RESOLVING CONFLICT IN HYPNOSIS

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ABSTRACT

This thesis investigated the management of conflict during hypnosis. Conflict occurs in hypnosis when information about objective reality contradicts the state of affairs suggested by the hypnotist. A program of eight experiments investigated the social, motivational, and cognitive factors that mediate participants' response to conflict during an hypnotic suggestion. The aim of this thesis was to develop a theoretical perspective on hypnotic conflict management that recognised the complex interaction between social and cognitive processes in hypnotic responding.

Experiment 1 examined participants' response to the introduction of information that conflicted with an hypnotic suggestion. The experimenter administered a suggestion for a negative visual hallucination, and then instructed participants to perform an action that would expose them to tactile information that conflicted with the hallucination. After the hypnosis session, the experimenter conducted a postexperimental inquiry to investigate participants' experiences. The findings indicated that a number of high hypnotisable participants maintained their belief in the hallucination by executing behavioural and cognitive strategies to minimise the impact of conflict on their experience. However, the introduction of tactile conflict had an appreciable impact on the responding of most high hypnotisable participants. Experiment 2 investigated participants' capacity to maintain an hypnotic hallucination while processing conflicting information. In this experiment, participants completed a modified Stroop Colour Interference Test during a suggestion for hypnotic colour blindness. The findings indicated that stimulus colour influenced response latencies even when participants reported experiencing colour blindness. Thus, Experiments 1 and 2 indicated that avoidant strategic responses are

useful, but not essential, in the management of conflicting information during hypnosis.

Experiment 3 developed a research paradigm that allowed conflict to be manipulated in a way that minimised experimental response cues. The experimenter administered a suggestion for a negative visual hallucination of a computer-generated stimulus. Following the suggestion, the experimenter modified the level of conflict by gradually and unobtrusively changing the intensity of the stimulus. Participants provided verbal ratings of their confidence that the hallucination was real before and after the stimulus manipulation and gave continuous ratings of their experience throughout the suggestion using an analogue dial. Overall, the findings indicated that high hypnotisable participants' experience of the suggested effect changed in response to the manipulation of stimulus intensity despite the fact that participants did not indicate any knowledge that the stimulus was modified.

Experiment 4 investigated the relevance of hypnotisability and hypnosis to the management of conflict between reality and suggestion. The experimenter administered a suggestion for a negative visual hallucination to high and low hypnotisable participants following instructions that defined a context of hypnosis or imagination. Following the suggestion, conflict was increased using the paradigm that was developed in Experiment 3. Participants provided verbal confidence ratings before and after the stimulus manipulation. The findings indicated that low hypnotisable participants failed to experience the suggestion regardless of conflict level and experimental instructions. High hypnotisable participants who were administered instructions for hypnosis successfully responded to the suggestion even when conflict increased; however, high hypnotisable participants who were administered imagination instructions initially experienced the suggestion but failed to

manage the heightened level of conflict. Overall, the findings indicated that hypnosis provides a context in which highly responsive participants are able to maintain their belief despite demanding levels of conflict with reality.

Experiments 5 and 6 investigated the role of social demands in participants' response to hypnotic conflict. Experiment 5 used a nonexperiment procedure to index the response cues associated with the paradigm developed in Experiment 3. The findings indicated that participants' response to a change in conflict could be explained as compliance with demand characteristics if the conflict manipulation was sufficiently overt. Experiment 6 used the real-simulating procedure to determine the extent to which response cues accounted for participants' response to the paradigm developed in this research program. Participants provided verbal confidence ratings during the suggestion, and the Experiential Analysis Technique was used to investigate participants' experiences. Differences between real and simulating participants' responses indicated that the impact of increased stimulus intensity on high hypnotisable participants' experience results from processes other than compliance with social demands. Experiential reports indicated that reals could maintain their belief in an hypnotic suggestion even though changes in reality information affect other characteristics of their experience. Overall, these experiments indicated that demand characteristics shape hypnotic participants' interpretation of the appropriate response to conflict during an hypnotic suggestion.

Experiments 7 and 8 addressed the relevance of cognitive processes to hypnotic conflict management. In Experiment 7, the experimenter administered high and low hypnotisable participants the suggestion and also used the conflict manipulation paradigm developed in Experiment 3. Participants provided verbal confidence ratings during the suggestion and described their experiences during an

Experiential Analysis Technique inquiry. The findings indicated that high hypnotisable participants were more likely to adopt a constructive cognitive style when conflict increased than they were initially. Furthermore, high hypnotisable participants who adopted a constructive cognitive style during heightened conflict maintained their belief that the suggestion was real to a greater extent than highs who adopted a concentrative style. Consequently, in Experiment 8 the experimenter administered instructions to adopt either a constructive or a concentrative cognitive style during the suggestion. The findings indicated that participants who adopted a constructive rather than concentrative cognitive style successfully maintained their confidence in the suggestion when conflict increased. Overall, these findings highlighted the relevance of the cognitive strategies employed by participants to the management of conflict between reality and suggestion.

This thesis develops a theoretical perspective on hypnotic conflict that accounts for the data collected in the research program, and that adds to previous theoretical and empirical work on hypnotic conflict. The findings indicated that hypnotic participants make a commitment to maintain a belief that reality is consistent with the communications of the hypnotist, and that this motivated commitment involves the selection of cognitive and behavioural strategies that facilitate the management of conflicting information. These strategies are dependent on the nature of the suggestion and the available response alternatives, participants' interpretation of the appropriate outcome of conflict management, and individual participants' preferences and abilities. Accordingly, the major components of the theoretical perspective developed in this thesis include the hypnotisability of participants, the role of hypnotic induction, participants' interpretation of the desired response, the belief that participants develop in the reality of the suggested events, and the readiness of

participants to employ conflict management strategies that produce the appropriate outcome. This perspective is consistent with contemporary theories of hypnosis that recognise the importance of the interaction between cognitive and social factors in hypnotic responding. Thus, the model provides a framework for explaining the management of conflict between reality and suggestion that can be applied to all hypnotic phenomena.

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CHAPTER 1

INTRODUCTION: AN OVERVIEW OF HYPNOTIC CONFLICT

Hypnosis requires participants to think, feel, and act in ways that are different from their everyday experience. Hypnotic suggestions result in compelling subjective experiences that typically conflict with reality. Hypnotic suggestions may elicit responses that are strongly inconsistent with normal experience, such as memory, pain, or sight. That is, hypnotic suggestions involve a conflict between reality and the suggested experience. The aim of this thesis is to investigate hypnotic conflict and to identify the processes that mediate successful management of conflicting information during hypnosis.

This chapter reviews theoretical perspectives and empirical work on hypnotic conflict. It first introduces conflict management in hypnosis, and then considers contemporary theoretical perspectives of hypnotic conflict. The chapter provides a review of empirical work related to hypnotic conflict, and discusses core issues that are relevant to understanding conflict management during hypnosis. A summary of hypnotic negative visual hallucinations is provided, and the utility of this phenomenon for understanding hypnotic conflict is discussed. The chapter reviews limitations of previous empirical work on hypnotic conflict, and proposes the need for new research paradigms to advance our understanding. Finally, the chapter identifies the major conceptual issues that are investigated in this thesis.

<div align="center">An Introduction to Hypnotic Conflict</div>

Conceptualising the management of conflict between hypnotic suggestion and reality is fundamental to the major theoretical frameworks of hypnosis. Sutcliffe (1960, 1961) noted a distinction between "credulous" theories of hypnosis, which regard the experience of hypnotic suggestions as identical to objectively occurring conditions, and "sceptical" theories of hypnosis, which assert that whereas hypnotic participants perceive reality accurately, they act as if the suggested effects are real.

