The Domain of Hypnosis:
A Multifactorial Model

Frederick J. Evans
Lawrenceville, NJ

A conceptual framework is presented to help the reader understand some
controversies in the hypnosis literature and a means of understanding some
important differences and disagreements in the field. It is this author’s view that
hypnotic behavior can be understood as a complex mix of four conceptual (and
empirical) independent dimensions: expectations, akin to the placebo response in
clinical technique; suggestion; a cognitive component including relaxation,
ingimagery in all modalities, and trance logic; dissociation, which is seen as the key
component of deep hypnosis, and which may involve individual differences in
the flexible control of experience.

The Nature of Hypnosis: An Overview

The popular notion that hypnosis is a form of suggestibility is certainly an oversimplification
(Hammer, Evans & Bartlett, 1963; Hilgard, 1965), even though this definition has dominated
the otherwise impressive research on hypnotic phenomena from the 1930s (Hull, 1933),
through the 1950s, (Weitzenhoffer, 1953) until now. Although it is agreed that response to
suggestion is an important aspect of what happens during hypnosis, it is also generally
agreed that hypnosis is a more complex phenomenon (Bowers, 1985; Hilgard, 1977; Lynn

Some authors emphasize the social-psychological or social-cognitive interaction between
the hypnotist and the subject as central to hypnotic behavior (Barber, 1969; Chaves &
these authors, hypnosis and hypnotically induced symptom reduction involve interpersonal
processes or self-generated cognitive and motivational strategies such as anxiety reduction,
attribution, conditioning, distraction, focusing attention, forgetting, imagery, re-allocation
of attention away from the symptom, reframing, role playing, social contagion and
compliance, and verbal relabeling. In the social-psychological model these strategies are
facilitated by the hypnotic relationship, although it is often not clear how this is achieved.
The hypnotic induction procedure itself and individual differences in hypnotic ability are
usually considered incidental and unimportant.

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Frederick J. Evans, PhD
Pain Management Behavioral Medicine Services
736 Lawrence Road
Lawrenceville, NJ 08648
Another view of hypnosis is that it reflects a stable capacity of the individual. It is viewed, often controversially, as a special state of consciousness (Hilgard, 1977), or, in psychodynamic theory, as a manifestation of the unconscious mind (Brown & Fromm, 1986). Some clinicians view hypnosis as the preferred way to access unconscious processes. Hypnosis may facilitate wishes or emotions, memories of trauma, and loosen defenses, mostly through the use of metaphor and guided imagery (Erickson, 1980; Rossi, 1993; Cheek, 1994). Such concepts are very difficult to test empirically, even though they may lead to compelling and clever clinical applications.

In a formulation that leads to more direct empirical investigation, hypnosis is considered in terms of dissociation theory. The hypnotic experience may involve an ability to readily change states of awareness or levels of consciousness. These changes in consciousness may be either interpersonally- or self-induced (Bowers, 1976; Evans, 1987; Hilgard, 1965, 1977). Hypnosis may be considered in terms of neodissociation theory or multiple cognitive pathways. For example, the pain patient simultaneously knows and does not know the severity of the pain. The awareness of pain and the analgesic experience are co-conscious (Hilgard, 1977). A similar process occurs during dental analgesia: during drilling, the patient reports feeling no pain, but retains the ability to know when the dentist is drilling at a site which should be painful, and even to know how much the drilling would hurt without the injection. In hypnosis, as in this example from dental analgesia, cognitive and somatic mechanisms are available to block or transform pain messages and sensations through controls accessed in more than one level of consciousness. Pain awareness and hypnotic analgesia are co-conscious (Hilgard, 1977). Hypnosis may involve a more general cognitive flexibility, or switching mechanism, that allows one to change and control psychological, cognitive, biochemical or physiological processes, or readily access different levels of consciousness (Evans, 1987, 1991).

Four Dimensions of Hypnotic Behavior

It is useful to consider the domain of hypnosis as consisting of at least four conceptually independent constructs or dimensions. Noting which dimension an author is discussing will help the reader understand why hypnosis is a controversial field. Each dimension will have direct implications for the different ways hypnosis is researched and practiced. Focus on different aspects of hypnosis will have important methodological implications for the researcher and the techniques used by the clinician. These conceptual dimensions comprise the domain of hypnosis (Hilgard, 1973), but most accounts of hypnosis usually focus on only one or two of them, leading to incomplete, controversial and even misleading conclusions.

