THE MODIFICATION OF HYPNOTIC BEHAVIOR

OR EXTENDING THE VERBAL CONTROL OF

COMPLEX HUMAN BEHAVIOR

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Till recently hypnotizability has been regarded as relatively unmodifiable behavior (Hilgard, 1965; Shor, Orne and O'Connel, 1966; London, 1969; Gill and Brenman, 1959). Several psychotherapist-hypnotists have implied that hypnotizability can be significantly altered (Bernheim, 1884; Erickson, 1952; Moll, 1958). It appears likely that the early interpersonal techniques (Gill and Brenman, 1959; As, Hilgard and Weitzenhoffer, 1963) used to modify hypnotizability were relatively ineffective because the specific experiential behavioral targets of change were poorly defined and the interventions unsystematic. Recently the following procedures have been found to be promising approaches to disinhibiting or shaping up expanded hypnotic repertoires: 1) Verbally and behaviorally (modeling) presented instructions and training directed at private events, (e.g. attention, imagery, misconception, critical thinking, sensory focus and comfort under conditions of fading reality orientations; 2) Training in interpersonal risk taking, closeness, self disclosure and arranging the conditions for "trust"; 3) Special procedures intended to alter perception (sensory deprivation and psychedelic drugs); 4) Biofeedback training procedures (EEG and EMG).

Shor, Orne and O'Connel (1966) have stated that it is important to distinguish between variations in hypnotic performance and the modification of hypnotizability per se. But it is important to note that all statements about changes in hypnotizability are necessarily inferences from performance because hypnotizability per se, like learning, is an unobservable construct. From a practical standpoint it is important to know 1) if the four general types of pre-hypnotic procedures identified above will reliably expand hypnotic behavior (response to test suggestions)
above baseline levels; 2) if the expanded hypnotic repertoire will generalize to a standard induction procedure minus the special pre-hypnotic procedures; 3) if changes induced in hypnotic performance in the laboratory will generalize to the clinical situation; 4) if pre-hypnotic procedures that are reliably effective in the laboratory will also be reliably effective in the clinic.

It is also important to know if these four general types of hypnosis increasing interventions have most impact on initially (baseline measurement) low or moderately hypnotizable subjects. It would also be useful to know which technique to use with which type of subject and which experimental procedures are most suitable for shaping up or disinhibiting which hypnotic phenomena. Unfortunately, secure answers to all the above questions are not yet in.

The procedures to be outlined below appear to significantly increase the probability of boosting hypnotic performances above baseline levels by facilitating the subject's skill in manipulating internal events or by educating him subjectively. Through subjective education or the development of effective and reliable skills in controlling private events (thoughts and their physiological consequences) the range of personal self-management and control may be expanded, beyond the limits that are environmentally imposed. It is probable that if subjective education is made part of the regular elementary and secondary school curriculum there will be a less sharp drop off in longitudinal curves of hypnotizability and related phenomena from childhood to adulthood. It is also possible that the average adult who comes to the psychotherapist will
bring with him more subjective skills and a higher baseline of subjective
education, which, of course, may improve the prognosis for therapy. Hyp-
notic training, biofeedback, transcendental meditation and related procedures
may contribute to a technology of subjective education.

The following techniques appear to increase the probability of
disinhibiting hypnotic experience:

1.) Verbally and behaviorally (modeling) presented systematic
instructions and training directed at private events.
It has been shown that modifying a subject's expectations
regarding hypnosis either in the direction of inculcating
positive attitudes or correcting misconceptions can increase
hypnotizability. Positive attitudes may be induced by de-
fining the situations as easy to respond to, a pleasant and
interesting experience, and a consent situation, etc. (Barber
and Calverley, 1964, 1966; Diamond, 1972). Positive expect-
tations may also be experimentally induced by manipulating a
subject's estimates of his own ability to respond (Wilson,
1967; Gandolfo, 1971; Gregory and Diamond, 1973). For example,
Wilson (1967) used unobtrusive types of "prompts" (e.g. hidden
lights, etc.) to increase the probability that the subject
would experience hypnotic suggestions. Gregory and Diamond,
(1973) used false personality test results to alter in a pos-
itive direction a subject's expectation of hypnotic experience.
Positive attitudes towards hypnosis may also be elicited by exposing hypnotic subjects to a very susceptible hypnotic model who verbalizes his subjective experiences, sensations and responses to the discrete hypnotic suggestions. Inviting the subjects whose hypnotizability is to be increased to question the highly susceptible hypnotic model raises the probability of increasing hypnotizability. A model who has high status in a context that is relevant to the hypnotic subject appears to contribute to the enhancement of hypnotizability (De Voge and Sachs, 1973). In general, exposing hypnotic subjects to a highly susceptible hypnotic model, who openly verbalizes his subjective reactions to hypnosis and who responds freely to questions will increase the probability of hypnotic responses in participating observers (Zimbardo, Rapaport and Baron, 1969; Marshall and Diamond, 1969; Diamond, 1972; De Voge and Sachs, 1973; De Stefano, 1971).

