

HYPNOTIZABILITY, DISSOCIATIVITY, AND PHENOMENOLOGICAL EXPERIENCE

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ABSTRACT

The present study examined the relationship between hypnotizability, dissociativity, and phenomenological experience. Subjects ($n=435$) completed the Dissociative Experiences Scale (DES), then experienced the Harvard scale induction, and completed the Phenomenological Experience Inventory (PCI). Two three (high, medium, and low dissociatives) X three (high, medium, and low susceptibles) multivariate ANOVAS followed by univariate ANOVAS on the 14 minor and 12 major PCI dimensions revealed significant main effects for dissociativity and susceptibility, but no interaction effects. The results suggest some common and some different phenomenological experiences for groups based on the DES and Harvard scale. Subjects who were high on both characteristics achieved the highest level of hypnotic state.

The present study examined the relationship between dissociativity, hypnotizability, and phenomenological experience obtained during a hypnotic induction. Dissociativity was measured by Bernstein and Putnam's (1986) Dissociative Experience Scale (DES); hypnotizability by Shor and Orne's (1962) Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A); and phenomenological experience by Pekala's (1982/1991b) Phenomenology of Consciousness Inventory (PCI). To the authors' knowledge there have been no studies which have examined whether the capacity to dissociate

interacts with hypnotizability in determining phenomenological experience as measured by the PCI. We also examined the relationship between dissociativity and hypnotizability, a subject that has interested many investigators (see Carlson, 1994) given that data were available on these variables in the present study.

HYPNOTIZABILITY, DISSOCIATIVITY, AND PCI

Pekala and his colleagues (see Pekala 1991a) have shown that phenomenological variables, as measured by the PCI (Pekala, 1982/1991), consistently discriminate a) between an eyes-closed and a hypnotic condition, and b) among high, medium, and low susceptible groups (assessed by HGSHS:A). It may be noted that the PCI was completed in reference to a time interval during the administration of the Harvard scale when the subjects were asked "just to continue to experience the state you are in now."

Using the above noted methodology, Kumar and Pekala (1988) reported that the induction (HGSHS:A), vis-a-vis the eyes-closed condition, was associated with significantly decreased positive affect (joy, love, sexual excitement), negative affect (anger and sadness), decreased imagery (amount and vividness), self-awareness, internal dialogue, rationality, volitional control, memory, and arousal (increased relaxation). The induction condition was also associated with increased altered experiences involving body image, time sense, perception, and state of awareness. Comparing high, medium, and low susceptibles across eyes closed sitting quietly (baseline), they found that the highs, relative to lows, reported significantly greater alterations in body image, time sense, meaning, and altered state of awareness. Mediums, relative to lows, reported significantly greater alterations in body image and state of awareness. For the hypnotic condition, the highs and mediums, relative to lows, reported significantly greater absorbed attention, altered experience (body image, time sense, perception, meaning), alterations in the state of awareness. Highs and mediums, relative to lows, also reported significantly less imagery vividness, self-awareness, rationality, volitional control, and memory. Highs, relative to mediums, reported significantly more altered experience (perception, meaning) and absorption, and significantly less rationality, volitional control, and memory.

In other studies (1986, 1989) Pekala and Kumar compared the pattern of associations among the 12 major dimensions of the PCI for high and low susceptible subjects. They noted that there was a greater number of significant correlations among the low susceptibles relative to the high susceptibles, suggesting a dissociation or segregation among the subsystems of consciousness for the latter group in a manner analogous to turning off pain by mentally separating the hand from the body, or suffering amnesia for traumatic experiences.

Dissociative ability has been regarded as characteristic of hypnosis (Bower, 1992; Hilgard, 1986). However, given the low correlation between DES and hypnotizability, they are often regarded as different, but somewhat overlapping, characteristics (Carlson, 1994). Thus, it was of interest to the present study to see if the ability to dissociate interacts with hypnotizability in determining phenomenological experience. It is possible that the phenomenological experience differences between high, medium, and low susceptibility may depend upon the levels of dissociativity.