<table>
<thead>
<tr>
<th>Table 1: The four conceptual dimensions of the domain of hypnosis.</th>
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<tr>
<td><strong>Expectation</strong> (including placebo variables)</td>
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<td><strong>Suggestion</strong></td>
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<td><strong>Cognitive Distortion</strong></td>
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<td>Relaxation</td>
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<td>Imagery (all modalities)</td>
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<td>Trance Logic</td>
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<td><strong>Dissociation</strong></td>
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2
These four conceptual dimensions have heuristic value in understanding the hypnosis literature. The model has good empirical support based on earlier factor analytic studies of items comprising the domain of hypnosis (Evans, 1966; Hammer, Evans & Bartlett, 1963; Hilgard, 1965, 1973). These studies demonstrated that a single factor could not statistically account for sufficient variance among the correlations between items typically found in hypnosis scales. Several factors could be isolated in the hypnosis scales, and the most satisfying solutions statistically involved three or four factors including passive and challenged suggestions (approximately corresponding to the expectation and suggestion dimension in Table 1), an imagery (cognitive) dimension, and a dimension defined by posthypnotic behavior (dissociation).¹

**Expectations and Beliefs about Hypnosis.**

The first of the four dimensions of hypnosis is an expectation, faith, or belief variable. It is related to the placebo response (Evans, 1985, in press). It is probably common to any therapeutic modality and has its foundation in the special doctor-patient relationship. Laymen generally think of hypnosis as a quasi-magical technique, and also as something that is done to them.

To appreciate the importance of expectations about hypnosis, note how much the practice of hypnosis has changed over the past 200 years. Considered the father of modern hypnosis, Mesmer claimed to have hypnotized people by the thousands in Paris after he had been banished by the conservative Vienna medical establishment. The principles of physical magnetism had just been discovered. Mesmer (1779) argued that animal magnetism, or field forces that could be rearranged with magnets, could cure physical illness. At the height of his popular practice he would hold seances where people would gather around tubs filled with water and iron filings, with metal rods protruding. When a participant arrived to be healed he/she would hold a metal rod, or hold somebody’s hand, who in turn held a metal rod. As doctors do these days, Mesmer often arrived late (he often entertained ladies at the French Court), dressed in the purple robes of royalty (as some respected hypnotists still do, superstitiously). As many healers have done throughout the centuries he would lay his hands on the nearest person. First that person, then the next person, as in a ripple effect through an audience, would immediately go into “hypnosis.” What was hypnosis like then? One after the other, the participants fell to the ground and had hysterical seizures. After the seizure they fell into a deep sleep for a few seconds or sometimes several hours. When they awakened, they were allegedly cured of whatever ailed them. I personally know hundreds of colleagues who practice hypnosis with thousands of clients, but I do not know a single colleague who has reported that a patient went into trance falling onto the floor with a seizure. In just 200 years the nature of the hypnotic phenomenon has changed that much. This kind of behavioral compliance is not hypnosis. Responses may occur during a hypnotic session which may have nothing to do with hypnosis per se. They may be a result of the demands of the shared expectations and the need to be a compliant subject.

¹ Some critics have argued the factorial complexity of hypnotic behavior is unimportant because of a single factor solution of the standarized scales are an artifact of scale item difficulty (Coe & Sarbin, 1971). It is ignored that a single factor solution is statistically unjustifiable. It can be shown that when the items are rescored using differing criteria for “passing” (e.g., arm levitation can be rescored as passing if the arm floats up 3, 6, or 9 inches) the intercorrelations between the items remain invariant regardless of the scoring criteria (Evans, 1966). Thus the factor structure of the hypnotic performance remains relatively fixed regardless of how the behavior is scored.
We (Evans & Mitchell, 1977) have shown this contagion like compliance in hypnotic performance. During the administration of the Harvard Group Scale of Hypnotic Susceptibility (HGSHS:A, Shor & Orne, 1962), subjects who sit next to each other score more alike than neighboring subjects sitting further apart. When the same subject pairs are compared on the individually administered Stanford Hypnotic Susceptibility Scale: Form C (SHSS:C, Weitzenhoffer & Hilgard, 1962) they no longer score more alike than previously non-neighboring subjects. Nor is the magnitude of the social contagion effect of performing like a neighbor correlated with later hypnotizability level.

Hypnosis experienced a major resurgence in interest at the end of the nineteenth century when Bernheim (1889) introduced the now common view that hypnosis was merely a form of suggestion. It is still widely assumed that suggestibility increases during hypnosis, but this assumption has not been easy to document. It has been usually assumed (but not adequately tested) that people are not very suggestible in the normal waking state, and therefore any response to suggestion during hypnosis must be due to hypnosis. This is like being surprised that a person who has red hair during hypnosis still has red hair when no longer in hypnosis (Hammer, Evans & Bartlett, 1963). In fact, measures of “suggestibility”, including such laboratory measures of compliance, conformity, gullibility, influenceability, obedience, placebo response, persuasion and social contagion, all fail to correlate with standard measures of motor suggestions and hypnosis scales (Evans, 1967).

