COMMENTARY ON A THEORY OF HYPNOSIS BASED ON PRINCIPLES OF CONDITIONING AND INHIBITION
PART I: CONTRASTS WITH OTHER PERSPECTIVES AND SUPPORTING EVIDENCE

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Abstract

This article places in the contemporary context ‘A theory of hypnosis based on principles of conditioning and inhibition’, published earlier in Contemporary Hypnosis (Barrios, 2001). The commentary is in two parts. Here in Part I, following a succinct summary of the theory, there are two sections: (1) contrasting the theory with three other major perspectives in the field, the Sociocognitive, the Dissociation/Neo-Dissociation, and the Response-Expectancy perspectives as well as with Erickson’s strategic approach to therapy; and (2) some of the supporting research subsequent to the theory’s first evolution (1969) is provided. Part II will present some of the benefits of the theory. Copyright © 2007 British Society of Experimental & Clinical Hypnosis. Published by John Wiley & Sons, Ltd.

Key words: conditioning, hypnosis, hypnotic phenomena, inhibition, belief

Summary of the theory

In the theory (Barrios, 2001) a hypnotic induction is defined as the giving of a series of suggestions so that a positive response to a previous suggestion predisposes the subject to respond more strongly to the next suggestion. Hypnosis is defined then as the state of heightened suggestibility, also referred to as a state of heightened belief, produced by a hypnotic induction. What occurs during a hypnotic induction to increase suggestibility is a process of conditioning of an inhibitory set. The latter increases responsiveness to suggestion by inhibiting thoughts and stimuli which would contradict the suggested response. The more effective the hypnotic induction, the greater this inhibitory set.

It is postulated that at any point in time there are any number of stimuli (both cognitive and sensory) that one can be responsive to, some more strongly than others. This is referred to as the stimulus dominance hierarchy. The various hypnotic and post-hypnotic phenomena can be explained in terms of how the inhibitory set can rearrange the dominant position of a particular stimulus (cognitive or sensory) focused on by the suggestion. Post-hypnotic behaviour changes are explained as produced through a process of higher-order conditioning where the inhibitory set facilitates such conditioning by suppressing any dominant stimuli present (cognitive or sensory) that would interfere with the intended conditioning.

From the theory, a number of ways can be deduced for increasing responsiveness to suggestion and thereby increasing the effectiveness of hypnotic induction. These include: the amplification of minute responses to suggestion such as with the use of biofeedback.
devices; the minimization or inhibition of competing stimuli such as in sensory deprivation or under the influence of inhibitory drugs; and the subtle introduction of stimuli that would naturally evoke the suggested response.

Comparison with sociocognitive theories

Similarities
Both perspectives discuss the importance of the part played by individual differences in affecting initial responsiveness to suggestion. The following are included as individual influencing factors in both perspectives: subjects’ expectations and beliefs about hypnosis; motivation and imagination (or fantasy proneness).

Two areas of individual differences mentioned in the theory which apparently are not mentioned in the literature on sociocognitive theories are age of the subject and prestige of the hypnotist in the eyes of the subject. It is expected that sociocognitive theorists would agree that these are also important individual difference factors. However, the explanation for how these factors play a part according to the theory might differ from the sociocognitive perspective.

With regards to age, for instance, the theory states that the reason initial suggestibility varies with age,

may be traced to certain factors that vary with age. One of these is language ability. Since [according to the theory] hypnosis is dependent to a great extent on the conditioned response evoked by words, we can understand why very young children whose language ability is not yet well-developed would make very poor subjects for hypnosis, and thus why we would expect an initial gradual increase in suggestibility with increasing age . . .

An explanation for the gradual decline in suggestibility after the age of eight is that with continued increasing age the number of cognitive stimuli competing with a suggestion increases (that is, knowledge increases with age) and a corollary to the ‘reciprocal inhibition’ or ‘stimulus dominance hierarchy’ postulate is that the more stimuli in the hierarchy, the lower the probability of a reaction to any one of them . . . with increasing age there will be a greater number of possible contradictory stimuli [competing with] a suggestion; that is, subjects have more information available with which to verify or contradict the suggestion. (Barrios, 2001: 185)