Phenomenological experience was evaluated in two ways in the present study – one by subjects' ratings on each of the 14 minor and 12 major PCI dimensions, and the other by computing hypnoidal scores from 10 of the 26 PCI dimensions using a regression equation computed by Pekala and Kumar (1987). The equation generates predicted Harvard scores which range between $-.71$ and 11.77 (usually between 1 and 9). A high hypnoidal score, according to Pekala and Nagler (1989), is reflective of a subjective trance achieved by high susceptible subjects during hypnosis. A score of 7 or above was defined as indicative of "hypnoidal state"; since subjects scoring 10 or above on the Harvard scale averaged 7 on the hypnoidal score (see also Pekala, 1995). In one application of hypnoidal scores, Pekala and Forbes (1988) found that although for high susceptibles hypnoidal scores did not differ significantly when progressive relaxation and hypnosis were compared, for low susceptibles higher hypnoidal scores were obtained during progressive relaxation than during hypnosis. They found that high susceptibles scored higher than lows during both progressive relaxation and hypnosis. Thus, they suggested that progressive relaxation may serve as an indirect hypnotic technique for the low susceptible subjects who might find a formal induction, such as the Harvard, distracting.

DISSOCIATIVITY AND HYPNOTIZABILITY

The correlation between hypnotizability (assessed by Harvard scale) and dissociativity (assessed by DES) tends to be quite low. Frischholz et al. (1992) noted that the correlation between HGSHS:A and DES was $.12$ ($p < .05$). Nadon, Hoyt, Register, and Kihlstrom (1991) found a correlation of $.14$ ($p < .05$). Smyser and Baron (1993), using the Stanford Hypnotic Susceptibility Scale, Form C (SHSS; Weitzenhoffer

& Hilgard, 1962) noted that it correlated $.26$ ($p < .01$) with the overall DES score. Carlson (1994) cited Westergaard et al. (1991) and Campbell Perry's (1986) unpublished data which show correlations of $.03$ and $.61$ between DES and hypnotizability, respectively.

Smyser and Baron (1993) found that DES correlated $.44$ ($p < .01$) with absorption, as measured with the Tellegen and Atkinson's (1974) absorption scale (TAS), a trait correlated with hypnotizability. Frischholz et al. (1991) found that the DES correlated $.39$ ($p < .001$) with the TAS, while Nadon et al. (1991) reported a correlation of $.70$. In contrast to the DES-TAS correlations, the DES-hypnotizability and TAS-hypnotizability correlations tend to be lower (see Bowers, 1994).

Carlson and Putnam (1989) suggested that these two scales tap different domains of behavior. While the hypnotizability measures tap "alterations in motor, sensory, and cognitive functions," the DES measures aspects of "memory, awareness, identity, cognitions, and perceptions" (Carlson, 1994, p. 47). The DES measures the "lack of integration of thoughts, feelings, and experiences into the stream of consciousness" (Carlson et al., 1993, p. 1030). According to Carlson (1994), while the DES measures everyday experiences that are "spontaneous and involuntary," the hypnotizability scales measure an individual's capacity to experience suggested phenomena in a clinical or experimental context rather than his/her capacity to experience "spontaneous alterations in consciousness" in everyday life (p. 47). Furthermore, what the DES measures may vary with the kind of population tested; in non-clinical population the scores may be more reflective of absorption and imaginative involvement, whereas in the clinical population they may measure a wide range of dissociative experiences (p.45).

Given the above line of reasoning, Carlson (1994) suggested that the DES-hypnotizability correlations would tend to be low. However, citing Perry's unpublished work which found a correlation of $.61$ between the DES and SHSS, Form C, she noted that Perry identified three separate groups of low, medium, and high susceptibility and then computed the DES-hypnotizability correlation. The effect of such grouping was to increase the numbers of subjects in the high and low groups and consequently to increase the value of the correlation. Furthermore, she indicated that Perry also found that the mean DES scores for the three susceptibility groups were 10.3, 18.5, and 30.8, suggesting that while low dissociators tend to be low susceptibles, highs tend to be highs.

In an earlier paper, reviewing the work of Perry (1986) and Zamansky and Bartis (1984), Carlson and Putnam (1989) noted that while the highly dissociative individuals tend to be highly susceptible, low or moderately dissociative individuals could show any degree of hypnotizability (p.35). The issue of the relationship between the DES and hypnotizability appears to be complex and perhaps dependent upon the criteria employed by different investigators and perhaps also on the nature of the population studied. It may also call

for further research to standardize the definitions of high, medium, and low dissociative as well as susceptible individuals.

Given that both the DES and Harvard Scale were employed in the present study, it was decided to explore the relationship between the two variables in addition to looking at their interaction in determining phenomenological experience.