In conflict with Bernheim’s suggestion theory, Charcot (1886) argued that hypnosis was a psychopathological phenomenon and was a form of hysteria. Charcot argued that only (hysterical) women could be hypnotized, although no sex differences in hypnotic ability have been consistently documented (Hilgard, 1965).

Freud was familiar with Charcot’s observations and, influenced by his studies with Breuer on the abreactive cure (Breuer & Freud, 1924), his early work with hypnosis was instrumental in developing his theory of unconscious motivation (Ellenberger, 1970). Freud later gave up hypnosis citing as a reason that he could not hypnotize all of his patients. This is a surprising rationale: he never considered giving up free association or dream analysis because he couldn’t make all patients associate freely or recall dreams. Freud’s decision to discontinue using hypnosis highlights the crux of the lay person’s view of hypnosis that the (malevolent) hypnotist controls the (gullible) patient’s behavior (for suspect motives). The lay person’s view of hypnosis has been forged by two works of fiction — Mario and the Magician (Mann, 1930) and Trilby (DuMaurier, 1890)— in which hypnotists are depicted as irresistible exploiters of the innocent.

Most patients still think of hypnosis as a somewhat mysterious and magical technique in which they will be controlled by the hypnotist’s suggestions, and they expect that they will have to accept uncritically whatever the hypnotist suggests. In an introductory lecture or seminar in hypnosis I will often begin with a demonstration I learned from Martin Orne (personal communication, 1966). I ask the group if they will help me by loaning me a few objects. I walk around the room casually and ask one participant if I can borrow his/her watch. I then ask another participant for her/his glasses. Next I might ask a woman if I could have a piece of her jewelry (a necklace or a ring). I have usually caught the group’s attention by the time I ask one of the men, “Could I have your wallet?” As I carry their valuable personal possessions back to the front of the room, I casually ask: “By the way, are any of the four of you hypnotized right now?” Invariably, with some bemusement, they say, “No.” Then I point out to the group that if I had begun this demonstration by reciting an hypnotic induction ritual suggesting that they are relaxed and sleepy, etc., everybody present would have been convinced that hypnosis allowed me to control the behavior of
these four individuals. I was able to persuade them to give me their valuable possessions without hypnosis. My power to influence them was a function of the social context in which I obtained their possessions. Trust, the assumption that these requests had a purpose related to the course, or some other demand characteristics (Orne, 1959) of the safe situation, facilitated their compliance with my puzzling requests.

This powerful demonstration is convincing that social control and hypnosis are unrelated. Whatever hypnosis may be, it is not a method of increasing social control in the doctor-patient relationship. In fact, a goal of the therapist is to teach the patient that hypnosis may be the most powerful way to learn and increase self-control. Most contemporary practitioners of hypnosis reject the “control” issue and point out that all hypnosis is really self-hypnosis. The contemporary view of hypnosis is that the therapist’s role is that of a teacher, guide, or mentor.

When I was a graduate student in the early 1960s, we typically took thirty minutes or more verbalizing hypnotic induction techniques. Even over the period of time that I have been working with hypnosis, its nature has changed dramatically. Now, patients take five minutes, or even thirty seconds, to go into hypnosis. Many therapists will tell you that you don’t need an induction technique (Barber, 1977; Spiegel & Spiegel, 1978). Hypnosis has had a chameleon-like character over time. How can this be understood? We can’t even describe this phenomenon because it often takes a form that the subject and, particularly, the therapist expect.

What is considered an invariant characteristic of hypnosis by one investigator is considered an artifact by another. Contradictory markers of trance are vehemently espoused by clinicians, each of whom is convinced by his/her own beliefs about hypnosis. It can be found in the literature, for example, that the hypnotized person has a sense of humor, or has no sense of humor; has a fixed glassy stare, or has slow, or fast, or rolling eye movements; swallows frequently or hardly ever swallows; has or has not had spontaneous catalepsy or amnesia, and so on. There is no scientific evidence to support any of these claims. Yet each observation has validity in the sense that the behaviors are gradually shaped, and become part of the repertoire of the learned behaviors occurring during hypnotic interactions. Orne (1959) demonstrated a brand new criterion of hypnosis — catalepsy of the non-dominant hand — but only in those subjects who watched a demonstration of hypnosis including the testing of this effect, without any verbal mention of its occurrence. It was never observed in subjects who watched a similar hypnosis demonstration without the testing of the “planted” non-dominant catalepsy suggestion.