The alteration of misconceptions regarding hypnosis and provision of counter information will also raise the probability of hypnotic response (Cronin, Spanos and Barber, 1971; Diamond, 1972; Gregory and Diamond, 1973; Diamond and Harada, 1973). Exposure of misconceptions and provision of counter information may be provided by written instructions on paper, by the observation and questioning of a highly susceptible hypnotic model or by looking at a responsive hypnotic model on video tape. Extinguishing anxieties which stem from misconceptions like loss of consciousness, loss of personal self control, inability to
wake from hypnosis, etc., are also powerful cognitive procedures to increase hypnotizability.

The systematic provision of information and training (self-paced successive approximations) on what to do internally (privately and experientially) provided by a responsive hypnotic model or through verbal instructions will also increase hypnotizability (Pascal and Salzberg, 1959; Sachs and Anderson, 1967; Zimbardo, Rapaport and Baron, 1969; Diamond, 1972; Gregory and Diamond, 1973; Diamond and Harada, 1973; Sachs, 1970). The following are effective procedures: 1) Provision of a clear verbal concept of the desired sensory experience; 2) The use of "prompts" to shape up vivid sensory experiences (e.g. to acquaint subject with immediate sensations of heaviness, place a heavy weight on hands); 3) Self-paced successive approximations using just noticeable-difference (JND) steps; 4) Structuring the procedure to place the subject in a double bind situation where he has to validate his subjective report with increased objective performance. In essence, this is a cognitive dissonance procedure; 5) Inviting the subject to imagine vividly, to suspend reality orientation and critical judgment and to permit himself to become totally absorbed (e.g. like at an exciting movie); 6) Verbal reinforcement of hypnotic responsivity; 7) Eliciting the subject's active responsible participation by the use of task relevant motivational instructions presented either verbally or in the form of a programmed text (Havens, 1973).
2.) Training intra and interpersonal risk taking.

We hypothesize that systematically increasing a subject's personal risk taking behavior will increase hypnotizability. This increase in risk taking behavior may be induced by increasing his confidence in the outcome and/or by lifting his intrapersonal inhibitions (defensiveness) to risk taking. Confidence in outcome may be shaped with first a continuous reinforcement schedule and eventually a variable reinforcement schedule. The resulting positive expectancy and the conditions for "trust" are prompts and props which may be faded after risk taking behaviors are internalized and have become high probability events under appropriate conditions. Specifically it is predicted that any manipulations that increase confidence and trust in the Self or confidence and trust in a specific person in the social environment will increase hypnotizability.

In terms of increasing hypnotizability by arranging conditions for "trust" (Vickramasekera, 1973) and confidence in an individual in the social environment, it has been shown that a hypnotist who speaks in a forceful voice (Barber and Calverley, 1964b), behaves warmly (Greenberg and Land, 1971) and who is perceived by the subject (through instructional and situational manipulations) to be an experienced expert (Balaschak, Blocker, Rossiter and Perin, 1972; Wuraffic, 1971; Small and Kramer, 1969; Coe, Bailey, Hall, Howard, Janda, Kobayashi and Parker, 1970) elicits greater hypnotizability. It is hypothesized that systematic provision of the "core conditions" at high levels plus increasing patient "self exploration" (Truax and Carkhuff, 1965) will also increase hypnotizability in that interpersonal context by reducing defensiveness and resistance.
Hypnotizability may also be increased by increasing confidence in the self (mature self confidence). Tart (1970a) found that a nine month training program that stressed interpersonal risk taking (encounter groups and Gestalt therapy) and subjective experiential experimentation (directed imagery and sensory awareness) at Esalen Institute increased hypnotizability as measured by the Stanford Scales. If high interpersonal and intrapersonal trust are an important aspect of both positive mental health and hypnotizability, then the generally poorer hypnotizability of psychiatric patients is partially explained (Gill and Brenman, 1959; Barber, Karacan and Calverley, 1964; Webb and Nesmith, 1964). The clinical-empirical observation (Hilgard, 1965) that adventurous behavior is correlated with hypnotizability may be explained by postulating a risk taking construct that may facilitate both behaviors (mental health behaviors and hypnotizability). It is hypothesized that a systematic program of subjectively oriented personal and social risk taking which incorporates the elements of successive approximation, reinforcement and corrective feedback will increase the probability of hypnotic behavior.