METHOD

Participants

Participants were 435 Introductory Psychology students who participated in the present study to fulfill a departmental research requirement. However, participation was voluntary inasmuch as the students could participate in any ongoing departmental research project. Subjects were free to withdraw from the study at any time with impunity.

Material

- 1) The *Harvard Group Scale of Hypnotic Susceptibility* (HGSHS:A; Shor & Orne, 1962) was used to assess hypnotic susceptibility for groups of subjects.
- 2) The *Phenomenology of Consciousness Inventory* (PCI; Pekala 1982/1991b) was used to map phenomenological experience. The PCI is a 53-item self-report instrument that is completed retrospectively in reference to a preceding stimulus condition. It comprises the following 12 major and 14 minor dimensions of consciousness: Positive Affect (joy, sexual excitement, & love), Negative Affect (anger, sadness, & fear), Altered Experience (body image, time sense, perception, & meaning), Visual Imagery (amount, vividness), Attention (direction-inward, absorption), Self-Awareness, Internal Dialogue, Rationality, Volitional Control, Memory, and Arousal (relaxation).
The PCI has been shown to have adequate construct, discriminant (Kumar & Pekala, 1988, 1989; Pekala, 1991a; Pekala & Forbes, 1988; Pekala & Kumar, 1986, 1989; Pekala, Steinberg, & Kumar, 1986), and predictive validity (Forbes & Pekala, 1993; Pekala, 1991a; Pekala & Kumar, 1984, 1987).
- 3) The *Dissociative Experiences Scale* (DES) (Bernstein & Putnam, 1986) was used to measure the frequency of dissociative experiences. The DES is regarded to measure the trait of dissociativity — the tendency to experience dissociative experiences in daily life (Carlson & Putnam, 1993). Although the scale was not developed for use with normal populations, it is widely used with both clinical and non-clinical populations. It is reported to have good internal con-

sistency and test-retest reliability. There is also sufficient evidence of convergent and discriminant validity and its ability to discriminate among individuals with dissociative and psychotic disorders and normal controls (e.g., Carlson et al., 1993; Carlson & Putnam, 1993; Ellason, Ross, Mayran, & Sainton, 1994; Frischholz et al., 1990, 1991, 1992; Ross, Ryan, Voigt, & Eide, 1991).

Procedure

Participants first filled out the DES, and then experienced the Harvard Scale's induction procedure. (Because of time constraints, the Harvard Scale induction was shortened by approximately ten minutes by eliminating redundant phraseology. Previous research indicated no contraindications to doing this (Pekala & Kumar, 1984). A two-minute interval was embedded in the induction during which the subjects were asked to sit quietly with their eyes closed and think of whatever they liked. After the end of the hypnosis procedure, subjects listed the hypnotic suggestions remembered (after removal of amnesia), and completed the PCI in reference to the two-minute interval. The subjects then completed the Harvard Scale booklet.

RESULTS

Preliminary Analyses

Each subject's responses to five pairs of duplicate items were examined to assess intratest reliability. The average reliability index for each subject was computed by dividing the sum of the absolute difference between the item pairs by five. Those subjects whose average reliability index exceeded 2.0 were excluded from the analysis (see Pekala [1991a] for the rationale for this method of computing reliability). All the subsequent analyses are based on 403 subjects.

Three groups of susceptible subjects were identified using the cut-off scores used by Kirsch, Council, and Wickless (1990) for the Harvard Scale: low = 0-4; medium = 5-9; and high = 10-12. The numbers of subjects falling into the low, medium, and high susceptible groups were 57 ($M = 2.53$), 93 ($M = 6.91$), and 23 ($M = 10.64$) respectively.

Current literature was examined to decide on the cut-off scores to form the low, medium, and high dissociative groups. Using a college population, Sanders, McRoberts, and Tollefson (1989) asked subjects to respond "not at all," "somewhat," or "very much" to items from a childhood stress inventory. They found the following average DES scores in response to the item dealing with unpredictable violence at home as a child: not at all, 14.2; somewhat, 18.1; and very much, 19.1. For the item related to how stressful their childhood was, the mean DES scores were 12.5, 16.2, and 22.6 respectively. For items dealing with physical or psychological abuse the mean DES scores were: no abuse, 11.9; either physical or psychological abuse; 16.2, and both physical and psychological

TABLE 1
Cross-tabulation of Frequencies of Subjects
Across DES and Harvard Scales