When one has an opportunity to watch a therapist demonstrate hypnotis, it is interesting to focus occasionally on the behavior of the hypnotist, not only the patient. The hypnotist’s behavior often changes more dramatically than the patient’s, and certainly more than it does when he/she is doing any other form of therapy. Changes in posture, soft slower voice, attending closely to the patient’s breathing, the strong but subtle changes in body language of both therapist and patient, all contribute to the dramatic changes in beliefs and expectations of patient and therapist during hypnosis. These changes may have a powerful therapeutic influence. I like to refer to these firmly entrenched but undocumented beliefs about hypnosis as the hypnotist’s/therapist’s superstitious behavior. The therapist’s influential superstitious behavior when using hypnosis will be molded largely by which of the four dimensions of hypnotic behavior the therapist considers most important.

The common expectational factors of all healing processes are best viewed as similar to the placebo or nonspecific effects that any technique will have (Frank, 1973; Evans, 1985).
The placebo response is about 60% the magnitude of the treatment variable that is being investigated (Evans, 1981a, 1981c, 1985). The placebo response is about 60% as effective as morphine; it is about 60% as effective as aspirin; it is about 60% as effective as sleeping pills; and it is about 60% as effective as antidepressants (Evans, 1985). In other words, the effect of taking a pill, or the process of doing therapy, has something to do with the rituals of the therapeutic relationship and the expectations of getting well. When we believe that a treatment is powerful, we get powerful treatment results. The context in which any treatment modality is used makes an important contribution to therapeutic change. This holds for drugs, surgery, acupuncture, biofeedback, vitamin and herbal supplements, magnets, grandmother’s favorite potion, and, of course, hypnosis. The label hypnosis evokes powerful expectations of change and therapeutic involvement which may be quite independent and possibly unrelated to the changes produced by the essential core of the hypnotic condition, whatever that is. This is the same mechanism as the placebo effect and it has powerful but independent effects compared to the drug the patient believes he/she is taking or the treatment being tried (Evans, 1991). The expectational or placebo effects of a treatment cannot be isolated easily from specific (e.g., hypnotic) treatment effects; yet failure to acknowledge these powerful but independent effects leads to much clinical confusion.

The placebo like expectations that are often found following an attempt to induce hypnosis, even in subjects who were not able to experience hypnosis, was first shown by McGlashan, Evans & Orne (1967; see also Evans, 1985, 1987, in press b; Hilgard, 1977). Using a complex design in which expectational effects of the induction of hypnosis were maximized (rather than minimized as is usually done in studies), carefully selected high and low hypnotizable subjects completed an experimental ischemic pain tolerance task under three conditions: baseline, hypnotic analgesia, and placebo analgesia. A special convincing manipulation led the low hypnotizable subjects to expect that hypnotic analgesia might have some effect on them. The hypnotic analgesia ischemic pain tolerance was tested blind, and the experimenter believed a blind administration of placebo versus the pain killer Darvon was used as the control (in fact all subjects ingested a placebo). Three important results were found:

(a) A significant placebo effect on pain tolerance was found under placebo conditions that were equal for both high and low hypnotizable subjects. This demonstrated that the placebo response was unrelated to hypnotizability.

(b) For low hypnotizable subjects the significant placebo response and the hypnotic analgesia response was equal and correlated .76 (n = 12). It appeared that the low hypnotizable subjects responded to the same expectational variables that occurred when they respond to a placebo pill. This demonstrated the placebo-like response that can occur following a hypnotic induction even in people who cannot experience hypnosis. It may well be analogous to clinical results that occur after the induction of hypnosis but which may have nothing to do with hypnosis except for the climate of belief and expectation that surrounds the ritual of inducing hypnosis.

(c) Only for highly hypnotizable subjects did that hypnosis performance greatly and dramatically improve on their statistically significant placebo response. The failure to find the normal physiological signs of ischemic pain in some of the highly hypnotizable subjects (color changes, muscle cramping near the performance end-point) was interpreted as a dissociative mechanism. In several subsequent studies involving such manipulations as acupuncture, biofeedback, cognitive behavior therapy, medication, etc, the same findings as those found when comparing hypnosis and placebo are typically reported. Only highly hypnotizable subjects/patients during hypnosis perform better than the other three equal groups; high and low hypnotizable subjects in the other treatment groups, and low
hypnotizable subjects under both treatment and hypnosis conditions. While significant findings analogous to placebo and expectational effects are found in these studies, they are less in magnitude than the combined effect of both high hypnotizability performed under hypnotic conditions (Evans, 1987, in press b).

Suggestion and Hypnosis.

The second important dimension of hypnosis is suggestion. Everybody knows that hypnosis has something to do with suggestion, but it is not clear what this term means (Hull, 1933; Weitzenhoffer, 1957; Evans, 1967). No objective laboratory measure of suggestion, (whether it is of verbal suggestions of the body swaying backwards or forwards;, of gullibility, of social conformity; of the contagion effect of crowds; of selling ice boxes to Eskimos), correlates very well with accepted hypnosis measurement scales. And yet whenever we use hypnosis, we are giving suggestions. That is a paradox. What do we mean by suggestion?