3.) Special procedures to alter perception.

It is probable that impairing reality testing with psychedelic drugs and/or sensory deprivation will increase hypnotizability by inhibiting left cerebral hemisphere functions like sequential, analytic and critical judgmental verbal operations (Sperry, 1964; Milner, 1971; Galin and Ornstein, 1972; Cassannée, 1967).
In terms of the effects of psychedelic drugs, it has been shown that both hypnotic phenomena and hypnotizability may be enhanced by LSD-25 (Fogel and Hoffer, 1962; Levine, Ludwig and Lyle, 1963; Levine and Ludwig, 1965; Sjoberg and Hollister, 1965; Netz, Morten and Sundwall, 1968; Negz and Engstrom, 1968; Middefell, 1967; Ulett, Akpinar and Itil, 1972) and mescaline (Sjoberg and Hollister, 1965). Two recent studies report a high degree of association between self reported use of marijuana, LSD, mescaline and psilocybin and hypnotizability scores on the Harvard Group Scale (Shor and Orne, 1962; Van Nuys, 1972; Franzini and McDonald, 1973). It is possible that prior use of marijuana and/or psychedelic drugs creates a sense of familiarity and comfort with right hemispheric mental functions and inhibits chronic vigilence and analytic thinking. The disinhibition of these mental functions creates an intrapersonal condition that increases the probability of entry into the hypnotic experience.

Sensory deprivation and restriction procedures appear to be a promising technique of increasing hypnotizability (Pena, 1963; Wickramasekera, 1969, 1970; Sanders and Rehyer, 1969) at least temporarily. Pena (1963) found that three hours of sensory restriction increased hypnotizability in a prison population. Wickramasekera (1969) found that thirty minutes of sensory restriction was sufficient to increase hypnotizability in a college female population, and later Wickramasekera (1970) found that one hour of sensory restriction increased
hypnotizability in a group of male prisoners who were generally younger than Pena's (1963) subjects. Sanders and Rehyer (1969) reported that four to six hours of sensory restriction significantly increased the hypnotizability of previously resistant subjects. In the above studies sensory restriction or perceptual deprivation (Zubek, 1973) was imposed on the visual, auditory and tactual-kinesthetic sensory systems to varying extents and with varied instrumentation (sensory deprivation chamber, wearing goggles constructed to decompose visual patterns or listening to "white" noise through headphones). Under the above conditions many subjects spontaneously reported hallucinatory experiences. The above sensory restriction studies used control groups, but there were no tests for transfer of the increased hypnotizability outside the laboratory or to the later points in time.

4.) Biofeedback training procedures (EEG and EMG).

Some studies appear to show a relationship between the duration of EEG alpha and hypnotic susceptibility (Calbraith, London, Leibovitz, Cooper and Hart, 1970; London, Hart and Lebovitz, 1968). The biofeedback training procedure (Barber et al, 1971) was used by Engstrom, London and Hart (1970) to demonstrate that six sessions of contingent alpha feedback training was productive of greater increases in hypnotic susceptibility than six sessions of non-contingent alpha feedback training. It appeared from verbal reports that the alpha-on state and hypnosis were subjectively similar. In a single blind study,
Wickramasekera (1971) showed that six sessions of contingent EMG feedback training increased hypnotizability more significantly than an equal number of sessions of non-contingent EMG feedback training. In a double blind study Wickramasekera (1973) replicated the above results with another sample of college students of identical age and sex. Ten sessions of shorter (30 minutes) EMG feedback training were used in the replication study. Currently we are collecting data on pre and post measures of hypnotizability in patients who are learning temperature control with feedback for the management of migraine. These data appear to confirm the hypothesis that any procedures that increases comfort and skill in the self control of internal responses increases the probability of hypnotic behavior.

In summary, then it appears that certain procedures and environmental arrangements increase the probability of hypnotic experience. These arrangements appear to externally alter perception or to increase comfort and skill in subjective functioning. The technology of experimental hypnosis is only one of the streams converging to improve the general technology of subjective education. The availability of reliable and effective procedures to elicit or shape subjective responses (private events) may contribute saliently to a precise and powerful future technology for the control of complex human behavior.
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