Harvard	DES			Total
	Low	Medium	High	
Low	40	54	10	104
Medium	48	104	36	188
High	10	22	12	44
Total	98	180	58	336

abuse, 22.6. Ross et al. (1991) used cut-off scores of 5 and 22.6 for low and high dissociative groups. Frischholz et al. (1990) found that scores between 45 to 56 maximally discriminated between patients with dissociative psychopathology and normals. Draijer and Boon (1993) found the score of 25 or higher to be optimal in differentiating patients with dissociative and non-dissociative disorders. Carlson and Putnam (1993) suggested that scores over 20 may be clinically important, and scores of 30 or more suggest a considerable dissociative component, but not necessarily diagnosable for multiple personality disorder. Carlson et al. (1993) observed that while 17% of those scoring 30 or more are likely to have a multiple personality disorder, 99% of those scoring below are unlikely have the disorder. Carlson et al. (1991, cited in Carlson, 1994) also noted a mean of 8.6 in a non-clinical general sample of 523 subjects. Ross, Joshi, and Currie (1990) found a mean of 10.8 with 1055 subjects. Further data are provided by Murphy (1994) who found that DES scores above 30 in a non-clinical, non-university population are suggestive of a dissociative disorder.

Considering the above, it seemed reasonable to use the cut-off of 30 to form the highly dissociative group. The selection of the cut-off score for the low group was governed somewhat by the need to have enough subjects for analysis in the various cells and simultaneously to use as low a score as possible. Consequently, the examination of the frequency distribution suggested using a score of 10 or lower to form the low group. The medium group was formed using the cut-offs of 10.36 and 20 (there were no scores between 10.01 and 10.36). In the present study, the DES cut-off scores, their percentile ranks (PR), and means were as follows: lows, 10.00 or lower (PR = 24.3, $M = 6.51$; mediums, between 10.36 (PR = 26.3) and 20 (PR = 69), $M = 15.05$; and highs, 30 (PR =

86.1) or higher, $M = 38.33$. Table 1 shows the cross-tabulation of frequencies of subjects across the low, medium, and high dissociativity and susceptibility groups.

Hypnotizability, Dissociativity, and Phenomenological Experience

Two sets of three (low, medium, and high dissociativity) X three (low, medium, and high susceptibles) analyses of variance were done with the 14 minor and 12 major PCI dimensions as dependent variables to avoid multi-collinearity problems; in each case multivariate analyses (MANOVA) preceded univariate analyses (ANOVA) of variance.

Minor Dimensions. The multivariate analysis of variance (MANOVA) showed significant F values for the two main effects, dissociativity [Wilks $F(28,628)=2.23$, $p < .001$] and susceptibility [Wilks $F(28,628)=5.89$, $p < .001$]. The interaction between the two factors was not significant [Wilks $F(56,1223.57)=1.17$, $p > .05$]. The univariate analyses for the main effects on the 14 PCI dimensions were evaluated using $p < .003$ to keep the overall type I error probability less than .05. These analyses were followed by post-hoc analyses using Scheffé's procedure ($\alpha = .01$) for both main effects (Tables 2 and 3).

Table 2 shows that the high dissociatives scored significantly higher than lows and mediums on anger, sadness, alterations in body image, perception, and meaning. The differences between the lows and the mediums were not significant on any of the variables.

For the susceptibility factor, there was an increasing trend of mean scores from low to high susceptibles on joy, love, alterations in body image, time sense, perception, and meaning, amount of visual imagery, and attention direction-inward and absorption. Scheffé's post-hoc comparisons ($\alpha = .01$) revealed that the a) low susceptibles differed significantly from both mediums and highs on all nine variables except meaning, and b) mediums differed from highs on time sense, perception, and meaning.

Major Dimensions. The MANOVA showed significant F values for the two main effects but not the interaction: dissociativity [$F(24,632) = 2.37$, $p < .001$]; susceptibility [$F(24,632) = 5.89$, $p < .001$]; interaction [$F(48,1219.30) = 1.04$, $p > .05$]. The α of .004 was used to keep the overall type I error probability less than .05. For the dissociativity main effect, the high dissociatives, relative to lows, showed lesser ($p < .004$) rationality, but greater negative affect and altered experience.