With regards to prestige,

It is fairly well accepted that the more ‘prestige’ a hypnotist has in the eyes of subjects, the better his chances of success. It is felt this is so because the statements, commands or suggestions of a person with prestige tend to be questioned less, that is, such a person evokes a greater inhibitory set to begin with. In general, people have previously been conditioned to accept at face value the statements of someone who is an authority in his field. That is, an inhibitory set which inhibits contradictory stimuli [in the stimulus dominance hierarchy] has been previously conditioned (in much the same way as in the hypnotic induction process). This is so because what the authority says has usually turned out to be true! (Barrios, 2001: 181)

It will be recalled that in the theory a positive response to a series of suggestions (the hypnotic induction) conditions in an inhibitory set to automatically inhibit any stimuli (cognitive or sensory) in the stimulus dominance hierarchy that would contradict the suggestion.
Another similarity between the sociocognitive and the theory’s perspective revolves around the use of what the sociocognitives refer to as ‘goal directed fantasies’ (GDFs). GDFs are defined as ‘imagined situations which, if they were to occur, would be expected to lead to the involuntary occurrence of the motor response called for by the suggestion’ (Spanos, Rivers and Ross, 1977: 211). In other words, the more cognitive stimuli used associated with the suggested response, the more likely the response. In the theory, Hypothesis IV states: ‘A suggestion produces the desired response by first evoking a cognitive stimulus which is associated with that response.’ And a corollary to this hypothesis, Corollary 8, states: ‘The more (compatible) cognitive stimuli associated with the response evoked by the suggestion, the stronger the response to the suggestion.’ For example, to increase the probability of producing the involuntary response of salivation and/or the secretion of pepsin, you might want to suggest that the subject was eating a delicious steak or, better yet, a thick juicy steak smothered in onions.

A third similarity between the two perspectives is how they apparently both seem to fit in with Milton Erickson’s strategic approach to therapy. How Erickson’s approach fits in with the sociocognitive perspective is discussed in a very extensive article by Lynn and Sherman (2000). The following includes some examples of how Erickson’s ideas parallel those presented in the theory:

**Scripts**

In the section of Lynn and Sherman’s article where they are discussing Erickson’s strategy of using scripts, they point out that

> Erickson found this technique useful in engendering a ‘yea saying’ response pattern. He would start with questions with an obvious ‘yes’ answer; to establish a pattern or response set, he would keep asking such questions. Patients would [then] apparently agree to things that they would not have agreed to in the absence of such a response set. (Lynn and Sherman, 2000: 306)

This also explains the effectiveness of persuasive salesmen who ‘prep’ a person to buy by getting the person to respond with ‘yeses’ to a series of questions. If we can look upon these ‘questions’ as a variation of suggestions, then in both cases the individual is being put through a form of hypnotic induction according to the theory. As stated by Hypothesis III of the theory: ‘a positive response to a suggestion will induce within the responding person a more or less generalized increase in the normally existent tendency to respond to succeeding suggestions’ (Barrios, 2001: 178).

Also related to this ‘yea saying’ technique of Erickson is another he often used to get positive responses to his suggestions: ‘He often tied suggestions to naturally or frequently occurring responses, or more broadly to whatever response the patient made (Erickson, Rossi and Rossi: 1976). Certain naturally occurring responses, such as lowering of an outstretched arm, provide immediate positive proprioceptive feedback’ (Lynn and Sherman, 2000: 307). To see the similarity of this to what is said in the theory, see Corollary 6 following Hypothesis III of the theory: ‘The response could be “artificially” induced in a number of ways. For instance, the suggestions that the eyes are going to get tired may be helped if a slight eye strain is placed on them by having the subjects look at an object at a difficult angle’ (Barrios, 2001: 180).

**Erickson’s altering accessibility**

According to Lynn and Sherman (2000: 306), ‘Response sets can be established and reinforced by altering the accessibility of facts or events in memory . . . For example,
imagining negative outcomes of smoking and overeating and positive outcomes of not doing so can make it easier to resist these urges.’ This very same procedure is referred to as the ‘Punishment-Reward’ technique, one of several visualization techniques for facilitating reprogramming, in the self-programmed control (SPC) programme for improving behaviour (see Barrios, 1973b and Barrios, 1985: 49 and 50). These techniques and others for facilitating suggestion and post-hypnotic suggestion are derived from Corollary 8 of the theory (see above) and will be discussed further in Part II of the Commentary.