A group of subjects may be given suggestions for two minutes that “your arm is getting lighter and lighter, and it is floating up into the air, light as a balloon. Isn’t it fascinating how easily it floats up into the air.” In about 80% of the subjects, the arm will float up into the air, some faster than others. For some, the arm will be nearly straight up; for some it will be just off the armrest. Only a few people will not have moved their arm at all. A much more effective way to have everybody raise his or her arm straight up would be the direct request: “Please everybody, raise your hand up in the air.” This request would get a 100% response, instantaneously.

What is it that is so fascinating about taking two minutes to get some people to respond to suggestions by raising their arms, some to respond partially, and some not to respond at all? It is fascinating because of the subjective experience that accompanies the experience of the arm floating up. The suggestion implies that something different is going to happen. The arm has a “life of its own.” Even though you could stop it anytime you wanted to, you wouldn’t want to stop it, or perhaps you felt you couldn’t stop it at all.

During hypnotic suggestions there is always a monitoring process going on, even though it sometimes seems very remote from conscious awareness. We become engaged in what the mind seems to be doing to a part of the body. The process of responding to suggestion engages our attention precisely because the arm seems to be floating non-voluntarily or out of conscious control. We focus, we usually relax, and we are intrigued by this experience of responding to suggestions. In short, the suggestion involves not just the behavioral response as such, but also the individual’s subjective experience of the lifting. The observer would have to depend on the patient’s report of what it was like and his/her subjective experience. The report may or may not be congruent with what was observed. In a group situation, there would be many unique experiences following a relatively easy suggestion such as hand levitation. The individual subject’s report of differences in how one had that experience, not just that it happened, would be different for each person. The uniqueness of the experience is a key to the “stuff” of hypnotic behavior. For some in the group, the arm would not move in response to the suggestions. Some members of the group may have raised their arm because they expected it should happen, or because their neighbor responded...

Several years ago I had the privilege of leading a delegation of colleagues interested in hypnosis to mainland China. With the help of a translator it was possible to give demonstrations of hypnosis to Chinese colleagues. Many appeared to have positive behavioral responses to typical hypnotic suggestions. However, the Chinese colleagues had great difficulty describing their experiences to us because the Chinese have strong social inhibitions about verbalizing subjective experiences.
(expectational component). Some may have focused on a balloon pulling up their arm (cognitive component). Others may have found the experience as surprising and/or out of conscious control (dissociative component). The clinician must pay close attention to the patient’s report of his/her subjective experience, and the report may or may not be congruent with the therapist’s observations.

The Cognitive Dimension — Relaxation, Imagery and Trance Logic

The third dimension related to hypnosis is what might be broadly called a cognitive dimension. It has something to do with relaxation, with imagery, and with the distortions of perception, memory, cognition and physiology that some have argued is the essence of hypnosis (Orne, 1959). The use of hypnosis to produce increased relaxation and imagery, positive and negative hallucinations, and perhaps age regression and analgesia, are all described extensively in any text on hypnosis (Clarke & Jackson, 1983; Crasilneck & Hall, 1985; Hammond, 1990; Hunter 1994; Weitzenhoffer, 1953).

Relaxation. Most hypnotic induction techniques focus on and even begin with procedures to facilitate deep physical and mental relaxation (Edmonston, 1981). For many patients, particularly those of low hypnotic ability, an hypnotic induction may not involve any more than the capacity for, and results obtained with, deep physical relaxation. However, the evidence seems to suggest that, for at least some patients (those with higher hypnotic ability) hypnosis is different in some ways from a variety of relaxation techniques, such as those based on Benson’s (1975) brief relaxation response, the longer, deeper Jacobson (1938) progressive relaxation methods, or the myriad of available relaxation techniques that fall between these extremes.

Probably the most compelling evidence that hypnosis and relaxation differ stems from the work of Banyai and Hilgard (1976) and Vingoe (1968). For example, Banyai and Hilgard (1976) were able to show that deep hypnosis could be induced successfully while the subject was riding an exercise cycle. This technique is not especially relaxing for most subjects. Vingoe and others have also published about so-called active alert hypnosis, although most hypnotic induction techniques initially build on relaxation techniques.

The notion that the deeply hypnotized person is in an almost cataleptic-like or sleep-like state is part of what I call the superstitious behavior that is a legacy of common lay notions of hypnosis in which trance is viewed as having something to do with sleep. The evidence shows that hypnosis and sleep produce different EEG patterns (Evans, 1979b, 1981b, 1982; Crawford, 1990). Hypnosis produces an alert waking EEG, not one resembling sleep. Different relaxation techniques also differ from both hypnosis and sleep in their EEG patterns, some being associated with increased alpha, beta, theta, or even delta waves, which are characteristics not shared by the hypnosis EEG. There is consistent research, reviewed by Crawford (1990), showing that there are some differences in right and left hemisphere activation in hypnosis, but it is difficult to interpret the relative direction of the differences in activation in the two hemispheres. Certainly these findings are not consistent with the hypothesis that hypnosis and relaxation involve the same mechanisms.