For example, whereas the credulous view asserts that hypnotic deafness is experientially similar to actual deafness, the extreme sceptical view contends that the suggestion has no effect on phenomenal awareness of hearing. In a series of experiments, Sutcliffe (1961) found that hypnotised participants responded psychophysiologically and behaviourally in ways that were consistent with objective reality. Despite this finding, Sutcliffe (1961) argued that hypnotic participants were characterised by their belief in the suggested effects. He proposed that the key feature of hypnosis is "the hypnotized participant's emotional conviction that the world is as suggested by the hypnotist" (Sutcliffe, 1961, p. 200).

Sutcliffe's (1960, 1961) seminal work highlights the central importance of understanding the processes by which hypnotic participants generate and maintain a belief that suggested events are real. Perusal of major hypnotic phenomena indicates the presence of conflict between the suggested experience and available reality information. For example, the hypnotist may suggest that participants are blind when visual stimuli are presented to them (e.g., Bryant & McConkey, 1989a, 1989b, 1990a, 1995), that an adult is a five year old child (e.g., Laurence & Perry, 1981; Orne, 1951) or that they have no feeling in some part of their body while a salient tactile stimulus is administered (e.g., Hilgard, 1973; Wilton, Barnier, & McConkey, 1997). The role of conviction in hypnotic responding suggests that participants must achieve two goals to respond successfully to a suggestion. First, they must generate experiential responses that are in accord with the suggested effects. Second, they must ensure that their perception of information that is inconsistent with the suggestion does not interfere with their experience of the suggested response.

The aim of this thesis is to understand the processes that allow hypnotic participants to manage the conflict between objective reality and hypnotic

suggestions. This thesis defines conflict as a situation in which the actual stimulus conditions are incongruous with the conditions suggested by the hypnotist. In other words, this thesis regards conflict as a discrepancy between reality and suggestion. The extent to which this discrepancy produces a subjective experience of dissonance is an empirical question that this thesis addresses. This chapter turns now to consider the accounts of hypnotic conflict provided by the major theoretical frameworks.

<u>Theories of Hypnotic Conflict</u>

Theories of hypnosis have converged on the notion that hypnotic participants' involvement in the suggested experience is accompanied by inattention to contradictory information (Spanos & Barber, 1974). Theoretical orientations vary in terms of the mechanisms that they propose mediate this selective neglect of conflicting information. Specifically, the neodissociation (Bowers, 1992; Hilgard, 1977, 1991, 1994; Kihlstrom, 1984, 1987; Woody & Bowers, 1994) and the social psychological (Coe & Sarbin, 1991; Kirsch & Lynn, 1997; Lynn, Rhue, & Weekes, 1990; Spanos, 1986, 1991; Spanos & Coe, 1992) frameworks place different emphases on the role of cognitive and social factors, respectively, in hypnotic responding. Although the study of hypnosis has led to the advancement of theoretical accounts from a number of different perspectives, the dominant frameworks of hypnosis theorising generally have not offered explicit accounts of the process by which participants manage the conflict between reality and suggestion. However, the major theoretical orientations differ in their characterisation of participants' awareness of their perceptions and cognitions and the involuntariness of their experience. Implicit in these accounts are assumptions about the mechanisms involved in managing conflict during hypnosis. This chapter turns now to consider the ways that

each theoretical orientation has conceptualised the management of conflicting information.

<u>Neodissociation Theory</u>

The neodissociation framework views hypnotic responding as the product of changes in the organisation of cognitive subsystems (Hilgard, 1977, 1991, 1994). According to this view, hypnosis enables the dissociation of cognitive subsystems from the executive control structure, thus allowing controlled cognitive processing to occur outside of awareness. Neodissociation theories posit that mental representations which contradict the suggestion are dissociated from phenomenal awareness (Hilgard, 1994). In other words, conflict does not interfere with hypnotic responding because a separate, nonconscious stream of cognition processes reality information. Kihlstrom (1984, 1987) has conceptualised this perspective in terms of a dissociation between episodic and semantic representations of experience. In terms of hypnotic conflict, this view holds that hypnotic suggestions result in compelling experiences because episodic representations of conflicting information are dissociated from awareness.

A recent extension of the neodissociation approach by Bowers and colleagues (Bowers, 1992; Woody & Bowers, 1994) proposes that hypnosis may alter the control of behaviour rather than the subjective experience of control. That is, this theory posits that hypnosis dissociates lower levels of control from the executive control structure such that responses are, to some extent, automatically activated by the hypnotist's suggestions (Bowers, 1992). Although this variant of neodissociation theory proposes a different mechanism by which responses are produced, it shares with traditional neodissociation theories the implication that conflicting information does not interfere with responding because hypnotic responses have become separated from reality-based cognitive processes.

Neodissociation theorists claim support for this theory from evidence of intact semantic processing of information during states that are incongruous with this semantic processing; for instance, individuals who exhibit impaired recall of information in response to a suggestion for posthypnotic amnesia often respond to indirect tests of memory, such as word fragment completion, in a way that indicates the influence of the "forgotten" information (see Kihlstrom, 1998). Furthermore, the neodissociation approach is compatible with theories beyond the domain of hypnosis about the cognitive unconscious in memory, perception, learning, and emotion (see Kihlstrom, 1987, 1998; Kihlstrom, Barnhardt, & Tataryn, 1992). Accordingly, this thesis recognises the need to index the semantic and episodic features of hypnotic responding.

<u>Social Psychological Theories</u>

The social psychological framework considers hypnotic responding to result predominantly from participants' compliance with social cues in the context of hypnosis (Coe & Sarbin, 1991; Spanos, 1986, 1991; Spanos & Coe, 1992). According to this view, hypnotic participants adopt a role that is based largely on the expectations they bring to the hypnotic setting and their understanding of the social demands placed upon them by the hypnotist (Kirsch & Council, 1989; Kirsch, Council, & Mobayed, 1987; Spanos, 1986). Social psychological theories contend that hypnotised participants attempt to comply with experimental demands either by reporting experiences that they do not have or by utilising strategies that minimise the impact of conflicting information to allow them to have the suggested experiences (Spanos, 1986). Thus, social psychological theories propose that conflict does not interfere with hypnotic responding because participants consider it their role to ignore or disregard information that is inconsistent with the hypnotic suggestion.

Kirsch and Lynn (1997) overviewed a social psychological theory that emphasises the direct influence of participants' response expectancies on their experience and behaviour. According to this theory, hypnotic responses occur automatically because participants in the social context of hypnosis expect to respond to suggestions. Thus, this social psychological theory posits that the behaviour and experience associated with hypnotic suggestions are directly triggered by participants' expectancies about hypnotic responding. Within this framework, conflicting reality information does not interfere with hypnotic responding because participants do not expect it to. Therefore, although Kirsch and Lynn's (1997) theory differs from other social psychological theories in its account of the process by which social cues produce hypnotic responding, it parallels other social psychological theories in the notion that participants respond in accord with their conception of the appropriate response.

The social psychological approach has received considerable empirical support from evidence that hypnotic responding can be significantly modified by manipulating social variables (Spanos, 1986, 1991). For instance, social psychological theories are compatible with research demonstrating that hypnotic participants' response to conflict can be altered by manipulating the experimental cues (e.g., McConkey, 1983b; Spanos, Gwynn, & Stam, 1983). Accordingly, this thesis recognises the importance of social factors in mediating conflict management in hypnosis.

<u>The Interactionist Perspective</u>

Although the neodissociation and social psychological approaches differ in the emphases they place on cognitive and social processes in hypnosis, researchers have increasingly accepted that these approaches are not mutually incompatible (Kirsch &

Lynn, 1995; Sheehan & McConkey, 1982; Woody & Sadler, 1998). This thesis recognises that an optimal understanding of managing hypnotic conflict requires consideration of both the cognitive and social processes associated with hypnotic participants' management of conflicting information. That is, hypnotic participants' management of conflict should be considered as the result of cognitive processes the participant employs to achieve a goal derived from their interpretation of the social context. This approach is consistent with the interactionist framework adopted by other theorists (e.g., McConkey, 1991; Sheehan, 1991, 1992; Sheehan & McConkey, 1982; Sheehan & Perry, 1976).