Reframing
Reframing was a technique of Erickson’s to make general positive suggestions or treatment goals more attainable. For example one of his approaches to break a patient out of depression over certain deficits was to ‘turn the patient’s deficits into assets’. This is very similar to one of the positive attitudes, Positive Attitude 4, ‘Learn to look for the good in even the worst of situations,’ in the chapter on positive attitudes in the SPC program (see Chapter IV of Barrios, 1985). If the goal of therapy is to help the patient break free of a depression caused by some negative life occurrence, for instance, instead of the hypnotherapist giving only the general suggestion that the patient will no longer be depressed, it would be more effective if the patient is also given the suggestion that he will learn to look for the good in even the worst of situations in this way turning the patient’s deficits into assets.

In essence, this is saying that general suggestions alone (regarding treatment goals) without guidance to substantiate the suggestions are not as effective as the combination of the general suggestion plus guidance. This basic premise will be explored again later in Part II in the section on faith healing when pointing out that belief alone (e.g. a placebo) is not as effective as belief plus guidance. In so many words, this is similar to what Lynn and Sherman (2000: 307) mean when they state that ‘As implied by these examples, Erickson’s approach involves considerable reframing of behaviors [so] as [to be] consistent with treatment objectives.’

Another area where Erickson’s ideas fit in with the theory is where he talks about how it is that hypnosis plays a part in facilitating change in behaviour. According to Lynn and Sherman (2000: 305):

Erickson’s appreciation of the crucial role of responses sets is further revealed by his (Erickson, et al. 1976) observation that, ‘much initial effort in every trance induction is to evoke a set or framework of associations that will facilitate the work that is to be accomplished’ (p. 58). In fact, the authors define the ‘therapeutic aspects of trance’ as occurring when ‘the limitations of one’s usual conscious sets and belief system are temporarily altered so that one can be receptive to an experience of other patterns of association and modes of mental functioning . . . that are usually experienced as involuntary by the patient (p. 20). All of these comments concur with the general thrust of response set theory [except for the concept of trance].

This is very similar to what is said following Hypothesis VII of the theory (in the section on posthypnotic suggestion) about how the inhibitory set aspect of hypnosis facilitates cognitive-cognitive conditioning and thereby facilitates positive behavioral change by eliminating any stimuli present that would interfere with the conditioning: ‘Hypnosis, it is felt, provides an especially effective means (the inhibitory set) whereby interfering stimuli can be readily inhibited’ (Barrios, 2001: 194–5).

What Erickson refers to as ‘the limitations of one’s usual conscious sets and belief systems’ the theory refers to as interfering stimuli, cognitive stimuli whose presence
would ordinarily preclude the establishment of the desired new cognitive patterns and need to be ‘temporarily altered’ or as the theory puts it, ‘inhibited,’ in order for the new patterns to be made; or as Erickson puts it, ‘so that one can be receptive to an experience of other patterns of association and modes of mental functioning’ (Erickson, Rossi and Rossi, 1976: 20).

Differences
Relative importance of hypnotic inductions
One major difference between the theory’s perspective and the sociocognitive one revolves around the perceived importance of hypnotic inductions. The sociocognitive perspective seems to feel that hypnotic inductions increase suggestibility only to a minor degree whereas the theory does not agree with this. As Lynn and Sherman (2000: 298) put it, ‘Suggestions can be responded to with or without hypnosis, and the function of a formal induction is primarily to increase suggestibility to a minor degree (see Barber, 1969; Hilgard, 1965).’

The problem with this perspective is that it implies that all hypnotic inductions are able to increase suggestibility only to a minor degree, and thus it is implied that hypnotic inductions are really not that necessary. Yes, it may be true that the standard hypnotic induction emphasizing relaxation used in many of Barber’s studies, for instance, is capable of increasing suggestibility only to a minor degree, but as indicated by Corollaries 5 and 6, following Hypothesis III of the theory, there are ways of increasing the effectiveness of hypnotic inductions even more (see: Wilson, 1967; Wickless and Kirsch, 1989; Kirsh, Wickless and Moffit, 1999 and Wickramasekera, 1973).