Imagery. Imagery is a cornerstone of behavioral and psychological treatment techniques whether it is used with hypnosis or as a technique on its own. Imagery is an important component of hypnosis. Imagery is often used creatively by the Ericksonian school, whose adherents have mastered the art of guided imagery and metaphor as hypnotic techniques, to access unconscious levels of awareness (Erickson, 1968; Rossi, 1993).
There is still no clear evidence that imagery ability is increased by hypnosis, although it probably is. The vividness of imagery is far less important clinically than the ability to voluntarily manipulate and control the image. For example, I will use a suggestion that the patient is lying on a peaceful beach. I enquire about his/her subjective experience for visual, auditory, olfactory and somatic imagery (“can you see the waves?...hear the birds?... can you smell the fresh salt air?... feel the coolness of the breeze as the sun passes briefly behind a cloud?”). I will then give a suggestion like, “Can you see a dog running along the beach?” When the patient responds, “Yes,” I ask, “What color is it?” For example, if the patient responds, “It is a brown dog,” I ask whether he/she can “see it as not a brown dog, I think it is really another color.” If the image is static, like an image on a TV screen, and the patient does not seem able to change the channel, this imagery is not very useful in clinical practice. It is the patient who can control or flexibly change the image immediately and who can make the color change, who provides the basis for solid utilization of imagery in hypnosis.

An even more critical point about imagery and hypnosis is the frequent but erroneous assumption that imagery is primarily visual. For example, chronic pain patients often do not have good flexible visual imagery, but have good imagery in other modalities, particularly sensory, kinesthetic and somatic suggestion involving several modalities. Suggestions involving “feeling the muscle tissue being as soft and smooth as satin or silk,” or “changing the muscles from the coarse, hard, brittle, breakable, cold feeling of uncooked spaghetti into the soft, squiggly, loose, smooth, warm feeling of cooked spaghetti,” is often more useful to pain patients than cleverly constructed visually oriented guided imagery.

Trance Logic. One of the defining characteristics of hypnosis is the ability of the deeply hypnotized subject to experience what Orne (1959) has called “trance logic.” The hypnotized patient is readily able to tolerate logical inconsistencies in perception, cognition, physiology and sensation. For example, a deeply hypnotized subject, when asked to forget all about the number six, and then when asked to count his/her fingers, will be puzzled, but not too distressed, to discover he/she has an extra eleventh digit. Using a complex and special methodology that asks unhypnotizable subjects to fake hypnosis to a blind experimenter (Orne, 1959), the simulating subject will find clever ways to not use the number six when counting his/her fingers, but will nevertheless avoid coming up with the solution of an eleventh digit. For example, a subject might count “1, 2, 3, 4, 5, and 5 more is 10,” while displaying the five digits on the other hand (Evans, 1974). The ability to tolerate logical inconsistencies is one of the best-documented characteristics of hypnosis, and is only found with highly hypnotizable subjects. Trance logic may relate to dissociative experiences of hypnosis and the “hidden observer” technique described by Hilgard (1977) for studying hypnotic analgesia.

The Dissociation Component of Hypnosis

The fourth component of hypnosis is dissociation. It is probably the core of what is usually considered deep hypnosis. It is the basis of some of the more dramatic hypnotic phenomena including posthypnotic amnesia, posthypnotic suggestion, negative hallucinations, age regression, anesthesia and analgesia. Dissociation has something to do with being able to focus attention, and to attend selectively to stimuli, or to block them out of awareness. For example, most of us have had the experience of getting caught up or absorbed in a good book, or losing track of time. Somebody might come into the room and speak to the reader who is too absorbed to notice the visitor for awhile, but then suddenly “knows” the appropriate response. Many people can cry at a sad movie, getting absorbed and identifying with the action, being able to put external reality aside temporarily. Most have had the experience
of driving home after a long day, trying to solve a problem, and all of sudden realizing, “I’m home — I don’t remember that dangerous traffic circle (or busy intersection).” However, if there had been a “near miss” attention would have been re-allocated instantaneously from “automatic pilot” to careful navigation through the circle at the temporary expense of the problem solving.

