

MEASUREMENT OF PHENOMENOLOGICAL EXPERIENCE:
PHENOMENOLOGY OF CONSCIOUSNESS INVENTORY¹

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Summary.—The results of two studies suggest that the Phenomenology of Consciousness Inventory has adequate reliability and validity in assessing alterations in phenomenological experience associated with stimulus conditions, such as eyes open and closed, sitting quietly, and an hypnotic induction.

Previous researchers have attempted to assess subjective or phenomenological experience associated with altered-state induction procedures (Tart, 1975) via self-report measures. Sensory-deprivation researchers usually have had subjects talk aloud, and their verbalizations were then scored for "reported visual or auditory sensations" (Zubek, 1969). Barr and Langs (1972), in their research with LSD, had subjects complete a 47-item yes-no inventory that included items relevant to affect, cognition, and other aspects of subjective experience.

To assess the frequency and intensity of naturally-occurring "hypnotic-like" experiences, Shor (1960) developed the Personal Experience Inventory. As and Lauer (1967) developed the Experience Inventory, a modified and expanded version of Shor's inventory, that was subsequently modified by Lee-Teng (1965) also to assess hypnotic experiences outside of hypnosis.

While the hypnosis inventories are *trait* instruments, only the Barr and Langs questionnaire allows for the assessment of phenomenological *state* effects via a self-report questionnaire. Along the lines of Barr and Langs, Pekala and Wenger (1983) developed a more comprehensive instrument called the Dimensions of Consciousness Questionnaire to assess phenomenological state effects associated with specific stimulus conditions (e.g., hypnosis, drugs, meditation).

The Dimensions of Consciousness questionnaire measures information on intensity for 11 major and 18 minor dimensions of phenomenological experience. The major and minor dimensions included imagery (vividness, amount), attention (direction, absorption), altered experience (body image, perception,

¹The authors thank Joseph Neumann, Ph.D. and Steven Pashko, Ph.D. for their helpful comments on an earlier version of this article. Reprints can be obtained from Ronald J. Pekala, Ph.D., Psychology Service (116B), Coatesville Veterans Administration Medical Center, Coatesville, PA 19320.

time sense, unusual meanings), awareness (state of awareness, self-awareness), positive affect (joy, love, sexual excitement, calmness), negative affect (anxiety, anger, sadness, guilt), memory, internal dialogue, rationality, volitional control, and (bodily) arousal.

Representative items for several of the (sub)dimensions of the inventory (listed in terms of left dipole versus right dipole) are: "I was forever distracted and unable to concentrate on anything" versus "I was able to concentrate quite well and was not distracted" (absorption); "I felt ecstatic and joyful" versus "I felt no feeling of being ecstatic or joyful" (joy); "My state of consciousness was not any different or unusual from what it ordinarily is" versus "I felt in an extremely different and unusual state of consciousness" (altered state of awareness); and "I was silently talking to myself a great deal" versus "I did not engage in any silent talking to myself" (internal dialogue).

Although the questionnaire showed satisfactory reliability and some validity, it was somewhat long for experimental purposes. The 80 items (rated on a 7-point scale) required about 20 min. to administer, and consequently in some experiments in which the same subjects were tested twice in different stimulus conditions (e.g., eyes closed and then again after hypnosis), completing the scale took 40 min. The present two studies were undertaken to develop a shorter version to significantly cut testing time and avoid fatigue and boredom associated with completion of the longer form. Study 1 concerns the construction of the scale and estimates its reliability. Study 2 reassesses the instrument's reliability and estimates its validity in terms of sensitivity to register changes in phenomenological experience that result from a hypnotic induction.

STUDY 1

Method

Subjects.—Students ($n = 112$; 70 men, 42 women) in several sections of an introductory course in psychology served as subjects. Participation was voluntary.

Instrument.—Minor changes were made in the Dimensions of Consciousness Questionnaire before that instrument was reduced to the shorter version. Some items associated with the positive and negative affect subdimensions were replaced by items that allowed the incorporation of Plutchik's (1980) four primary emotions of anger, fear, sadness, and joy. With these modifications, the category of positive affect contained the subdimensions of joy, love, and sexual excitement; the category of negative affect contained the subdimensions of anger, fear, and sadness. These modifications yielded 84 items.