State vs non-state
Another significant difference between the sociocognitive and the theory’s perspective revolves around the state vs non-state issue. According to Lynn and Sherman, because researchers like Barber and his colleagues (Barber, 1969; Barber and Calverley, 1964, 1969; Barber, Spanos and Chavez, 1974) in demonstrating the importance of individual differences in hypnotic responding showed that non-hypnotized subjects exhibited increments in responsivenes to suggestions that were as large as the increments produced by hypnotic procedures. This research supported the idea that despite external appearances, hypnotic responses were not particularly unusual, and therefore did not require the positing of unusual states of consciousness. Accordingly, there is no need for clinicians to insure that their patients are in a ‘trance’ before meaningful therapeutic suggestions are provided. (Lynn and Sherman, 2000: 298)

There is some truth to this last statement. Some meaningful therapeutic changes can be produced with suggestions even without a formal hypnotic induction for some individuals. This would be true especially amongst those subjects who were highly suggestible even without a hypnotic induction. And even those who might not initially be highly suggestible could have their initial responsiveness to suggestion increased by manipulating certain individual difference factors such as attitude, motivation and fears, as pointed out on pages 183 and 184 of the theory (see Weitzenhoffer, 1953; Dorcus, 1963; and Barber and Calverley, 1965 as cited in Barrios, 2001: 183 and 184).

However, by following such recommendations as those presented by corollaries 5 and 6 following Hypothesis III of the theory, the effectiveness of hypnotic inductions can be
increased considerably more and responsiveness to suggestion (and therapeutic success) as a result raised significantly more than after a standard hypnotic induction (see: Wilson, 1967; Wickless and Kirsch, 1989; Kirsch et al., 1999; and Wickramasekera, 1993). If it is true that certain hypnotic inductions can produce significantly higher levels of suggestibility (even in already highly suggestible individuals), then I feel we can talk in terms of a hypnotic and non-hypnotic state. A hypnotic state could be defined simply as the heightened state of suggestibility (or as Skinner would put it, a heightened state of belief; see Barrios, 2001: 171) produced by the hypnotic induction.

Yes, it is true that on an inter-individual basis, i.e. comparing one individual to another individual, some people can respond to suggestions without a hypnotic induction at the same level as another person who has gone through a hypnotic induction. In this sense there is no difference between states. But if we go on an intra-individual basis, i.e. comparing the same individual before and after a hypnotic induction, the hypnotic state for a given individual can be different than the waking state, especially after an effective hypnotic induction.

Just one more thing: I would not recommend using the term ‘trance’ to designate a hypnotic state as it has ‘zombie-like’ connotations and we know a person can be in a hypersuggestible hypnotic state and still appear perfectly normal.

The best way to measure hypnotizability

Also related to the question of whether there is that much difference between waking and hypnotic suggestion is the question of how best to measure hypnotizability. Many in the field, especially those from the sociocognitive perspective, seem to feel that a measure of suggestibility after the hypnotic induction is more than sufficient to measure hypnotizability. They feel they need not use the difference between hypnotic and waking suggestion as the measure since they find the correlation between the two to be very high (see especially Kirsch, 1997b: 213).

However, this high correlation could be due to the fact that the researchers are basing their results on studies where only the standard hypnotic induction has been used, which tends to increase suggestibility ‘only to a minor degree’. As more effective hypnotic inductions are used, this correlation will be less and it will become more appropriate to use the difference between hypnotic and waking suggestibility as the more correct measure of hypnotizability or hypnosis as I prefer to refer to it (see Barrios, 1973a).

A comparison of the theory with Hilgard’s neo-dissociation theory

There are a number of similarities as well as a number of key differences between the theory and Hilgard’s neo-dissociation theory of hypnosis.

In discussing ways that determine what actions a person will take at any one time, Hilgard talks about a hierarchy of subsystems (habits or cognitive structures) that would vie for dominant position to determine the final common path leading to action. This is very similar to the stimulus dominance hierarchy referred to in the theory except, as per the theory, sensory stimuli are also included along with cognitive stimuli in this stimulus dominance hierarchy.

Hilgard proposes two possible means for determining which subsystem will be in the dominant position of the hierarchy determining which action will take place. One, which he considers the old way, is where the subsystems would fight for control of the final common path leading to action according to their relative strengths. The other possible
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way of determining dominant position, and the way he seems to have finally leaned towards, is by way of a central regulatory mechanism. As he puts it, the subsystems are actuated according to the demands and plans of the central system. This central regulatory mechanism is responsible for the facilitations and inhibitions that are required to actuate the subsystem selectively. A hierarchy of subsystems is implied, although it is a shifting hierarchy under the management of the central mechanism. Once a subsystem has been activated it continues with a measure of autonomy. (Hilgard, 1977: 217–18)

He then states ‘Suggestions from the hypnotist may influence the executive functions themselves and change the hierarchical arrangement of the subsystem’ (p. 218).