This perspective recognises that hypnotic behaviour results from a complex interplay of social cues and cognitive processes. For instance, Sheehan and McConkey (1982) proposed that hypnotised individuals should be viewed as active participants involved in structuring their cognitions to meet the requirements of the social setting. In accord with the interactionist approach, an underlying theme of this thesis is that hypnotic participants' cognitive response to conflict is closely related to their interpretation of the social demands. This perspective is consistent with Kihlstrom's (1995) characterisation of the hypnotic experiment as a conversation and collaboration, in which the participant attempts to find meaning in the experimental situation and uses that meaning to determine the appropriate response. This thesis recognises that participants' responses must be considered the product of cognitive processes that are in turn shaped by the roles and rules associated with the context of an hypnosis experiment. Furthermore, the interactionist approach emphasises that to disentangle these social and cognitive processes the researcher must examine the experiment from the participant's point of view. Accordingly, this thesis recognises

the importance of indexing participants' understanding and subjective experience of the experimental situation.

The interactionist perspective characterises the hypnotic participant as actively involved in producing hypnotic responses. For instance, Sheehan (1991) emphasised the motivated cognitive commitment of hypnotic participants to experience the effects suggested by the hypnotist. Consistent with this perspective, Barber (1998) suggested that a primary determinant of hypnotic responding in clinical contexts is the personal value of the therapeutic suggestions to the participant. Even within the experimental setting, however, motivational influences exist that promote committed responding in hypnotic participants. Orne (1959, 1970) noted that experimental participants have volunteered to participate in research and contribute to the advancement of science by providing useful data, and that they also might be concerned with learning something about themselves and ensuring that the experimenter does not evaluate them in a negative light. Consistent with these characterisations of the experimental participant as a motivated contributor seeking to provide "good" results, Kihlstrom (1995) recognised that hypnotic participants are not simply passive subjects but may be viewed as active collaborators in the outcome of the hypnosis experiment. Accordingly, the interactionist perspective recognises that the hypnotic participant should be regarded as actively involved in processing the experimental cues and attempting to produce appropriate responses.

An Interactionist Account of Hypnotic Conflict

Although theorists working within the neodissociation and social psychological orientations have offered accounts of hypnotic conflict management, there have been few systematic attempts to integrate empirical work on the issue. McConkey (1983a) provided an initial account of response to conflicting information

in hypnosis. He proposed that hypnotic participants are highly motivated by the hypnotic context and that they are actively predisposed to structure events and cognitions in order to respond in accord with their interpretation of the hypnotist's message. McConkey (1983a) recognised that participants' particular social interpretations and cognitive processes would determine their individual response to the conflict between reality and suggestion.

While the model represents a cogent synthesis of the literature on hypnotic conflict, many of its elements require elaboration to provide a comprehensive account of conflict management in hypnosis. McConkey (1983a) noted that empirical work is needed "to analyse the specific ways in which participants cognitively assimilate conflicting information in order to promote positive response to hypnotic demand" (p. 8). Accordingly, an important goal of this thesis is to evaluate and extend the account of conflict management proposed by McConkey (1983a). In particular, this thesis aims to develop an interactionist model of the social and cognitive processes that mediate the response to hypnotic conflict.

<div align="center">A Review of Empirical Research on Hypnotic Conflict</div>

This chapter turns now to review the empirical data relevant to understanding the impact of hypnotic conflict. The paradigms employed in previous studies have differed in terms of the nature of the information used to challenge the suggestion, and the alternatives available to participants in responding to the conflict. In particular, these paradigms have involved (a) providing communications that conflict with the suggestion, (b) presenting salient stimuli that conflict with the suggestion, (c) instructing participants to resist the hypnotic suggestion, (d) attempting to break down an existing hypnotic response, (e) trance logic responding, (f) hidden observer phenomena, (g) establishing and subsequently contradicting preconceptions

concerning hypnotic responding, and (h) examining the impact of ambiguity in hypnotic and posthypnotic suggestions.

Conflicting Communications

A number of studies have administered instructions or "countersuggestions" that contradict the hypnotic suggestion (Bartis & Zamansky, 1990; Kirsch et al., 1987; McConkey, 1979, 1983b; Zamansky, 1977; Zamansky & Clark, 1986). Zamansky and colleagues (Bartis & Zamansky, 1990; Zamansky, 1977; Zamansky & Clark, 1986) reported that participants exposed to instructions for images that contradicted their experience of an hypnotic suggestion responded to the same extent as when no countersuggestions were administered. In contrast, McConkey (1979, 1983b) observed that whereas contradictory images interfered with responding when administered following the hypnotic suggestion, they did not impede responding when administered before the suggestion. He proposed that the response to conflicting communications can be understood in terms of participants' interpretation of the desired response based on their expectations and the hypnotist's most recent communication. Further, Kirsch et al. (1987) found that contradictory images interfered with responding when participants were told it would, but had no effect on participants when they were told it would enhance response. Overall, these findings indicate that participants will disregard conflicting information if they perceive this is the desired response, and will respond as if they are influenced by the conflicting information if they perceive this as the expected response.

Presentation of Salient Stimuli

Some studies have manipulated the salience of perceptual information during suggestions for perceptual deficits (Blum, Porter, & Geiwitz, 1978; Bryant & McConkey, 1989b, 1990a). For example, Blum et al. (1978) suggested that hypnotic

participants could not see the coloured lines of consonants while they remained able to see dots of another colour superimposed upon the lines. Blum et al. (1978) observed that participants displayed fewer failures in negative visual hallucination responding when the stimulus was presented for short rather than long durations. Accordingly, they proposed that the signal strength of reality information mediates negative visual hallucination responding.

A series of experiments by Bryant and McConkey (1989b, 1990a) investigated the influence of visual information on direct and indirect measures of visual processing. Following a suggestion for hypnotic blindness, participants performed a decision task that involved switching off a machine-generated tone by pressing one of three switches on the front of the machine. A visual display indicated the correct switch for some trials. Bryant and McConkey (1989b) manipulated the salience of conflict between reality and suggestion by changing the brightness of the visual display and administering a suggestion either to not see the machine or to see nothing at all. Fewer participants reported complete blindness when the visual display was bright rather than dim and the blindness suggestion was global rather than specific. This finding suggests that the salience of conflicting reality information influences hypnotic participants' success rate in experiencing the suggestion.

Among participants who reported complete blindness, Bryant and McConkey (1989b, 1990a) found that the presence of visual cues improved performance on the decision task compared to when the visual cues were absent. In other words, participants who reported a complete experience of the suggestion nonetheless made use of the presence of visual cues in performing the decision task. Further, Bryant and McConkey (1990a) observed that hypnotically blind participants responded more slowly on a secondary word task when performing the decision task with visual cues

present than with cues absent. This finding indicates that hypnotic participants had fewer attentional resources available for the secondary task when the conflict between reality and suggestion was salient. Accordingly, Bryant and McConkey (1990a) proposed that hypnotic participants allocate attentional resources to resolving the conflict between the suggested experience and reality information.

Overall, these findings indicate that hypnotic participants' success in achieving the suggested experience is influenced by the duration and intensity of conflicting reality information. However, hypnotic participants effortfully use attentional resources to minimise the impact of such conflict. These findings also suggest that hypnotic participants actively structure their cognitions to process conflicting information without impeding the suggested experience.