A good illustration of dissociation is the following question: “Have you fallen out of bed recently?” Almost everybody answers no, with a smile. Typically, we move about the bed several times every night with gross body movements. Nevertheless, we are able to monitor the edge of the bed so that we never fall out. Children need to learn this. Not only do we monitor the edge of the bed, we monitor our sleeping partner’s position — if one moves to the wrong side of the bed the other gives a good swift kick, but mostly neither partner wakes up. If you have a baby in the next room and it starts to cry faintly, you immediately wake up — the so-called mother-cry phenomenon. Yet a loud fire engine will go by without even being heard. We are automatically monitoring our environment totally out of awareness, at a complex level, all of the time (Evans, 1991).

It is possible to give hypnotic like suggestions to subjects while they are sleep, and they will respond to these suggestions without waking up. For example, suggestions of the type “Whenever you hear the word ‘itch’, your nose will itch until you scratch it” were administered while subjects were clearly in REM sleep. Some subjects responded to these suggestions without any sign of awakening using strict EEG arousal criteria. However, unlike posthypnotic suggestions, the subjects were unable to recall the suggestion if they did respond to the cue when awakened in the morning. In spite of the intervening amnesia, the subjects were able to respond to the cue word “itch” the following night (without awakening, and without the re-administration of the suggestion itself), and could still respond six months later. This is an excellent example of complex meaningful behavior out of normal waking awareness, using control mechanisms that are clearly dissociative in nature. Especially noteworthy is that these sleep induced behavioral responses were only obtained by highly hypnotizable subjects, especially those capable of experiencing the more dissociative suggestions such as post hypnotic amnesia and posthypnotic suggestion (Evans, Gustafson, O’Connell, Orne & Shor, 1969, 1970; Evans 1979, 1981b, 1982, in press a). In addition, it was found that those subjects who responded to the sleep suggestions were more able to fall asleep in the sleep lab, and also reported they could easily nap and fall asleep anywhere whenever they chose to do so. Clearly these subjects had great flexible control over the sleep process, as well as flexibility in having dissociative hypnotic experiences (Evans, 1989, 1991)

**Representative Studies of Dissociation in Deep and Partial Hypnosis**

Over the past 35 years my own research program has focused on elucidating the nature of hypnotic dissociation. Some studies, which will not be reviewed here, have focused on dissociative phenomena in deeply hypnotized subjects\(^3\), and also in less hypnotizable subjects

\(^3\)Several studies that have shown differences between low hypnotizable subjects simulating hypnosis and very highly hypnotizable subjects also clarify the value of considering deep hypnosis as a special state involving dissociative processes. For example, after a power failure occurred causing the hypnotist to disappear, simulating subjects acted as if they remained in hypnosis for 45 minutes, but hypnotized subjects slowly emerged from hypnosis. They behaviorally expressed some confusion about being left alone in a dark room with equipment that was apparently not working, and after several minutes seemed to defensively fall asleep (Evans & Orne, 1971). Studies of source amnesia and the inhibition of a number while counting under hypnosis, and studies of posthypnotic suggestion mentioned above provide examples

10
who only partially respond to hypnotic suggestions. For example our work on posthypnotic amnesia has focused on subjects who have been able to recall only some of the suggestions following the amnesia suggestion, but who also subsequently reverse the amnesia once it has been lifted. Compared to low hypnotizable subjects who only have a partial recall, moderately hypnotizable subjects cannot recall the suggestions that they do recall in the order in which they were administered. The disorganization of recall during hypnotic amnesia is now one of the mostly widely replicated findings in the research literature in hypnosis (Evans & Kihlstrom, 1973; Evans, 1988; Kihlstrom & Evans, 1979). The dissociation of content and context seen in post hypnotic amnesia is also well documented by the phenomenon of source amnesia, in which highly hypnotizable subjects may recall information that they learned minutes ago in hypnosis, but have no idea how they knew that information (Evans, 1979a, 1988).

Other studies have shown that a partial response to post hypnotic suggestion has dissociative and compulsive components. More hypnotizable subjects who failed to respond to a post hypnotic suggestion to use a red pencil rather than several other writing devices later tended to use the red pencil in a waiting room after the study was apparently over (as documented by the behavior of unhypnotizable subjects simulating hypnosis) (Orne, Sheehan & Evans, 1968).

Individual Differences, Hypnosis and Dissociation: Correlational Studies

A body of research has shown that subjects with high hypnotic ability perform better on activities that seem to depend on normal everyday dissociative skills (Bowers, 1985; Evans, 1991; Hilgard, 1977). It seems that dissociation may be a normal individual difference dimension, of which hypnotic capacity is a key defining variable.

It is well documented that highly hypnotizable subjects become more easily absorbed in daily experiences (Shor, 1960; Tellegen & Atkinson, 1974). People who are more hypnotizable are more likely to arrive late occasionally for appointments. They get caught up in what they are doing, and time slips by. Sometimes they turn up for appointments on the wrong day (Markowsky & Evans, 1978). Absorption and punctuality for appointments (whether for hypnosis or other studies) are positively correlated (Evans, 1989, 1991) and are both significantly correlated with hypnotizability.