According to the original version (Barrios, 1969), the theory leaned more to the old way of looking at how the subsystems arranged themselves in the hierarchy according to their individual strengths, and the inhibitory set part of the hypnotic suggestion was seen as directly influencing the eventual positioning of the dominant subsystem by inhibiting the competing subsystems. But now I also see the possibility of a central function playing a part in certain situations. This central control function I would describe as the will of the hypnotic subject, which can be listed as another of the individual differences of hypnotic subjects which can influence a hypnotic induction, i.e. everyone has a different level of willpower or free will that they bring with them.

As presented in the paper ‘Science in support of religion’ (Barrios, 2002), free will is defined as control over one’s involuntary functions (one’s subconscious) via the power of belief, belief in one’s ability to control one’s destiny (control one’s involuntary functions). This free will factor can have developed over the years or in a short period of time by means of a series of reinforced self-suggestion much like a self-hypnotic induction where the subjects come to develop their power of controlling their involuntary behaviour through the power of belief.

In a hypnotic induction this free will factor could either add to the depth of hypnosis achieved (the amount of heightened belief) or work against it. If the individuals see the suggestions given as working to their benefit, it would work in favour of a deeper induction. If against their benefit, it would work against a deeper induction. It would more likely work in favour of a deeper induction if in the pre-induction talk the subject is assured that all suggestions given will be positive ones or to the benefit of the subject; or if the induction is presented along the lines of self-hypnosis, i.e. as a means of developing even greater self-control over one’s involuntary behaviour. Now with regards to how according to Hilgard, does the hypnotic induction rearrange the hierarchy of subsystems, Kirsch and Lynn (1998: 110) feel that Hilgard ‘leaves many unanswered questions: How do the hypnotist’s words produce this rearrangement? . . . and how does this contribute to the production of suggested responses?’

In fairness to Hilgard, I feel he does present at least a partial explanation or answer to these questions. He posits two ways that hypnosis facilitates this rearrangement of the hierarchy (Hilgard, 1977):

(1) ‘Looked at in other ways, we find that hypnotic procedures are designed to produce a readiness for dissociative experiences by obstructing the ordinary continuities of memories and by distorting or concealing reality orientations through the power that words exert by direct suggestion, through selective attention and inattention, and through stimulating the imagination appropriately’ (p. 226)

And
In somewhat different wording, Hilgard is saying the same thing that the theory is saying as to how and why hypnotic phenomena occur. The theory states that the suggested response occurs because the stimulus focused on by the suggestion rises to the dominant position in the hierarchy because the inhibitory set produced by the hypnotic induction inhibits the competing cognitive stimuli in the hierarchy (what Hilgard refers to as ‘critical memories’) as well as any present ‘critical’ sensory stimuli – something Hilgard does not include in his explanation. Something else that Hilgard does not include, which the theory does, is how this inhibitory set referred to is built up during the hypnotic induction through a process of conditioning. Hilgard does talk about selective attention and inattention (both of which have inhibitory components) and stimulating the imagination appropriately (i.e. triggering a cognitive stimulus) as part of the power that words exert through direct suggestion, but he does not explain why or how the hypnotist’s words have become even more powerful after a hypnotic induction – which the theory explains as the build-up of, or conditioning in, of a strong inhibitory set.

With regards to the part suggestions of relaxation play in producing the state of hypnosis, it is pointed out in the theory that suggestions of relaxation or sleep may help since the relaxed or sleep-like state ‘may provide for even greater inhibition of stimuli competing with the suggestion’ (Barrios, 2001: 172). However, the theory makes clear that a hypnotic state can be produced without any suggestions of relaxation or sleep.

A comparison with the response set and response expectancy theory of hypnosis

There are a number of similarities and differences between the theory and the response expectancy perspective (Kirsch, 1985, 1997a, 2000). The following will present both the similarities and the differences.