<u>Resisting Suggestions</u>

A number of studies have challenged hypnotic effects by instructing participants to resist suggestions (Baker & Levitt, 1989; Hilgard, 1963; Levitt & Baker, 1983; Levitt, Baker, & Fish, 1990; Lynn, Nash, Rhue, Frauman, & Stanley, 1983; Lynn, Nash, Rhue, Frauman, & Sweeney, 1984; Spanos, Cobb, & Gorassini, 1985; Wells, 1940; Young, 1927, 1928). Hilgard (1963) noted that although most participants were successful to some extent in resisting hypnotic suggestions, they reported experiencing conflict about responding and expended effort to inhibit the suggested effects. Further, Levitt and colleagues (Baker & Levitt, 1989; Levitt & Baker, 1983; Levitt et al., 1990) found that having a confederate offer monetary incentives to resist suggestions was ineffective for a substantial proportion of highly hypnotisable participants. In experiments that involved asking participants to resist engaging in movements while imagining and experiencing motor suggestions, Lynn and colleagues (Lynn et al., 1983; Lynn et al., 1984) found that participants showed

greater success in resisting suggestions when they were told that successful resistance characterises good hypnotic participants than when they were informed that good hypnotic participants do not resist suggestions. Consistent with these findings, Spanos, Cobb et al. (1985) concluded that participants who were told that deeply hypnotised individuals can resist suggestions were more successful in doing this when they were instructed to resist suggestions than were participants who were told that deeply hypnotised participants cannot resist suggestions.

<u>Breaching Suggestions</u>

A number of studies have administered procedures intended to breach hypnotic and posthypnotic amnesia (Bowers, 1966; Coe & Sluis, 1989; Coe & Yashinski, 1985; Dubreuil, Spanos, & Bertrand, 1982; Howard & Coe, 1980; Kihlstrom et al., 1980; McConkey & Sheehan, 1981; McConkey, Sheehan, & Cross, 1980; Schuyler & Coe, 1981, 1989; Silva & Kirsch, 1987; Wagstaff & Frost, 1996). Investigators have challenged posthypnotic amnesia responding by, for instance, demanding honesty (Howard & Coe, 1980; Kihlstrom et al., 1980; Schuyler & Coe, 1989), using a "lie detector" (Coe & Yashinski, 1985; Howard & Coe, 1980; Schuyler & Coe, 1981, 1989), and showing participants a videotape of the "forgotten" events (Coe & Sluis, 1989; McConkey & Sheehan, 1981; McConkey, Sheehan, & Cross, 1980). In general, these studies have found that approximately half of highly hypnotisable participants maintain their amnesic response despite the presence of conflicting information. It is noted, however, that Coe and Sluis (1989) observed that administering several different challenges in succession breached amnesia in all but one participant. In a series of studies, Coe and colleagues (Coe & Sluis, 1989; Coe & Yashinski, 1985; Howard & Coe, 1980; Schuyler & Coe, 1981, 1989) found that participants who reported a feeling of control over their amnesia responded to

breaching challenges to a greater extent than did those who described their amnesia as involuntary. Other studies have demonstrated that participants led to expect that they would remember more following a trance deepening procedure or on a second memory trial were more likely to breach amnesia than participants who were not led to such expectancies (Dubreuil et al., 1982; Silva & Kirsch, 1987).

Overall, the findings from breaching studies indicate that some proportion of hypnotic participants is affected by challenges to resist or break down their suggestion and respond in accord with reality. In contrast, most participants are prepared to generate and maintain their response to hypnotic suggestions if they interpret such responding as appropriate within the hypnotic context.

Trance Logic Responding

Trance logic involves asking participants to simultaneously respond in opposing ways. Orne (1959) defined trance logic as "the apparently simultaneous perception and response to both hallucinations and reality without any apparent attempts to satisfy a need for logical consistency" (p. 295), and regarded such responding as a reliable criterion of hypnosis. Orne and other investigators have identified a number of phenomena that appear to involve the tolerance of paradoxical experiences of reality and suggestion, including incongruous writing during age regression (Orne, 1951), double hallucination and transparency reports during positive visual hallucination (Orne, 1959), and response to "missing" objects in negative visual hallucination (Hilgard, 1965).

Since Orne's (1951, 1959) initial reports of trance logic phenomena, a substantial number of investigations have addressed the relevance of trance logic to understanding the nature of hypnosis (for a review, see de Groot & Gwynn, 1989). In general, these investigations have indicated that the tolerance of logical incongruity is

not a defining characteristic of hypnosis. A number of studies, for instance, have partially or completely failed to replicate Orne's (1959) finding that trance logic differentiates hypnotised participants from unhypnotisable participants instructed to simulate hypnosis (Blum & Graef, 1971; Johnson, Maher, & Barber, 1972; McConkey et al., 1991; McDonald & Smith, 1975; Obstoj & Sheehan, 1977; Sheehan, Obstoj, & McConkey, 1976; Spanos, de Groot, & Gwynn, 1987; Spanos, de Groot, Tiller, Weekes, & Bertrand, 1985; Stanley, Lynn, & Nash, 1986). Further, several studies have found that trance logic responding can occur as frequently during nonhypnotic tasks as during hypnosis (Johnson et al., 1972; McConkey et al., 1991; Spanos et al., 1987; Spanos, de Groot et al., 1985).

A number of investigators have challenged the notion that high hypnotisable participants are characterised by the ability to tolerate logical incongruity between reality and suggestion (e.g., Sheehan & McConkey, 1982; Spanos, 1986). Although Spanos and colleagues (Spanos et al., 1987; Spanos, de Groot et al., 1985; see also Spanos, 1986) argued that trance logic responding results from an incomplete experience of the hypnotic suggestion, McConkey et al. (1991) observed that trance logic responding in hypnosis was related to neither the completeness of nor belief in the suggested experience. In contrast, Sheehan and McConkey (1982) examined experiential aspects of trance logic responding and concluded that inferring participants tolerate inconsistency may be unwarranted. They argued that hypnotic participants actively work to resolve conflicting information to minimise its impact on subjective experience; indeed, from the perspective of a problem-solving participant, trance logic represents an appropriate compromise response.

Hidden Observer Phenomena

The hidden observer phenomenon involves the simultaneous response to logically opposing elements of reality and suggestion (Hilgard, Hilgard, Macdonald, Morgan, & Johnson, 1978; Hilgard, Morgan, & Macdonald, 1975; Knox, Morgan, & Hilgard, 1974; Laurence & Perry, 1981; Nogrady, McConkey, Laurence, & Perry, 1983; Spanos, Flynn, & Gwynn, 1988; Spanos, Gwynn, & Stam, 1983; Spanos & Hewitt, 1980; Spanos, Radtke, & Bertrand, 1984; Zamansky & Bartis, 1985). Hilgard and colleagues (Hilgard et al., 1978; Hilgard et al., 1975; Knox et al., 1974) instructed participants exposed to a painful stimulus during hypnotic analgesia that a "hidden" part of their mind existed that remained aware of their real experiences. Their findings indicated that the "hidden" part of participants reported feeling pain while their "hypnotised" part simultaneously reported feeling no pain. Although some high hypnotisable participants provide hidden observer reports even when social demands are minimised (e.g., Nogrady et al., 1983), various studies have found that the response rate of hidden observer reports is strongly influenced by the salience of response cues (e.g., Spanos et al., 1983). Furthermore, a number of studies have indicated that modifying the experimental cues associated with the hidden observer procedure influences the nature of hidden observer reports (Spanos et al., 1988; Spanos et al., 1983; Spanos & Hewitt, 1980) and even the number of hidden parts reported by participants (Spanos et al., 1984).

Overall, the findings regarding trance logic and hidden observer phenomena indicate that conflict resolution in hypnosis does not necessarily entail the exclusion of reality from influencing behaviour and experience. These phenomena highlight the complex cognitive processes that some hypnotic participants employ in order to

process two sets of contradictory information without allowing conflict to impede

their hypnotic response. These findings highlight the importance of participants'

interpretation of the appropriate response in determining the impact of conflicting

information.