For the susceptibility main effect, the high susceptibles, relative to mediums and lows, showed a decreasing trend on self-awareness, rationality, volitional control, and memory, but an increasing trend on positive affect, altered experience, visual imagery, attention, and altered state of awareness. Scheffé's post-hoc comparisons ($\alpha = .01$) revealed that the a) lows differed significantly from mediums and highs on all nine variables except visual imagery (lows did not differ from mediums, but differed from highs), and b) mediums and

TABLE 2
Dissociativity and Phenomenological Experience

PCI (Sub)Dimensions	Dissociativity			F	p	Post-hoc
	Low	Med	High			
Positive Affect	1.70	1.91	2.38	3.41	.034	
Joy	1.70	1.75	2.20	2.11	.123	
Sexual Excitement	1.49	1.76	2.17	1.81	.165	
Love	1.90	2.23	2.81	4.15	.017	
Negative Affect	1.31	1.34	1.83	13.90	.000	LH;MH
Anger	1.31	1.33	1.85	10.86	.000	LH;MH
Sadness	1.37	1.42	2.03	11.27	.000	LH;MH
Fear	1.24	1.28	1.59	3.10	.047	
Altered Experience	1.82	2.05	2.61	13.96	.000	LH;MH
Body Image	2.06	2.26	2.87	6.72	.001	LH;MH
Time Sense	2.32	2.74	3.29	3.19	.045	
Perception	1.53	1.82	2.33	8.73	.000	LH;MH
Meaning	1.49	1.55	2.12	7.07	.000	LH;MH
Visual Imagery	2.46	2.52	3.01	3.57	.029	
Amount	2.26	2.46	3.01	2.61	.075	
Vividness	2.66	2.57	3.02	3.02	.050	
Attention	3.36	3.47	3.65	0.85	.428	
Direction (Inward)	3.38	3.50	3.73	0.61	.546	
Absorption	3.33	3.42	3.53	0.82	.443	
Self-Awareness	4.02	3.66	3.32	3.90	.021	
Altered State	2.37	2.76	3.28	4.70	.010	
Internal Dialogue	2.73	2.91	3.29	0.87	.418	
Rationality	4.10	3.72	3.42	5.67	.004	LM;LH;MH
Volitional Control	3.71	3.43	3.10	2.82	.061	
Memory	4.20	4.03	3.68	0.75	.473	
Arousal	1.96	2.01	2.03	0.02	.983	

Note: Scheffe's test indicating significant differences at .01 level.

highs differed significantly on altered experience, altered self-awareness, altered state, volitional control, and memory.

Dissociativity, Hypnotizability, and Hypnoidal Scores

A 3X3 ANOVA with susceptibility and dissociativity as classification factors and hypnoidal scores as the dependent variable was performed. It might be recalled that hypnoidal scores are predicted Harvard scores computed from a regres-

sion equation using 10 PCI (sub)dimensions (Pekala & Kumar, 1987). The regression equation was originally computed for PCI (sub)dimensions measured on a 7-point scale (0 to 6). Since the present study used a 5-point (1 to 5) rating scale, the scores were first linearly transformed to a 7-point scale.

The ANOVA on the hypnoidal scores revealed that the two main effects of susceptibility and dissociation [$F(2,327) = 82.49$ & 7.19 respectively, $p \leq .001$] were significant, but

TABLE 3
Hypnotic Susceptibility and Phenomenological Experience

PCI (Sub)Dimensions	Susceptibility			F	p	Post-hoc
	Low	Med	High			
Positive Affect	1.60	2.00	2.40	10.07	.000	LM;LH
Joy	1.45	1.91	2.25	11.41	.000	LM;LH
Sexual Excitement	1.52	1.77	2.19	4.23	.015	
Love	1.84	2.32	2.76	7.43	.001	LM;LH
Negative Affect	1.34	1.40	1.67	4.89	.008	
Anger	1.47	1.33	1.65	4.18	.016	
Sadness	1.40	1.54	2.00	5.62	.004	
Fear	1.16	1.38	1.45	3.39	.035	
Altered Experience	1.58	2.19	2.80	42.76	.000	LM;LH;MH
Body Image	1.84	2.46	2.83	13.48	.000	LM;LH
Time Sense	1.84	2.95	3.79	39.33	.000	LM;LH;MH
Perception	1.37	1.92	2.45	20.74	.000	LM;LH;MH
Meaning	1.38	1.62	2.31	26.36	.000	LH;MH
Visual Imagery	2.28	2.63	3.10	6.89	.001	LH
Amount	1.96	2.65	3.10	10.32	.000	LM;LH
Vividness	2.61	2.61	3.10	2.88	.058	
Attention	2.97	3.62	4.01	26.12	.000	LM;LH
Direction (Inward)	3.01	3.66	4.00	17.31	.000	LM;LH
Absorption	2.91	3.55	4.02	18.38	.000	LM;LH
Self-Awareness	4.35	3.53	2.95	24.72	.000	LM;LH;MH
Altered State	1.87	2.96	3.86	40.47	.000	LM;LH;MH
Internal Dialogue	2.73	3.01	3.06	0.39	.680	
Rationality	4.21	3.67	3.23	13.17	.000	LM;LH
Volitional Control	4.18	3.25	2.61	37.76	.000	LM;LH;MH
Memory	4.49	3.91	3.34	19.88	.000	LM;LH;MH
Arousal	2.11	2.02	1.64	2.55	.080	