Five items similar or identical in content to five other items (dealing

with the (sub)dimensions of sexual excitement, altered state, visual imagery amount, direction of attention, and internal dialogue) were used to evaluate for intratest reliability (reliability index) for each subject. Subjects responding identically on these item-pairs would receive an average difference score of zero on the five item-pairs, whereas subjects having marginal reliability would receive an average difference score of 2 or more.

Procedure.—Subjects ($n = 112$) were seen in groups of 40, 40, and 32 at the same place and time of day within a 1-wk. period. After explaining the general nature of the study subjects were asked to sign the consent form. Then, all subjects were asked to sit quietly with their eyes open and think about whatever they liked. After 4 min. subjects completed the 84-item questionnaire in reference to the time when they sat quietly and thought about whatever they liked.

Results and Discussion

Reliability of the modified version.—Pearson correlations for the five pairs of duplicate (intratest reliability) items averaged .74 across all subjects. The average reliability index across all subjects was .85; only 2% of the subjects showed reliability index values of greater than 2. Coefficient alphas ranged from .65 to .93, averaging .82 for the major dimensions and .84 for the minor dimensions. These results are consistent with those obtained by Pekala and Wenger (1983) for the earlier questionnaire.

Development of the final inventory.—The main strategy for the choice of items in the construction of this inventory was to examine the effect of excluding items on the values of coefficient alpha. Items that did not appreciably raise the alpha value (by about .05) were dropped.

The resulting self-report questionnaire, termed the Phenomenology of Consciousness Inventory (Pekala, 1982), had 53 items covering 12 major and 14 minor dimensions (the subdimensions self-awareness and state of awareness were used as separate major dimensions because of a low correlation between them).

Coefficient alphas computed for each of the major and minor dimensions yielded values between .70 and .90, and averaged about .80 across all major dimensions (.79 across all major and minor dimensions combined) demonstrating acceptable levels of internal consistency reliability for the use of the instrument in research. Independent t -tests yielded no sex differences for any of the (sub)dimensions. Probability of a Type 1 error no greater than .05 was chosen for this and all subsequent analyses.

Two forms of the new version (Forms 1 and 2) using exactly the same items were then constructed by arranging the order of items in two different sequences in a randomized block fashion.

STUDY 2

The purpose of Study 2 was to reassess reliability with another group of subjects and to gather evidence regarding validity.

Method

Subjects.—Students ($n = 263$; 88 men, 175 women) from several sections of an introductory course in psychology participated. Participation was voluntary.

Instruments.—The questionnaire version developed in Study 1 was used to assess phenomenological experience; the Harvard Group Scale of Hypnotic Susceptibility, Form A (Shor & Orne, 1962) was used for its hypnotic induction procedure.

Procedure.—Subjects were seen in two groups of 131 and 132 at the same place and time of day within a 1-wk. period. After explaining the general nature of the study, subjects completed consent forms. Then they were asked to sit quietly and think about whatever they liked while their eyes were closed. At the end of 4 min. subjects were asked to open their eyes and complete the inventory, Form 1, with reference to the eyes-closed condition.

Subjects then experienced the hypnotic-induction procedure of the Harvard scale; the induction was shortened by about 10 min. to accommodate to the time constraints of the study. After the eye-catalepsy instructions, but before the posthypnotic suggestion and amnesia, subjects experienced a 4-min. period during which they were told "to continue to experience the state you are in right now. For the next several minutes I'm going to stop talking and I want you to experience the state you are in right now."

After the induction-procedure subjects were asked to write down a list of the hypnotic suggestions they remembered. After removal of amnesia, subjects were asked to complete Form 2 of the inventory in reference to the preceding 4-min. period. Finally, subjects completed the 11 response items of the Harvard scale.

Results and Discussion

Room-scheduling problems necessitated moving the second subject group after the eyes-closed condition to another room. During this move about 10% of the subjects left. Data from another 10% of the subjects (across both groups) had to be disregarded because there were omissions in filling out the questionnaire. The final analysis was based on data from 217 subjects.

Reliability.—Pearson correlations for the five pairs of duplicate items was .53 for both the eyes-closed (Form 1) and the induction condition (Form 2). Data from 89.9% ($n = 195$) of the subjects in the eyes-closed condi-

tion, and 87.6% ($n = 190$) in the induction condition had reliability index values of 0 to 2.