Countering Response Preconceptions

A program of research has investigated the effect of placing participants'

preconceptions concerning hypnotic responding in conflict with the hypnotist's

instructions (Sheehan, 1971, 1980; Sheehan & Bowman, 1973). Sheehan (1971, 1980)

found that participants responded in accord with their interpretation of the hypnotist's

intent rather than the behaviour of a peer model from a lecture demonstration or

videotape. Further, Sheehan and Bowman (1973) placed the hypnotist's explicitly

stated expectancy in conflict with the behaviour displayed by a peer model. In this

situation, hypnotic participants responded in accord with the hypnotist's message and

against the role preconception that was provided by the peer model. Overall, these

findings indicate that the influence of response expectancy is limited by its

consistency with participants' interpretation of the hypnotist's message, and that when

the two forms of social influence are placed in opposition, participants are committed

to act in accord with the hypnotist's intent.

Ambiguity in Hypnotic and Posthypnotic Suggestions

A series of experiments by Barnier and McConkey (1996, 1999, 2001)

investigated participants' response to ambiguities in hypnotic and posthypnotic

suggestions. Although these experiments did not present conflicting information that

directly challenged participants' responses, they investigated the processes by which

hypnotic participants resolve ambiguities in the response cues available to them. For

instance, Barnier and McConkey (2001) administered a general suggestion to

participants to respond when they heard a cue or a posthypnotic suggestion to respond when they heard a cue after hypnosis. Participants were then given a cue during or after hypnosis. Participants' behavioural and experiential responses following the cue were influenced by the degree of congruence between the timing information provided by the suggestion and the actual timing of the test. Furthermore, Barnier and McConkey (1999) gave participants a suggestion either before, during, or after hypnosis that they would rub their ear in response to a question. Participants were asked the question before, during, and after hypnosis. The behavioural and experiential data indicated that participants actively attempted to interpret the hypnotist's communications to execute appropriate behavioural or verbal responses, often in a way that was idiosyncratic but personally appropriate. In addition, Barnier and McConkey (1996) observed that participants responded to increasingly ambiguous and decreasingly explicit tests by providing more incomplete responses, which may reflect participants' attempt to find a compromise response that resolves the ambiguity. Overall, these findings indicate that hypnotic participants actively interpret the formal and informal cues available in the hypnotic setting and are prepared to resolve conflicting or ambiguous cues in a way that promotes a successful response to the suggestion. In particular, these findings indicate that participants' resolution of ambiguity tends to produce outcomes that are personally appropriate and coherent to the participant.

<u>Issues in Hypnotic Conflict Research</u>

Research on hypnotic conflict has pointed to a number of issues that are relevant to managing the conflict between reality and suggestion. This chapter turns now to specifically consider the issues: (a) hypnotisability, (b) problem-solving strategies, and (c) subjective experience.

<u>Hypnotisability</u>

Successfully responding to difficult hypnotic suggestions requires a high level of hypnotisability. That is, responding to suggestions that involve a marked incongruity between reality and suggestion requires a higher level of hypnotic susceptibility (Tellegen, 1978-1979). Structural analysis of the standard hypnotisability scales has indicated that hypnotic suggestions can be categorised as either (a) ideomotor, (b) challenge, or (c) cognitive (McConkey, Barnier, Maccallum, & Bishop, 1996; McConkey, Sheehan, & Law, 1980). McConkey (1983b) posited that the disparity between reality and suggestion is generally greater for cognitive items than ideomotor or challenge items, and that management of the contradiction is particularly important in suggested distortions of cognition. Consistent with this proposal, analysis of the standard hypnotisability scales has indicated that cognitive suggestions, such as hallucinations and posthypnotic amnesia, are among the most difficult (Hilgard, 1965). Although a high level of hypnotisability is required to experience difficult cognitive items, there is variability in how high hypnotisable participants respond to conflicting information. For instance, not all highly hypnotisable participants breach posthypnotic amnesia (e.g., Coe & Yashinski, 1985; Kihlstrom et al., 1980; McConkey & Sheehan, 1981; McConkey, Sheehan, & Cross, 1980), counter preconceptions (e.g., Sheehan, 1971, 1980), demonstrate trance logic responding (e.g., McConkey et al., 1991; Orne, 1959; Sheehan et al., 1976), or provide hidden observer reports (e.g., Hilgard et al., 1975; Laurence & Perry, 1981). In the current program of research, participants were screened rigorously for hypnotisability, and conflict management was investigated in terms of hypnotisability level.

Problem-Solving Strategies

Theorists from different orientations have emphasised the role of participants as problem-solving agents who are active in initiating and maintaining their hypnotic responses (e.g., Coe & Sarbin, 1991; Lynn & Sivec, 1992; Sheehan & McConkey, 1982; Spanos, 1986). Consistent with this view, McConkey (1983a, 1983b) concluded that participants actively structure their cognitions concerning reality information in a way that facilitates the production and maintenance of the suggested response.

Empirical work has indicated that hypnotic participants' strategic approaches to hypnotic responding influence their management of reality information in at least three ways. First, Dolby and Sheehan (1977; Sheehan & Dolby, 1975) reported that hypnotised participants focused on reality features that were relevant to constructing the response suggested by the hypnotist. They observed that hypnotic participants who were shown Boring's (1930) ambiguous wife/mother-in-law figure reported seeing the figure the hypnotist led them to expect despite being administered conditions that usually lead participants to provide the opposite response. Second, Sheehan and McConkey (1982) argued that participants who actively work to process and integrate reality information manage conflict more successfully than participants who adopted an approach of simply concentrating on the hypnotist's communications. Consistent with this view, Bryant and McConkey (1990b) reported that a constructive cognitive style (in which participants use active cognitive strategies to generate the suggested experience) produced hypnotic blindness more effectively than a concentrative cognitive style (in which participants focus attention on the hypnotist's words). Third, Barber, Spanos, and Chaves (1974) proposed that hypnotic participants respond to hallucination suggestions by employing behavioural strategies to alter their perception, such as squinting and closing their eyes. These findings highlight that

hypnotic participants are prepared to select appropriate cognitive and behavioural strategies based upon the nature of the suggested experience and the features of objective reality. In the program of research conducted for this thesis, participants' selection of conflict management strategies was indexed, and the effectiveness of alternative strategies was investigated.

<u>Subjective Experience</u>

Understanding the phenomenal effects of hypnotic conflict is important for a number of reasons. First, Sheehan and McConkey (1982) noted that participants may display similar behavioural responses to a particular suggestion yet differ greatly in their subjective experience of the suggested effects. Second, to interpret hypnotic participants' behaviour correctly, investigators should consider the meaning that participants assign to their actions. For example, Sheehan and McConkey (1982) observed that the traditional notion that trance logic reflects the tolerance of logical incongruity did not accord with the phenomenological orientation of hypnotised participants. Third, Bryant and McConkey (1989b) observed that hypnotised participants and simulators differed on experiential but not behavioural response dimensions. The inclusion of experiential measures in addition to behavioural indices improves the potential to delineate the influence of social demands from other processes. Fourth, an important goal of this thesis was to understand the factors mediating individual differences in conflict management among hypnotised individuals. Relevant to this goal, Sheehan (1992) argued that a phenomenological approach to hypnosis research is suited particularly to investigating the pattern of responses and individual differences among participants of a given level of hypnotisability. Accordingly, the current program of research recognised the

importance of indexing the role of subjective experience to management of hypnotic conflict.

Negative Visual Hallucinations and Hypnotic Conflict

The response to a suggestion for a negative hallucination involves an inherent sensory paradox (Kihlstrom & Hoyt, 1988). This form of suggestion demands a deficit in perceiving a particular element of the stimulus setting; accordingly, participants must process the target feature before they can construct an experience that excludes it from awareness. That is, the conflict between reality and suggestion is particularly relevant to suggestions for negative hallucination; consequently, the salience of the stimulus feature targeted by the suggestion will have a direct effect on the salience of the reality-suggestion conflict that participants need to resolve.

