal, 1990). Thus we already know that absorption acts as a kind of predisposition to hypnosis. But absorption also appears to be one of several facets of a broader personality dimension known as openness (Glisky et al., 1991), thus raising the question of how hypnotizability relates to these attributes as well. Given sufficient power to detect differences among relatively small correlations, a pattern of differential relationships between hypnotizability and these facets can tell us more about what hypnosis is and what it is not.

In the present research, the pattern of differential correlates with hypnotizability underscores the heterogeneity of the fifth factor in the “Big Five” structure of personality traits. Intellectance, not to mention intelligence, and openness are quite distinctive dimensions of personality, as McCrae and Costa (1985) have argued; and even within the domain of openness, there are major differences between absorption in experience and liberalism in beliefs and behavior. Factor-analytic work (Kihlstrom et al., 1992) indicates that these three dimensions are not strongly related to each other. This suggestion is supported by our finding that these dimensions are differentially related to a criterion of hypnotizability. Thus considerations of convergent (the intercorrelations among absorption, intellectance, and liberalism) and discriminant (the correlations between these dimensions and hypnotizability) suggest that they should be kept separate in discussions of personality structure.

In passing, we note that the pattern of differential correlations with hypnotizability found here, as well as by Radtke and Stam (1991), is not necessarily what one would expect on the basis of expectancy-mediated context effects (Council, Kirsch, & Hafner, 1986). Because openness is conceptually related to absorption, context effects might have been expected to produce a consistent correlation between hypnotizability and the intellectance and liberalism facets as well. On the other hand, it is possible that subjects intuitively distinguished between the absorption and the liberalism components of openness, emphasizing one while discounting the other. Some evidence favoring this was provided by Radtke and Stam (1991), who found that all facets of openness loaded on the same factor as absorption when the two scales were administered in a nonhypnotic context but that actions and values fell on a different factor when the two were administered in the context of hypnosis.

As Roche and McConkey (1990) noted, absorption is related to openness, but openness is a very broad construct and includes many attributes that are substantially unrelated to hypnosis. Apparently, absorption is closely related only to some facets of openness, these are the ones that are also related to hypnotizability. The common thread here is that absorption and openness to fantasy, aesthetics, and feelings are qualities
of inner, subjective experiences, whereas openness in the domain of ideas, actions, and values has to do with liberalism in beliefs and behavior. Although these attributes are not completely unrelated, they are not closely related, either. As an example, Tellegen (1982) found correlations of −.14 (women) and −.11 (men) between Absorption and another MPQ scale, Traditionalism (the reflection of liberalism). Thus, although absorption is related to openness, emphasis on the general dimension of openness to experience obscures the difference between these two quite different facets. Effectively, combining two scales (Absorption and Liberalism) into one (Openness) diminishes the internal consistency of the broader measure. The result is that noise is injected into the relationship with hypnotizability.

What kind of openness is absorption? It is worth recalling the full title of the article announcing the TAS: “Openness to Absorbing and Self- Altering Experiences (“Absorption”), a Trait Related to Hypnotic Susceptibility” (Tellegen & Atkinson, 1974). In a later expansion of the construct, Tellegen (1981) proposed a distinction between an experiential and an instrumental mental set. The experiential set involves a receptivity or openness to undergo sensory or imaginal events, and a tendency to dwell on them, such that the experiences have a quality of effortlessness or involuntariness. By contrast, the instrumental set involves a goal-directed readiness to make discriminations; plans, and decisions. Absorption is tied to the experiential set. Most recently, Tellegen (1992) characterized absorption as a “disposition to enter . . . psychological states characterized by a marked restructuring of the phenomenal self and world” (p. 1). Absorption, so defined, is quite different from those attitudes and behaviors that cause people to be perceived as bright (one definition of intellectance), or from a distrust of authority, elevation of the rights of the individual, and an interest in new and foreign foods. Moreover, as Radtke and Stam (1990) suggested, absorption assesses involvement in subjective experiences, not just openness to them. Of course, this involvement is the essence of hypnosis—whether it is manifest in subjective conviction in the suggested state of affairs or the experience of involuntariness in response to suggestions. Accordingly, it is not surprising that, within the broad domain of openness, absorption, rather than liberalism or intellectance, is the better correlate of hypnotizability.

REFERENCES


Hypnotisierbarkeit und Aspekte der Offenheit

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Hypnotizabilidad y distintas facetas de la apertura

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Resumen: Se relaciona a la absorción, un correlato de la hipnotizabilidad, con una mayor dimensión de apertura a la experiencia, siendo la apertura un constructo del modelo “Big Five” acerca de la estructura de la personalidad. Sin embargo, la apertura misma es sumamente heterogénea y algunas de sus facetas pueden no estar relacionadas con la hipnotizabilidad. Un total de 651 sujetos completaron un cuestionario que medía tres aspectos distintos de la apertura (absorción, inteligencia y liberalismo) antes de pasar al Harvard Group Scale of Hypnotic Susceptibility, Form A. Estas tres dimensiones estaban sólo modestamente relacionadas unas con otras y sólo la absorción estaba significativamente relacionada con la hipnotizabilidad. La adición de inteligencia y liberalismo a la absorción, no aumentó la predicción de la hipnotizabilidad. Los resultados indican que las varias facetas de la apertura son diferentes unas de otras y que el modelo de la estructura “Big Five” necesita ser trabajado. Absorción e hipnosis comparten una clase de involucramiento imaginativo que no forma necesariamente parte de otros aspectos de la apertura, como inteligencia y liberalismo.