First, a major difference between the two is that Kirsch believes, as do most sociocognitivists, that ‘The induction of hypnosis, for example, has a relatively small effect on the degree to which people respond to typical hypnotic suggestion’ (Kirsch, 2000: 276). As already pointed out, although this statement might be true for the standard relaxation-type induction, it is not for other more effective types of hypnotic induction (see: Wilson, 1967; Wickless and Kirsch, 1989; Kirsch et al., 1999; and Wickramasekera, 1973).

The second major difference (and similarity) between the two revolves around his use of the term ‘response expectancy’. Kirsch seems to feel that the key to increasing hypnotic responding is by increasing the subject’s response expectancy (see Kirsch 2000: 275).

I would be more inclined to agree with Kirsch if he were to use the term ‘belief’ in place of ‘response expectancy’. Kirsch prefers to use the latter to describe what is being
manipulated by a hypnotic induction whereas I would prefer to use the term ‘belief’. As Kirsch puts it: ‘A path analysis supported the hypothesis that hypnotic inductions enhance responsiveness by altering response expectancies’ (1985: 1195).

In the original theory I do refer more to ‘suggestibility’ as to what is being manipulated by a hypnotic induction. However, I have come to see the term ‘suggestibility’ as having some negative connotations, with some people possibly relating it to the term ‘gullibility’. Consequently I now prefer to follow Skinner’s lead of using the term ‘belief’ in describing hypnosis. As Skinner put it:

With respect to a particular speaker, the behavior of the listener is also a function of what is called belief (a term very similar to suggestibility) . . . our belief in what someone tells us is similarly a function of, or identical with, our tendency to act upon the verbal stimuli which be provides. If we have always been successful when responding with respect to his verbal behavior, our belief will be strong . . . Various devices used professionally to increase belief of a listener (for example by salesmen or therapists) can be analyzed in these terms. The therapist may begin with a number of statements which are so obviously true that the listener’s behavior is strongly reinforced. Later a strong reaction is obtained to statements which would otherwise have led to little or no response. Hypnosis is not at the moment very well understood, but it seems to exemplify a heightened ‘belief’ in the present sense (Skinner, 1957, pp. 159–160). (See Barrios, 2001: 171)

Now getting back to ‘response expectancy’ and why I prefer the term ‘belief’: one problem with the former term is that it implies that there is a visible response connected to the expectancy. Yes, you can get someone to produce the visible response of ‘arm rising’ if he has a strong response expectancy of ‘arm rising’. But where is the visible response when the response expectancy is that the subject will see the colour red? Not all cognitions necessarily have a clearly visible response attached to them.

Next comes the question of how response expectancy or belief produces responses. Kirsch himself poses the question thus: ‘To accept a suggestion is to believe or expect that these events will in fact happen. So the real problem is to understand the effects of response expectancy on experience, behavior and physiology. How does response expectancy produce these changes?’ (Kirsch 2000: 279). (Note how Kirsch uses the terms ‘believe’ and ‘expect’ interchangeably here which would lead one to believe that he might also be willing to use ‘belief’ and ‘expectancy’ interchangeably.)

Kirsch’s answer to this question is to posit some underlying substrate or connection between actual responses and the expectancy of that response. As he puts it, ‘if we assume that there is a physiological substrate for any experiential state, then a change in perception is always a change in physiology, as well. For that reason, expectancy induced changes in experience will always be accompanied by at least some physiological change’ (Kirsch, 2000: 280). And, ‘Just as the expectation of an experiential response tends to generate that response, so too the expectation of an overt automatic response promotes its occurrence’ (p. 280).

The main difference between mine and Kirsch’s explanation for how belief/response expectancy leads to responses is that first of all I explain how there is a response connected to the suggestion (as a result of classical conditioning – see the Pavlov quote on page 167 of the theory, Barrios 2001); and second, I explain the heightened response to hypnotic suggestion as resulting because of the greater inhibitory set produced by the hypnotic induction which inhibits competing stimuli.