A number of studies have indicated that hypnotic participants continue to process the "unseen" stimulus features during negative visual hallucinations. Harvey and Sipprelle (1978) found that hypnotically colour-blind participants performed above chance level on the Stroop colour-word test. Bryant and McConkey (1989a, 1990b, 1990c, 1995) investigated the parameters of information processing in negative visual hallucinations. In a series of experiments, they administered suggestions that participants would be unable to see faces or words on a page placed in front of them. Participants who reported complete blindness nevertheless responded on tests of emotion identification, homophone spelling, and word-fragment completion in a way that indicated continued processing of the visual stimuli. Thus, investigations that employ indirect measures of perception have indicated that participants continue to perceive and process conflicting information during negative visual hallucination. Consequently, hallucinating participants must structure their cognitive or behavioural responses in such a way that the processing of reality

information does not interfere with their response to the hypnotic suggestion. The current program of research used the inherent conflict in negative visual hallucinations, and focused on investigating the cognitive and social processes involved in the management of conflict during this form of suggestion.

<div align="center">Measurement Issues</div>

Studies investigating the impact of conflict on hypnotic responding typically have compared participants' behavioural responses during different levels of conflict. McConkey (1983b) compared the number of participants who successfully responded to suggestions when administered communications that engendered low, medium, or high levels of conflict with the suggested effect. An important limitation of such investigations has been the overt nature of the conflict manipulation. Investigations of hypnotic conflict have generally challenged the hypnotic suggestion by producing a salient change in the hypnotist's communications or other contextual factors. However, the empirical and theoretical work reviewed in this chapter has highlighted that participants' responses to hypnotic conflict are shaped in part by their interpretation of the situational demands. Consequently, many investigations of conflict management in hypnosis are limited by the salience of the demand characteristics. That is, these studies have difficulty discriminating the impact of conflict on participants' experience of the suggestion from participants' interpretation of the desired response. The current program of research recognises that appropriate paradigms are needed that can manipulate and index conflict in hypnosis in ways that minimise overt demand characteristics.

Concern about the role of compliance with changing demand characteristics influenced this investigation's adoption of a paradigm that attempted to manipulate conflict in a way that did not directly change the social demands associated with

participants' task. A particularly important element of the research conducted for this thesis was the development of a paradigm in which reality-suggestion conflict was controlled with minimal changes in demand characteristics. This approach was based on Orne and McConkey's (1981) proposal that investigating the processes by which hypnotic participants discriminate between reality and imagination requires a procedure to objectify phenomenal experience. They developed a procedure that was based on the early imagery study of Perky (1910), in which participants who were asked to imagine a percept were unable to discriminate their images from real, faint projections. Orne and McConkey (1981) argued that manipulating reality information in a way that was subtle enough to occur without participants' awareness would allow investigators to index the impact of external reality on self-reports while minimising response bias. The current research program aimed to refine and extend Orne and McConkey's (1981) procedure by manipulating reality information that contradicted the suggested experience without participants' awareness of the perceptual change. Accordingly, Experiments 3, 4, 6, 7, and 8 used subtle, precisely controlled modifications of computer-generated images to modify the degree of conflict between objective reality and a suggested negative visual hallucination without overt changes in the social response cues.

<div align="center">Overview of the Program of Research</div>

McConkey (1983a) provided a preliminary account of hypnotic conflict, which the current program of research aims to investigate and extend. The current program of research adopts the view that hypnotised participants are committed to respond behaviourally and experientially in accord with their interpretation of the hypnotist's intent. The research recognises that hypnotic responding takes place within the context of a complex social interaction, in which the participant adopts a

cooperative approach to produce responses based upon the perceived experimental demands. In addition, the program of research recognises that resolving the conflict between the demands of the hypnotic setting and reality information is a critical aspect of participants' response. Therefore, the research investigated the parameters of hypnotic responding under differing conditions of conflict. Experiments 1 and 2 explored key issues relevant to understanding the management of conflict during hypnosis, including participants' employment of behavioural and cognitive strategies to minimise or avoid conflict and their capacity to resolve conflict when behavioural strategies are limited.

The research recognised that substantial individual differences in hypnotisability influence participants' responsiveness to suggestions. Accordingly, Experiments 1, 2, 4, 7, and 8 directly compared the responses of high and low hypnotisable participants. Furthermore, the notion that hypnotic participants actively work to resolve conflict and produce suggested experiences highlights that hypnosis involves a distinctive and complex motivational context. Thus, in addition to investigating the relevance of individual differences in hypnotisability to conflict management, the program of research recognised that the social context associated with hypnosis might differentiate participants' management of conflict from nonhypnotic contexts. Imagination instructions provide a nonhypnotic context that parallels hypnotic responding. Accordingly, Experiment 4 compared the conflict management of hypnotised participants with participants instructed to imagine an equivalent effect outside hypnosis.

The program of research recognises that any investigation of hypnotic process must consider the influence of interpersonal and expectancy factors on participants' response. Accordingly, the research investigated the role of social influence factors in

mediating conflict management through application of the nonexperiment procedure (Orne, 1969, 1970) in Experiment 5 and the real-simulating procedure (Orne, 1959, 1979) in Experiment 6. Both procedures compare hypnotised participants' responding with a quasi-control group who are exposed to the response cues present in the experimental procedure without being hypnotised. In the real-simulating procedure, for instance, unhypnotised participants are instructed to simulate the responses of high hypnotisable participants to the experimental procedure. According to the logic of this procedure, if simulating participants respond similarly to real, hypnotised participants then an explanation purely in terms of experimental demands cannot be ruled out. On the other hand, if hypnotised participants differ from simulating participants then expectancies and response cues cannot solely account for hypnotised participants' responses (Sheehan & Perry, 1976). The application of these procedures allowed the current program of research to investigate the extent to which experimental demands shaped the response to hypnotic conflict.

The emphasis of this thesis on participants' problem-solving activity in resolving hypnotic conflict points to the need to investigate the strategic responses participants enact in managing conflict. Research on experiential aspects of hypnotic responding have pointed to participants' involvement in choosing and implementing personally appropriate cognitive strategies so as to minimise the impact of reality information on hypnotic responding (Bryant & McConkey, 1989b, 1990b; Sheehan & McConkey, 1982). Moreover, theorists from different orientations have proposed that participants engage in behavioural and cognitive responses which facilitate the successful management of reality information and produce the suggested experience (e.g., Barber et al., 1974; Lynn & Sivec, 1992; Sheehan & McConkey, 1982; Spanos, 1986). Accordingly, the program of research paid particular attention to the strategic

aspects of cognition and behaviour that participants employed to manage conflict within the constraints of the hypnotic setting. To this end, this thesis used the Experiential Analysis Technique (EAT; Sheehan, 1992; Sheehan & McConkey, 1982; Sheehan, McConkey, & Cross, 1978) in Experiments 6 and 7. In this technique, participants view a videotape of their hypnosis session after the session has been completed to aid recall and discussion. Participants are encouraged to report on the aspects of their experience that were personally meaningful, and are questioned in a manner that minimises biased reporting. The application of the EAT in this research program allowed the significant experiential aspects of participants' response to conflict to be investigated.