Both the Pearson correlations and the percentage of subjects with reliability index values of less than 2 were considerably lower than in Study 1. Time constraints in the second study, which were much tighter than the first one, may have contributed to unreliability of some subjects. In addition, subjects came from different universities in the two studies. However, these figures agree with those of other research (Lieberman, 1979) which shows that a small percentage of subjects may be unreliable in introspective reports.

TABLE 1
MEANS AND STANDARD DEVIATIONS FOR PHENOMENOLOGY OF
CONSCIOUSNESS INVENTORY DURING THREE STIMULUS CONDITIONS

Dimensions	Stimulus Conditions*					
	Eyes Open†		Eyes Closed‡		Hypnosis‡	
	M§	SD	M	SD	M	SD
Positive Affect	2.71	1.56	3.43	1.56	1.43	1.24
Joy	2.68	1.79	3.39	1.81	1.52	1.40
Sexual excitement	2.26	1.93	2.72	2.00	0.87	1.45
Love	3.20	1.89	4.18	1.80	1.90	1.68
Negative Affect	1.24	1.24	1.05	1.17	0.68	0.92
Anger	1.22	1.41	1.19	1.48	0.59	1.13
Sadness	1.64	1.66	1.33	1.59	0.73	1.16
Fear	0.86	1.32	0.62	1.15	0.72	1.25
Altered Experience	2.07	0.96	2.04	0.97	2.48	1.14
Body image	2.70	1.33	2.75	1.39	3.11	1.61
Time sense	2.61	1.47	2.66	1.61	3.40	1.63
Perception	1.40	1.40	1.36	1.29	2.09	1.55
Meaning	1.71	1.22	1.57	1.18	1.61	1.34
Visual Imagery	3.78	1.57	4.50	1.39	2.21	1.53
Amount	3.67	1.78	4.65	1.55	2.14	1.76
Vividness	3.89	1.55	4.36	1.56	2.27	1.67
Attention	3.71	1.27	4.13	1.21	3.95	1.31
Direction (Inward)	3.80	1.66	4.09	1.33	3.87	1.55
Absorption	3.58	1.56	4.18	1.51	4.08	1.58
Self-awareness	4.20	1.25	4.10	1.28	3.11	1.61
Altered Awareness	2.17	1.63	2.08	1.44	3.80	1.76
Internal Dialogue	4.10	1.79	3.00	2.19	2.00	1.93
Rationality	4.21	1.39	4.42	1.38	3.21	1.75
Volitional Control	3.95	1.36	4.06	1.38	2.62	1.64
Memory	4.25	1.06	5.19	0.96	3.80	1.69
Arousal	1.81	1.61	1.67	1.62	1.30	1.52

*Excludes subjects with a reliability index of > 2.0 .

† $n = 110$ (Michigan State students).

‡ $n = 173$ (West Chester students).

§Higher numbers denote increased intensities.

Coefficient alphas were then computed for those subjects with reliability index values of 2 or less. Coefficient alphas for Form 1 ranged between .65 and .85 and averaged .76 across the major dimensions for the eyes-closed condition. Coefficient alphas for Form 2 ranged between .74 and .85 and averaged .80 across all major dimensions for the hypnotic induction condition. These internal consistency values are in the acceptable range generally found for personality instruments.

Validity.—Validity was examined by comparing intensity ratings of subjects ($n = 173$ who had acceptable reliability index values for both conditions) for the eyes-closed and the hypnotic conditions by means of repeated-measures multivariate analysis of variance and two-tailed t tests for correlated data. Separate repeated-measures multivariate analysis of variance were performed for the major dimensions of the inventory and also for the minor dimensions. A significant main effect was found for conditions (eyes closed, hypnosis) for the 12 major dimensions ($F_{12,159} = 36.89, p < .0001$) and also the minor dimensions ($F_{14,157} = 29.98, p < .0001$).

The t -test comparisons showed significant differences on 11 of the 12 major dimensions. The comparison for the major dimension of attention was nonsignificant ($p > .05$). Ten of the 14 comparisons for minor dimensions (except fear, meaning, absorption, and attention direction) were significant. Table 1 lists the means and standard deviations for these two conditions and also the means and standard deviations for the eyes-open condition of Study 1. Analyses comparing the eyes-open condition with the other two conditions are not reported. It was not known to what extent samples from separate universities employing slightly varied procedures might lead to differing phenomenological effects due to variations besides that attributable to the nature of the stimulus conditions assessed.