Note: Scheffé's test indicating significant differences at .01 level.

the interaction was not significant [$F(4,327) < 1.0$]. Scheffé's post-hoc comparisons (Table 4) revealed significant ($\alpha = .01$) pair-wise differences among the low, medium, and high susceptibles. Likewise the pair-wise differences among the low, medium, and high dissociative subjects were significant. Although the interaction was not significant, an examination of the cell means indicates that there was a monotonic increase in hypnotical score means from low, medium, to high susceptibles across the levels of dissociativity (see Table 4 and

Figure 1). Thus, it would seem that the categories (i.e., LL, LM, LH, ML, MM, MH, HL, HM, HH; where L = low, M = medium, High = H) formed with susceptibility as the row (first letter in parenthesis above) and dissociativity as the column variable (second letter in parenthesis above) form a nice ordinal scale of the level of hypnotical state achieved by these subjects.

The correlation across all subjects between the DES and the hypnotical score was .27 ($p < .001$, $n = 403$), and between

the Harvard and the hypnoidal scores was .60 ($p < .001$, $n = 403$). The latter result is consistent with Pekala and Kumar (1987) and Forbes & Pekala (1993) who found correlations of .65 and .61 respectively.

Dissociativity and Hypnotizability

The correlation between the DES and the Harvard Scale was .23 ($n = 403$, $p < .001$). A Z test comparing the proportions (see Table 1 for frequencies) of high (.2727) and low (.2272) dissociative subjects who were high susceptibles was not significant ($Z = 0.30$, $p > .05$). The proportions of high (.0962) and low (.3846) dissociatives who were low susceptibles differed significantly ($Z = 3.05$, $p < .01$).

Furthermore, two two-way (3 X 3) ANOVAs were done on DES and Harvard scores as dependent variables with susceptibility and dissociativity as classification factors. Again multivariate analyses preceded univariate analyses. The MANOVA indicated that all three effects were significant: dissociativity main effect [Wilks $F(4,652) = 245.73$, $p < .001$]; susceptibility main effect [Wilks $F(4,652) = 187.01$, $p < .001$]; and interaction [Wilks $F(8,652) = 2.61$, $p = .008$]. For the univariate analyses the α of .025 was used to establish significance.

Further univariate analysis of variance on the DES scores revealed that although the dissociativity and susceptibility main effects were significant [$F(2,327) = 860.36$ and 8.75 , $p < .001$], the interaction was marginally significant [$F(4,327) = 2.78$; $p < .027$]. Scheffé's post-hoc comparisons ($\alpha = .01$) showed the three dissociativity groups (low, medium, and high) to differ significantly from each other (see Table 5). Similar analyses on the three susceptibility groups (low, medium, and high) showed that they differed significantly ($\alpha = .01$) from each other (see Table 5). The interaction effect suggested that the differences on the DES scores among the low, medium, and high susceptibles for the low and medium dissociativity subjects were smaller than for the high dissociativity subjects. For the latter group, the difference between the low and medium susceptibles was relatively smaller than the high susceptible group.

The univariate analysis using Harvard scores as the dependent variable revealed the main effect of susceptibility to be significant [$F(2,327) = 573.54$, $p < .001$]. Scheffé's pair-wise ($\alpha = .01$) comparisons revealed that the three susceptibility groups differed significantly from each other (see Table 6 for the means). However the dissociativity main and interaction effects were not significant [$F(2,327) < 1.0$ and $F(4, 327) = 2.51$, $p > .025$ respectively].

DISCUSSION

The cut-off scores used in the formation of the three dissociativity and susceptibility groups (low, medium, and high) seem to have formed three distinct groups for each of the variables as suggested by the highly significant F values ($p < .001$) for the main effects in Tables 5 and 6.