The recognition in this thesis of the complexity of subjective response to conflict in hypnosis points to the need to consider the impact of conflict on multiple experiential dimensions. Sutcliffe's (1960, 1961) characterisation of the belief that participants express in hypnotically suggested experiences as delusional highlights that a fundamental goal of hypnotic conflict management is to develop an emotional conviction that the suggested effects are real. Previous work indicates that participants' belief in the genuineness of a suggested experience may be independent of the completeness or vividness of their individual experience (Bryant & McConkey, 1989b; McConkey, Glisky, & Kihlstrom, 1989). In addition, the preparedness of hypnotic participants to resolve conflict in a way that promotes successful responding points to the importance of investigating the cognitive effort participants devote to managing conflict, and the voluntary nature of participants' responses. Accordingly, the current program of research investigated the relevance of participants' reports of belief, vividness, effort, and involuntariness to the management of hypnotic conflict.

In summary, this chapter has highlighted the core theoretical issues that a model of hypnotic conflict should address. The program of research conducted for this thesis addressed these issues within the methodological framework set out in this chapter. The research examined these issues in eight experiments that systematically investigated the core parameters that may mediate the management of conflict in hypnosis.

CHAPTER 2

EXPERIMENTS 1 AND 2: ISSUES IN HYPNOTIC CONFLICT

General Introduction

The aim of Experiment 1 was to conduct an exploratory investigation of conflict management during a hypnotic negative visual hallucination. As described in Chapter 1, McConkey (1983a) proposed that hypnotic participants actively work to resolve conflict in ways that facilitate the suggested experience, and that participants' strategic approach to conflict resolution is influenced by the nature of the suggestion and the available response alternatives. Accordingly, Experiment 1 investigated the strategic responses of high and low hypnotisable participants to varying degrees of conflict between reality information and a suggested negative visual hallucination.

As discussed in Chapter 1, previous investigations of hypnotic conflict often have altered the nature of the suggestion to bring about heightened conflict. In contrast, Experiment 1 investigated participants' management of conflict when the suggested experience was challenged by an instruction that did not directly address the hypnotic suggestion. Specifically, participants were administered the negative visual hallucination item from the Stanford Hypnotic Susceptibility Scale: Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962), which suggests that participants will not see one of three boxes presented in front of them. During the suggested hallucination, the experimenter instructed participants to touch the area where the "unseen" box was located. That is, the experiment was designed to expose participants to tactile information that contradicted the suggested negative visual hallucination. This approach was employed because Experiment 1 intended to provide information concerning the processes involved in response to marked hypnotic conflict. Experiment 1 investigated both participants' behavioural responding during the suggested hallucination and their postexperimental comments of cognitive and behavioural strategies to maintain the suggested experience. Experiment 1 sought to

index the strategies that participants employed to manage the hypnotic conflict.
Moreover, it indexed the role of hypnotisability in mediating conflict resolution. It
was expected that more high than low hypnotisable participants would experience the
suggested negative visual hallucination. It was predicted, however, that these high
hypnotisable participants would be unable to maintain their belief in the suggested
blindness after touching the box because the tactile information would cause
excessive conflict.

EXPERIMENT 1

Introduction

Experiment 1 involved administering an hypnotic suggestion for a negative
visual hallucination, and challenging participants' hallucinatory responses by
increasing the salience of conflict between reality and the suggestion. Participants
received a suggestion that two boxes were presented in front of them when three
actually were. The experiment investigated the response of participants who
responded to the suggested hallucination when confronted with information that
contradicted the suggested experience. Participants who reported seeing only two
boxes were given instructions that would result in them touching the third, "unseen"
box. Participants gave ratings of their confidence in the hallucination before and after
the tactile conflict was introduced. In addition, participants discussed their awareness
and management of conflict during the suggestion in a postexperimental inquiry.

Method

Participants

Twenty-seven (21 female and 6 male) high hypnotisable individuals of mean
age 20.14 years ($SD = 5.66$) and 25 (13 female and 12 male) low hypnotisable
individuals of mean age 19.36 years ($SD = 2.86$), who were undergraduate

psychology students at the University of New South Wales, participated in return for research credit. Participants were selected based on their extreme scores on a 10-item tailored version of the group-administered Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS:A; Shor & Orne, 1962) and a 10-item tailored version of the Stanford Hypnotic Susceptibility Scale: Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962), which was administered during the hypnosis session for this experiment. High hypnotisable participants scored in the range 8-10 ($\underline{M}$ = 8.43, $\underline{SD}$ = 0.59) on the HGSHS:A and in the range 8-10 ($\underline{M}$ = 8.63, $\underline{SD}$ = 0.74) on the SHSS:C. Low hypnotisable participants scored in the range 0-2 ($\underline{M}$ = 0.76, $\underline{SD}$ = 0.72) on the HGSHS:A and in the range 0-3 ($\underline{M}$ = 1.84, $\underline{SD}$ = 1.18) on the SHSS:C.

Apparatus

The stimulus for the negative visual hallucination suggestion was three boxes of identical dimensions, one green, one blue, and one yellow. The boxes were placed on a small table that could be moved close to participants for the stimulus presentation. During the remainder of the hypnosis session, the table and boxes were placed out of view.

Procedure

Negative visual hallucination suggestion. Following informed consent procedures, the experimenter administered the hypnotic induction described in the SHSS:C and tested participants on suggestions of hand lowering, moving hands apart, mosquito hallucination, taste hallucination, arm rigidity, dream, age regression, and arm immobilisation (Weitzenhoffer & Hilgard, 1962). The experimenter then placed the three coloured boxes in front of the participant and administered the negative visual hallucination suggestion. He told participants that after opening their eyes they would see two (and only two) boxes on the table in front of them. The experimenter

then asked participants to open their eyes and look at the two boxes. After confirming that participants could see the two boxes, the experimenter then asked whether they could see anything else on the table. For participants who reported being able to see three boxes, the experimenter cancelled the suggestion and instructed participants to close their eyes. The verbatim instructions for negative visual hallucination were as follows:

> "In a little while I am going to ask you to open your eyes and look at the table in front of you, remaining as hypnotised as you are now. I have placed two boxes on the table. In fact, that is all there is on the table: just two boxes. That's right, when I ask you to open your eyes you will see two boxes on the table. You will not see anything on the table except the two boxes. When you look at the table, all you will see is two boxes. Nothing else will matter. Two small boxes and nothing else ... Alright, remaining comfortably relaxed and deeply hypnotised, just open your eyes slowly and look at the two boxes. Do you see them? ... Do you see anything else on the table?"

Participants who reported seeing two boxes were asked to rate their confidence that only two boxes were present. The experimenter then asked these participants to describe the boxes. The verbatim instructions for these questions were as follows:

> "How confident are you that there are just two boxes on the table, from 1 to 10, where 1 means 'not at all confident' and 10 means 'extremely confident'? Now I want you to tell me what these boxes look like. Are they large? ... Are they alike? ... What colours are they?"

Tactile conflict instructions. The experimenter then instructed participants who passed the suggestion to place their hand on the table where the box they did not

report seeing was positioned, and asked them to provide a second confidence rating. The verbatim instructions given to participants were as follows:

"Now I want you to place your hand on the table between the two boxes [or to the left/right of the blue box]. Tell me, how confident are you at the moment that there are just two boxes on the table?"

The experimenter then instructed participants to return their hand to its resting position, cancelled the hypnotic suggestion, and asked participants to close their eyes. He then administered the suggestion for posthypnotic amnesia from the SHSS:C, a deinduction procedure and gave a recall test to measure their response to the posthypnotic amnesia suggestion. The experimenter then administered the reversibility cue for posthypnotic amnesia and gave another recall test.

Postexperimental inquiry. For participants who passed the negative visual hallucination item, the experimenter then conducted a postexperimental inquiry that examined their experiential response to the suggestion. The experimenter asked participants to describe their experience when they first opened their eyes to look at the boxes, and then asked participants to describe their thoughts when they placed their hand on the table. The verbatim instructions for these questions were as follows:

"Now I want to ask you a few questions about the three boxes that I put in front of you and asked you to look at. When I gave you the suggestion that you would only see two boxes, what happened? ... What were you thinking about at the time? ... Now I want you to think about what happened when I asked you to put your hand on the table. What was happening at that time? ... What were you thinking about at the time?"