The results indicated that the induction condition, vis-a-vis the eyes-closed condition, was associated with significantly decreased positive (joy, love, sexual excitement) and negative (anger, sadness) affect and with significantly decreased imagery (amount and vividness), self-awareness, internal dialogue, rationality, volitional control, memory, and arousal (increased relaxation). The induction condition was also associated significantly with altered experiences involving body image, time sense, perception, and state of awareness. These findings replicated nearly all comparisons obtained in earlier research with the quasihypnotic stimulus condition of relaxation/meditation (Pekala, Wenger, & Levine, 1985).

To assess differences in pattern between conditions, correlation matrices (intercorrelations among the 12 major test dimensions) for the eyes-closed and the hypnotic-induction conditions were compared using Jennrich's (1970) asymptotic chi-squared test. The two correlation matrices were significantly

different ($\chi_{66}^2 = 196.2, p < .001$), suggesting that the inventory was sensitive to differences in pattern associated with the hypnotic-induction vis-a-vis the eyes-closed conditions.

In regards to sex differences, only one of the 26 (sub)dimension comparisons was significant; during eyes closed women scored higher on love, and during hypnosis women scored higher on absorption than men.

General Conclusions

The results of the two studies, considered in conjunction with previous research (Pekala & Wenger, 1983; Pekala, Wenger, & Levine, 1985) suggest that the inventory is a reliable self-report measure for assessing phenomenological experience in reference to stimulus conditions such as eyes open and closed sitting quietly and hypnosis.² Tests of validity suggest its usefulness in assessing alterations of intensity on 12 major and 14 minor dimensions of subjective experience, and differences in the over-all pattern of responding (i.e., by comparing correlation matrices) among stimulus conditions.

REFERENCES

- AS, A., & LAUER, L. W. (1962) A factor-analytic study of hypnotizability and related personal experiences. *International Journal of Clinical and Experimental Hypnosis*, 10, 169-181.
- BARR, H. L., & LANGS, R. J. (1962) *LSD: personality and experience*. New York: Wiley Interscience.
- JENNRICH, R. J. (1970) An asymptotic χ^2 test for the equality of two correlation matrices. *Journal of the American Statistical Association*, 34, 904-912.
- LEE-TENG, E. (1965) Trance-susceptibility, induction-susceptibility, and acquiescence as factors in hypnotic performance. *Journal of Abnormal Psychology*, 70, 383-389.
- LIEBERMAN, D. A. (1979) Behaviorism and the mind: a (limited) call for a return to introspection. *American Psychologist*, 17, 776-783.
- PEKALA, R. J. (1982) *The Phenomenology of Consciousness Inventory (PCI)*. Thorndale, PA: Psychophenomenological Concepts.
- PEKALA, R. J., & WENGER, C. F. (1983) Retrospective phenomenological assessment: mapping consciousness in reference to specific stimulus conditions. *Journal of Mind and Behavior*, 4, 247-274.
- PEKALA, R. J., WENGER, C. F., & LEVINE, R. L. (1985) Individual differences in phenomenological experience: states of consciousness as a function of absorption. *Journal of Personality and Social Psychology*, 48, 125-132.
- PLUTCHIK, R. (1980) *Emotions: a psychoevolutionary synthesis*. New York: Harper and Row.
- SHOR, R. E., & ORNE, E. C. (1962) *The Harvard Group Scale of Hypnotic Susceptibility*. Palo Alto, CA: Consulting Psychologists Press.
- TART, C. T. (1975) *States of consciousness*. New York: Dutton.
- ZUBEK, J. P. (1965) *Sensory deprivation: 15 years of research*. New York: Appleton-Century-Crofts.

Accepted August 25, 1986.

²The questionnaire, scoring sheets, and related material are on file in Document NAPS-04429 with Microfiche Publications, P. O. Box 3513, Grand Central Station, New York City, New York 10017. Please remit \$4.00 for microfiche or \$10.15 for a photocopy.