TABLE 4
Hypnoidal Scores as a Function of
Susceptibility and Dissociativity

Susceptibility	Dissociativity			Mean
	Low	Medium	High	
Low	1.78	2.18	2.54	2.06
n	(40)	(54)	(10)	(104)
Medium	3.85	4.43	5.02	4.40
n	(48)	(104)	(36)	(188)
High	5.40	6.20	7.26	6.31
n	(10)	(22)	(12)	(44)
Mean	3.16	3.97	5.06	
n	(98)	(180)	(58)	

TABLE 5
DES Scores for Susceptibility and
Dissociativity Categories

Susceptibility	Dissociativity			Mean
	Low	Medium	High	
Low	6.28	14.60	36.54	13.51
n	(40)	(54)	(10)	(104)
Medium	6.47	15.06	37.20	17.11
n	(48)	(104)	(36)	(188)
High	7.57	16.14	43.19	21.57
n	(10)	(22)	(12)	(44)
Mean	6.51	15.05	38.33	
n	(98)	(180)	(58)	

Phenomenological Experience

The results of the study show that while the main effects of dissociativity and hypnotizability were significant, their interaction was not significant in determining phenomenological experiences. An examination of Tables 2 and 3 indi-

FIGURE 1
Hypnotoidal and Harvard Scores as a Function of Susceptibility and Dissociativity

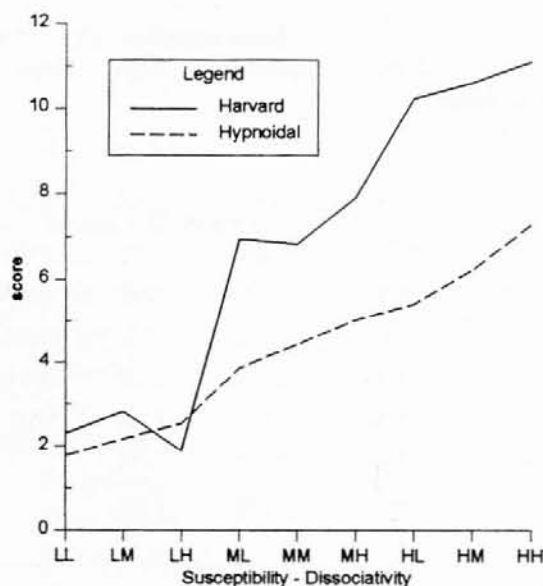


TABLE 6
Harvard Scores for Susceptibility and Dissociativity

Susceptibility	Dissociativity			Mean
	Low	Medium	High	
Low	2.30	2.82	1.90	2.53
<i>n</i>	(40)	(54)	(10)	(104)
Medium	6.94	6.81	7.91	6.91
<i>n</i>	(48)	(104)	(36)	(188)
High	10.21	10.59	11.08	10.64
<i>n</i>	(10)	(22)	(12)	(44)
Mean	5.38	6.07	7.09	
<i>n</i>	(98)	(180)	(58)	

cates that while the three dissociative groups differed on 8 PCI (sub)dimensions, the three susceptibility groups significantly differed on 18 (sub)dimensions. The phenomenological parameters which differentiated the high, medium, and low dissociative subjects were similar in some ways to

those that differentiated the high, medium, and low susceptible groups. The high dissociatives, relative to low and the medium, showed increased altered state of awareness and altered experience (body image, perception, meaning), but decreased rationality. The same differences were also significant when the three susceptibility groups were compared. There were some phenomenological parameters which differentiated the dissociative groups, but not the susceptibility groups, and vice-versa.

The high dissociatives, relative to the low and medium, showed increased negative affect (anger & sadness). In contrast, the high susceptibles, relative to the medium and low, showed increased positive affect (joy), attention (direction-inward and absorption), but decreased self-awareness, memory, and volitional control.

These results support the contention that dissociativity and hypnotizability are related but different constructs (Carlson, 1994).

The pattern of results for the high susceptibility group, relative to the low (and, in some cases medium) – increased attention (direction-inward and absorption) and altered self-awareness, altered state, but decreased rationality, and volitional control – fits the classic suggestion effect for hypnosis as suggested in the literature and in large measure replicates previous research (see Pekala, 1991a). However, the same cannot be said for the high dissociative group. The greater anger and sadness on the part of high, compared to low, dissociatives is interesting and warrants further research in terms of what types of memories or reflections may have caused them to be angry and sad. While the high, relative to the low and medium dissociatives, showed decreased rationality, there were no differences on volitional control, self-awareness, absorption, and memory. The lack of significant difference on absorption and memory is surprising in view of the assumption that DES measures aspects of memory as well as absorption and imaginative involvement (Carlson, 1994).