A third major difference between our perspectives is how we explain how response expectancy/belief can be increased in hypnotic situations. According to Kirsch:
There are three kinds of cognitions that ought to affect response expectancies in hypnotic situations: (a) perceptions of the situation as more or less appropriate for the occurrence of hypnotic responses; (b) perceptions of the response as being appropriate to the role of a hypnotized subject . . . and (c) judgments of one’s hypnotizability. (Kirsch, 1985: 1194)

As for his first two ways (a and b) I agree. These are covered in the theory under the heading of ‘Subjects’ expectation’ in the section on ‘Individual differences factors influencing hypnotic induction’ (see Barrios, 2001: 181–3). It is pointed out that (a) as a result of the expectancy of being hypnotized, subjects are more likely to ascribe correctly the occurrence of the ‘strange’ phenomena to the hypnotist than to some external cause’ (p. 182); and (b) ‘Subjects’ expectations of what hypnosis is like can influence hypnotic induction in other ways. For example if the subjects are told that a catalepsy of the dominant hand occurs when they experience hypnosis (Orne, 1959), then as subjects feel themselves responding, they are also indirectly being given the suggestion of catalepsy of the dominant hand. This response can, in turn influence the hypnotic induction, as can any positive responses to previous suggestions’ (p. 183).

With regards to how Kirsch describes methods of affecting response expectancies by manipulating ‘judgments of one’s hypnotizability’, I differ significantly with Kirsch. What he describes as one way of manipulating judgments of hypnotizability by surreptitiously provided experiential feedback simply as ‘an expectancy modification procedure’ (Wickless and Kirsch, 1989: 762), I would directly refer to as an actual hypnotic induction according to Corollary 6, following Hypothesis III of the theory, which states that surreptitiously provided feedback would facilitate a hypnotic induction (p. 180).

As indicated on page 171 of the theory, hypnotic induction is defined as the giving of two or more suggestions in succession so that a positive response to one increases the probability of responding to the next one. And Hypothesis III states ‘A positive response to a suggestion will induce within the responding person a more or less generalized increase in the normally existent tendency to respond to succeeding suggestions.’

It is interesting that Kirsch states that: ‘According to response expectancy theory, people’s beliefs about their hypnotic ability are one of the determinants of the number of suggestions to which they are able to respond successfully’ (Wickless and Kirsch, 1989: 762). Now if he would also say that the number of suggestions to which subjects are able to respond successfully is in turn a determinant of people’s belief about their hypnotic ability, he would be coming very close to saying what is said in Hypothesis III of the theory.

Further support for the theory

Further support for the theory since its original writing (Barrios, 1969) comes from at least three areas:

(1) studies on the use of subtle sensory reinforcement;
(2) the area of biofeedback; and
(3) studies on sensory deprivation.

Subtle reinforcement studies

Corollary 6 following Hypothesis III of the theory states: ‘An hypnotic state can be facilitated if, along with each of the first few suggestions given in a hypnotic induction, the actual sensory stimuli which would ordinarily evoke these suggested responses
accompanied the suggestions without the subject’s knowledge.’ There are at least three studies whose results support this corollary. The first was part of a PhD dissertation submitted in 1967 (Wilson, 1967), which I did not become aware of until after I had submitted my dissertation. Wilson had subjects experience surreptiously provided reinforcement of suggestions. ‘After suggesting that subjects imagine the colour red, for example, Wilson imparted a faint red tinge to the room via a hidden light bulb. Subsequent testing of waking suggestibility on the Barber Suggestibility Scale (Barber, 1969) revealed substantially higher scores among these subjects than among controls’ (Wickless and Kirsch, 1989: 762).

A subsequent study by Wickless and Kirsch (1989) essentially confirmed Wilson’s findings. They found that 53% of the group that had been given surreptitiously provided experiential feedback scored as highly hypnotizable as compared to only 6.7% of the control group.

In a follow-up study Kirsch et al. (1999) found that, once again, surreptitiously provided experiential feedback significantly increased responsiveness to suggestion. And this time an additional important fact was determined – that for this to occur it was important that the subjects not be aware of the artificial source of the reinforcement (as stated in Corollary 6). Those subjects that were allowed to detect that the reinforcement was artificial showed no increase in responsiveness.

**Biofeedback studies**

Biofeedback can be defined as the use of special devices to amplify automatic responses for the purpose of gaining greater control of these responses. For the most part, the typical responses have been relaxation-related such as Galvanic Skin Response (GSR), heart rate, Electromyograph (EMG) and fingertip temperature, although biofeedback need not be limited to just relaxation responses. A typical procedure might involve having the subject focus on thoughts of relaxation and being given the goal of causing the movement of the biofeedback measure in the appropriate direction; for example, slowing the heart rate down or raising fingertip temperature.