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2. Ronald J. Pekala, V. K. Kumar, Ronald Maurer, Nancy Elliott-Carter, Edward Moon, Karen Mullen. 2010. Suggestibility, Expectancy, Trance State Effects, and Hypnotic Depth: II. Assessment via the PCI-HAP. *American Journal of Clinical Hypnosis* **52**:4, 291-318. [[CrossRef](#)]
3. Ronald J. Pekala, V. K. Kumar, Ronald L. Maurer, Nancy Elliott-Carter, Edward Moon, Karen Mullen. 2008. Positive Affect, Negative Affect, and Negative Effects During a Phenomenological Hypnotic Assessment Within a Substance Abuse Population. *International Journal of Clinical and Experimental Hypnosis* **57**:1, 64-93. [[CrossRef](#)]
4. Betsey R. Robin, V. K. Kumar, Ronald J. Pekala. 2005. Direct and Indirect Scales of Hypnotic Susceptibility: Resistance to Therapy and Psychometric Comparability Abstract. *International Journal of Clinical and Experimental Hypnosis* **53**:2, 135-147. [[CrossRef](#)]
5. Ronald J. Pekala, Ronald Maurer, V. K. Kumar, Nancy C. Elliott, Ellsworth Masten, Edward Moon, Margaret Salinger. 2004. Self-Hypnosis Relapse Prevention Training with Chronic Drug/Alcohol Users: Effects on Self-Esteem, Affect, and Relapse. *American Journal of Clinical Hypnosis* **46**:4, 281-297. [[CrossRef](#)]
6. Katalin Varga, Emese Józsa, Éva I. Bányai, Anna C. Gösi-gregussw, V. K. Kumar. 2001. Phenomenological experiences associated with hypnotic susceptibility. *International Journal of Clinical and Experimental Hypnosis* **49**:1, 19-29. [[CrossRef](#)]
7. Ronald J. Pekala, V. K. Kumar. 2000. Operationalizing “Trance” I: Rationale and Research Using a Psychophenomenological Approach. *American Journal of Clinical Hypnosis* **43**:2, 107-135. [[CrossRef](#)]
8. Frank J. Angelini, V. K. Kumar, Louis Chandler. 1999. The harvard group scale of hypnotic susceptibility and related instruments: Individual and group administrations. *International Journal of Clinical and Experimental Hypnosis* **47**:3, 236-250. [[CrossRef](#)]
9. Michael S. McCloskey, V. K. Kumar, Ronald J. Pekala. 1999. State and Trait Depression, Physical and Social Anhedonia, Hypnotizability and Subjective Experiences during Hypnosis. *American Journal of Clinical Hypnosis* **41**:3, 231-252. [[CrossRef](#)]
10. Lisa N. Woodside, V. K. Kumar, Ronald J. Pekala. 1997. Monotonous Percussion Drumming and Trance Postures: A Controlled Evaluation of Phenomenological Effects. *Anthropology of Consciousness* **8**:2-3, 69-87. [[CrossRef](#)]
11. Ronald J. Pekala, Elizabeth J. Forbes. 1997. Types of Hypnotically (Un)Susceptible Individuals as a Function of Phenomenological Experience: Towards a Typology of Hypnotic Types. *American Journal of Clinical Hypnosis* **39**:3, 212-224. [[CrossRef](#)]
12. V. K. Kumar, Ronald J. Pekala, James Cummingsu. 1996. Trait factors, state effects, and hypnotizability. *International Journal of Clinical and Experimental Hypnosis* **44**:3, 232-249. [[CrossRef](#)]
13. Ronald J. Pekala. 1995. A Short, Unobtrusive Hypnotic-Assessment Procedure for Assessing Hypnotizability Level: I. Development and Research. *American Journal of Clinical Hypnosis* **37**:4, 271-283. [[CrossRef](#)]

14. V. K. Kumar, Ronald J. Pekala. 1988. Hypnotizability, Absorption, and Individual Differences in Phenomenological Experience. *International Journal of Clinical and Experimental Hypnosis* **36**:2, 80-88. [[CrossRef](#)]
15. Ronald J. Pekala, V. K. Kumar. 1987. Predicting Hypnotic Susceptibility via a Self-Report Instrument: A Replication. *American Journal of Clinical Hypnosis* **30**:1, 57-65. [[CrossRef](#)]