Dissociativity and Hypnotizability

The data in the present study also allowed the examination of the relationship between dissociativity and hypnotizability. Consistent with the results of other studies, the correlation between DES and the Harvard Scale was low ($r = .23, p < .001$) across all subjects. Furthermore, the three susceptibility groups significantly differed from each other on DES scores. This result is consistent with that reported by Perry (cited by Carlson, 1994) except for the differences in mean DES values between the two studies. While Perry reported 10.3, 18.5, and 30.8, for the low, medium, and high susceptibility groups, the corresponding means in the present study were 13.51, 17.11, and 21.57. Interestingly, however, the low, medium, and high dissociativity groups did not differ significantly on the Harvard scores despite an increasing trend from the low to medium to high group.

The asymmetrical relationship between susceptibility and

dissociativity may be understood by examining the frequencies resulting in various cells by the use of the particular cut-off scores (see Table 1). While the high dissociatives were equally likely ($p > .05$) to be high (27.27%) and low (22.71%) susceptibles, the low dissociatives group were less likely to be high (9.62%) than low (38.46%) susceptibles ($p < .01$). These results suggest that while the low dissociatives tend to be low susceptible, the high dissociatives could go either way (i.e., high or low susceptibles). Thus, there were enough high dissociatives who were low susceptibles to make the differences in the DES scores non-significant.

These results are inconsistent with Carlson and Putnam's (1989) conclusion that "a highly dissociative person will necessarily be highly susceptible, but low or moderately dissociative persons could show any degree of hypnotizability" (p. 35). The results of the present study make sense if one views dissociativity as a capacity to dissociate; a highly dissociative individual may sometimes be unwilling to exercise that capacity within the context of a hypnotic induction. The lows have less of that capacity and thus they may have difficulty responding to some of the suggestions on the Harvard Scale.

Interesting results were obtained when hypnoidal scores (predicted Harvard scores from PCI) were analyzed. The main effect of dissociativity suggests (see Table 4) that the hypnoidal scores increased with the level of dissociativity suggesting that the high dissociatives, vis-a-vis lows and mediums, were more likely to experience the subjective or phenomenological aspects associated with highly susceptible subjects during hypnosis. Yet another interesting result (see Figure 1) was the monotonic increase in hypnoidal scores with an increase in the level of category formed by using both susceptibility (first letter) and dissociativity (second letter) (LL, LM, LH, ML, MM, MH, HL, HM, HH). In other words, these findings suggest (a) keeping the level of susceptibility constant, the higher the dissociative score the greater the depth of trance achieved, and (b) higher levels of susceptibility combined with higher levels of dissociativity are associated with greater depth of trance.

If one uses the cut-off of 7.0 or higher as evidence of being in a hypnoidal state (Pekala & Nagler, 1989), then only high susceptible subjects who are highly dissociative are likely to experience phenomenological effects associated with being in a deep hypnotic trance. It is to be noted that the average hypnoidal score for the high susceptible group was somewhat lower than the group which was high on both characteristics.

These results suggest that hypnoidal scores provide additional information beyond that provided by Harvard scores when predicting the level of trance achieved by highly dissociative subjects. These results highlight the importance of assessing the phenomenologically-based hypnoidal effects in addition to the traditional behaviorally-based susceptibility scores. However, further research is warranted to replicate the present study results.

CONCLUSION

The present study's results support prior findings by other investigators that a modest relationship exists between dissociativity and hypnotizability. However, the finding that high dissociatives could either be high or low susceptibles is inconsistent with Carlson and Putnam's observation that high dissociatives are highly susceptible, but low or medium subjects could show any degree of hypnotizability.

The data further support the contention that the capacity for hypnotizability and the capacity to dissociate in everyday life are related but distinct constructs (Carlson, 1994, p. 48) given the way they were related to phenomenological experiences during a hypnotic induction. Although the two traits did not interact in determining phenomenological experiences, the data suggest that subjects high on both traits were more likely to experience a hypnoidal state (the subjective trance state only achieved by the most highly hypnotizable subjects during hypnosis). ■

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