People who are highly hypnotizable fall asleep more easily at night, apparently because they can switch easily between different states of consciousness (Evans, 1981b, 1989, 1991). They are more likely to be nappers and they nap to make up for lost sleep whenever they have the opportunity, or even when not tired (Evans, 1989, 1991). There is a flexibility of slipping in and out of dissociated states, whether it is sleep, hypnosis, or other states of consciousness, that can be developed into a technique to control bodily functions including pain and sleep (insomnia). A factor analytically developed questionnaire measuring the control of sleep (uncorrelated with sleep onset and sleep maintenance insomnia) has been developed which correlates with hypnotizability in college students, psychiatric patients including those with eating disorders, and chronic pain patients (Evans, 1991) and correlated with therapeutic improvement in eating disorders patients who have not been treated with hypnosis.

We have studied psychiatric patients with various diagnoses, unselected for hypnotic ability, and with whom hypnosis has not been used in treatment during their therapy. Highly hypnotizable psychiatric patients who have the capacity to experience hypnosis showed more improvement clinically within three months of hospitalization, even though hypnosis
was not used in the therapy, compared to less hypnotizable patients. Two years later, however, the hypnotizable patients are more likely to be re-hospitalized (Horne, Evans & Orne, 1983; Evans, 1989, 1991). Dissociation may be a double-edged sword. It may produce symptoms, as well as being a positive factor leading to symptomatic improvement.

While not all of the possible intercorrelations have been studied and replicated, a pattern of relationships is emerging between such diverse phenomena as monitoring and responding to suggestion during sleep; ability to fall asleep, napping and the control of sleep; absorption, occasional lateness for appointments; therapeutic change and the control of pain. All of these variables correlate significantly with the ability to experience hypnosis and contribute to the definition of an individual difference dimension which I have labeled dissociation or the flexible control of consciousness.

The Nature of Dissociation

The nature of dissociation is illustrated by an old case study reported by Bagby (1928). Bagby relates the case of a teenage girl he was unsuccessfully treating for phobia of running water. One day the girl reported that an aunt, whom she had not seen since she was 4 years old, had come to town and had greeted her with this statement: “I have never told, have you?” The aunt subsequently confirmed that when she was babysitting for the 4-year-old girl, she had fallen asleep in the park. The little girl had wandered off to play in a small waterfall. Her screams of terror awakened the aunt, who, because of her own guilt, threatened the girl to secrecy. Not surprisingly, hypnotic age regression and abreaction techniques, in which the girl reexperienced the trauma psychologically by being placed back under the waterfall so that she could discover that she had been removed safely from it, led to a dramatic cure.

Such case reports involving the acquisition of symptoms under stress-induced dissociative experiences are common, although it is rare that there is documentation of the occurrence of the stressful circumstance. (This view of dissociation has more in common with the clinical literature on posttraumatic stress syndrome). This concept of dissociation is less related to the current surge in interest in so-called multiple personality, which may be related in complex ways to expectations (of the therapist as well as the patient) as well as shades of meaning of the term dissociation.

My hypothesis is that there are significant individual differences in a dimension of personality and/or cognitive functioning that has something to do with the degree of control with which people can access different states of consciousness, psychological awareness, physiological change or cognitive functioning (Evans, 1991; Bowers, 1976). Recognizing that there are many different usages of the term, I choose to label this individual-difference dimension dissociation. Several converging lines of evidence suggest that the individual differences in the ability to experience hypnosis may reflect one aspect of a more general ability to access, regulate, and alter states of consciousness.

In the water phobia case described above, running water served as a trigger, which stimulated some form of reverberatory neural circuit representing a part of the little girl’s psyche that was still panicking under the waterfall. This memory trace was dissociated. The hyper-aroused panic state was activated unconsciously by any stimulus that reminded her of running water. At some level she was still trapped under the waterfall. This (dissociated) panic was retriggered by any stimulus associated with running water. I would hypothesize that chronic pain may be triggered at times by a similar “loop” related to associations with the onset of the pain. The triggering stimuli may have little or no correlation with the anatomical structures
where the patient localizes the (chronic) pain. Pain may involve a repetitive communication loop between a dissociated short circuiting area of the brain and the neural circuits communicating with the site of the pain. In much the same way, chronic pain may involve faulty communication within the mind/body system more than a localized peripheral site where the pain is experienced.

The ability to experience hypnosis may involve an important psychological dimension concerned with the control of consciousness. This dimension of labile accessibility to multiple levels of awareness has significant implications for understanding a wide range of psychological and physiological phenomena, some of which may have clinical significance concerning the development and alleviation of symptoms.

References