As I see it, the reason biofeedback has proven to be so effective for gaining control of involuntary physiological responses is that in actuality, subjects being treated with biofeedback are being put through a form of hypnotic induction as defined by the theory. Remember, a hypnotic induction ‘is defined as the giving of two or more suggestions in succession so that a positive response to one increases the probability of responding to the next one’ (Barrios, 2001: 17). Suggestions (or goals) of relaxation, whether instigated by the biofeedback operator or by the subjects themselves, produce initial minute relaxation responses which are immediately amplified by the device and thus made more visible to the subject. These act as an immediate reinforcement letting the subjects know that they have responded positively to the suggestions of relaxation. The resultant heightened belief should in turn allow the subjects to respond even more strongly to succeeding suggestions of relaxation.

Although the widespread use of biofeedback devices has been around only since about the 1970s, the basic principle behind biofeedback has been used to facilitate hypnotic induction long before that if we can look upon the Chevreul Pendulum as a hypnotic aid device; for if you stop to think about it, the Chevreul Pendulum is in actuality a biofeedback device. What the pendulum does is amplify minute ideomotor movements of the hand when the thought of a particular movement is suggested. Many in the hypnosis field recommend use of the Chevreul Pendulum as a ‘warm up’ procedure to get subjects in a more receptive mood for hypnosis (e.g. see Lynn and Sherman, 2000: 202). In fact a
complete hypnotic induction procedure starting with suggestions of movements of the pendulum has been devised (see pendulum technique in Barrios, 1985: 36–8).

There has been at least one study where the use of autonomic biofeedback did lead to an increase in suggestibility. Wickramasekera (1973) using forms A and B of the Stanford Hypnotic Susceptibility Scale found a significant increase ($p = 0.001$) in suggestibility upon using EMG biofeedback to reinforce suggestions of relaxation. There is, however, one caveat to this study. One does not know whether it was the deepened state of relaxation or the use of biofeedback, or a combination of the two that increased suggestibility. One way to truly test the hypothesis that the use of biofeedback devices, per se, sans relaxation suggestions, can increase suggestibility is to not use relaxation suggestions. For instance, one could use a temperature biofeedback device with suggestions of coldness in the hands (e.g. ‘as if you were placing your hand in cold or ice water’) to cause the device to indicate a drop in hand temperature. One could also use a heart rate biofeedback device to feed back heart rate increase in response to suggestions of heart rate increase (‘as if you were in an athletic competition’).

**Sensory deprivation studies**

Corollary 9 following Hypothesis V of the theory states that ‘suggestibility should be increased if sensory stimulation is curtailed’. Further support of this corollary was provided by a number of different studies: Sanders and Rehyer (1969) using the Stanford Hypnotic Susceptibility Scale (SHSS) forms A and B and working with ten subjects initially resistant to hypnosis and an equivalent control group found sensory deprivation did significantly enhance hypnotic susceptibility. Also using SHSS forms A and B, Wickramasekera in two separate studies (1969, 1970) achieved similar results.

**Conclusions**

There were a number of similarities and differences presented between the theory and three current theoretical perspectives. Among the similarities between the theory and the Sociocognitive and Response Expectancy theories is the emphasis on the importance of the part played by individual differences in affecting initial responsiveness to suggestion; how both the theory and the Sociocognitive theories seem to fit in with Milton Erickson’s strategic approach to therapy; and how similar the theory is to the Response Expectancy theory if one can look upon the term ‘response expectancy’ as equivalent to the term ‘belief’. The main similarity between the theory and Hilgard’s theory is the use of a stimulus dominance hierarchy concept to explain what actions a person will take at any one time and how hypnotic induction influences a rearrangement of the hierarchy.

The main difference between the theory and the Sociocognitive and Response Expectancy theories is that the latter two perspectives seem to imply that all hypnotic inductions can increase suggestibility only to a minor degree whereas the theory predicts that there are ways of increasing the effectiveness of hypnotic induction beyond just a ‘minor degree’. And related to this, the theory, as opposed to these other two perspectives, concludes that there can be such a thing as a ‘hypnotic state’ which is significantly different from the ‘waking state’.

A number of significant studies were cited in further support of the theory. This included studies on: the use of subtle sensory reinforcement, biofeedback, and sensory deprivation.
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