Finally, the experimenter debriefed participants, thanked them for their participation, and ended the session.

Results

The criterion for successful negative visual hallucination was reporting only two boxes (Weitzenhoffer & Hilgard, 1962). Nine (33%) high hypnotisable and no low hypnotisable participants passed the initial suggestion. Excluding the negative visual hallucination item, high hypnotisable participants who passed ($\underline{M}$ = 8.33, $\underline{SD}$ = .71) and failed ($\underline{M}$ = 8.33, $\underline{SD}$ = .49) the negative visual hallucination did not differ in SHSS:C scores, $\underline{t}$(25) = .00, $\underline{ns}$. The following analyses focus on those participants who passed the negative visual hallucination item.

Confidence Ratings

Comparison of confidence ratings prior to and following the tactile information indicated that participants' confidence in the negative visual hallucination was significantly lower when they were exposed to tactile information ($\underline{M}$ = 3.22, $\underline{SD}$ = 2.95) than when conflict was confined to the visual modality ($\underline{M}$ = 7.78, $\underline{SD}$ = 2.22), $\underline{t}$(8) = 3.86, $\underline{p}$ < .01.

Participants were categorised as maintaining or not maintaining the suggested experience following exposure to the tactile conflict. Participants whose confidence ratings did not decline by more than 2 points were considered to have maintained the negative visual hallucination. Six (67%) participants reduced their confidence rating by 4 points or more when asked to touch the "unseen" box; the remaining three (33%) participants provided confidence ratings when exposed to tactile conflict that differed from their initial ratings by two points or less. Interestingly, two of the participants who maintained their belief in the suggestion touched a part of the table away from the "unseen" box. That is, these participants produced a behavioural response that minimised the conflict resulting from tactile contact with the "unseen" box.

<u>Postexperimental Inquiry</u>

Although the small proportion of participants who maintained the negative visual hallucination precludes statistical analysis of the postexperimental data, maintenance of the hallucination was apparently associated with distinctive strategic responses. Those who did not maintain their belief reported they had initially attained the suggested hallucination by employing strategies that allowed them to ignore visual information about one of the boxes. Representing this strategy, one participant reported, "I knew there was something on the periphery but I didn't allow myself to focus on it. But when I touched the box I had to be aware of what was there." It appears that participants who employed attentional strategies to disregard visual information were unable to resolve the additional conflict produced by tactile evidence of the third box; accordingly, the tactile conflict brought about compelling changes in their subjective experience. For instance, one participant reported, "When I put my hand down I knew there was something else there. It just didn't occur to me before, and I felt a bit stupid."

In contrast, each of the three participants who maintained their belief actively employed strategies that minimised the impact of conflicting information on their awareness of the third box. For instance, one participant who avoided the tactile conflict said the following: "I felt that if I put my hand there it would show there was a box there, and so something just led me to put my hand somewhere else ... but it was not intentional. When you told me to look hard and I saw three boxes, I realised I had missed it altogether without being aware of it." Similarly, the participant who touched the "unseen" box but maintained her belief said the following: "I felt something there but still somewhere inside of me insisted that there were only two boxes, and so I believed that there were only two boxes." These comments suggest that participants

who successfully managed the tactile conflict worked to actively evaluate the hypnotist's instructions and the available response alternatives so as to maintain their belief in the suggested experience.

Discussion

The aim of Experiment 1 was to explore selected issues arising from theory and research about hypnotic conflict management. As expected, some high hypnotisable participants successfully resolved the initial conflict between visual stimuli and the hypnotic suggestion, but low hypnotisable participants did not. For most participants who initially passed the suggestion, the introduction of additional conflict between reality information and the suggested experience minimised their belief in the suggested experience. The postexperimental reports of the few participants who successfully managed the conflict pointed to the importance of strategic responses that allow participants to reduce their awareness of the conflict. However, the findings of Experiment 1 raise whether hypnotic participants who successfully experience negative visual hallucinations necessarily direct their attention away from the target stimulus. Consequently, Experiment 2 investigated the capacity for participants to process conflicting information during a negative visual hallucination.

EXPERIMENT 2

Introduction

The aim of Experiment 2 was to index the extent to which hypnotic participants can focus on the targeted stimuli during an hypnotically suggested negative visual hallucination. Experiment 2 was based on the premise that focus on the negatively hallucinated stimuli would influence hypnotic participants' behaviour despite their reported inability to see the material. Previous work has indicated that

hypnotically blind participants perform as if they are processing visual information despite their reported experience of blindness (e.g., Bryant & McConkey, 1989, 1990a, 1990b). Accordingly, Experiment 2 indexed the influence of conflicting information during a suggested negative visual hallucination by employing an indirect measure of perception. One form of suggestion that is amenable to investigating the perception during hypnotically suggested visual impairment is colour blindness. A number of studies have distinguished between phenomenal experience of colour blindness and behavioural performance on indirect measures of colour perception (e.g., Cunningham & Blum, 1982; Harvey & Sipprelle, 1978; Miller, Lundy, & Galbraith, 1970). Therefore, Experiment 2 investigated the processing of colour information that conflicted with hypnotically suggested colour blindness. Specifically, Experiment 2 indexed participants' focus on the targeted stimulus using a modified form of the Stroop Colour Interference Test (Stroop, 1935).

The Stroop Test was developed as a measure of cognitive interference. Whereas it requires participants to name the colour in which a word is printed, a proportion of the words are the names of colours that are printed in colours that are incongruent with the colour name (e.g., the word "blue" may be printed in red). Many studies have reported an interference effect in which colour-incongruent words are named much slower than colour-congruent words (see MacLeod, 1991). This form of the Stroop Test is inappropriate for the study of hypnotic colour blindness, however, because of the salient demands of asking "colour blind" hypnotic participants to name colours. An alternate form of the Stroop Test has adopted a procedure in which participants learn to associate a colour with a word or picture, and then name the word or picture when they are presented in colours that are either congruent or incongruent with the learned association. This paradigm has resulted in a robust Stroop

interference effect (Dunbar & MacLeod, 1984; Dyer & Severance, 1972; Gumenik & Glass, 1970; MacLeod & Dunbar, 1988). This "reverse Stroop" paradigm is suited to testing information processing in hypnotic colour blindness because it requires participants to directly respond to the "names" of objects as an index of interference caused by the colour of the object. Experiment 2 required participants to learn an association between colour names and specific shapes, and then asked them to name these shapes when they appeared in colours that were either congruent or incongruent with the initial associations. Thus, the shape-naming task required participants to focus on the stimulus, and performance on the task indexed the extent to which colour information influenced participants' responses. It was expected that participants who reported colour blindness would respond more slowly to colour-incongruent stimuli than to colour-congruent stimuli.

<div align="center">Method</div>

<u>Participants</u>

Thirty-two (25 female and 7 male) high hypnotisable participants of mean age 19.24 years ($\underline{SD} = 5.37$), 23 (13 female and 10 male) medium hypnotisable participants of mean age 19.91 years ($\underline{SD} = 4.58$), and 30 (22 female and 8 male) low hypnotisable participants of mean age 20.67 years ($\underline{SD} = 5.98$) who were undergraduate psychology students at the University of New South Wales participated in return for research credit. Participants were selected based on their scores on 10-item tailored versions of the group-administered HGSHS:A (Shor & Orne, 1962) and the SHSS:C (Weitzenhoffer & Hilgard, 1962), which was administered during the hypnosis session for this experiment. On the HGSHS:A, highs scored in the range 7-10 ($\underline{M} = 7.88$, $\underline{SD} = 0.78$), mediums scored in the range 4-6 ($\underline{M} = 5.26$, $\underline{SD} = 0.96$), and lows scored in the range 0-3 ($\underline{M} = 2.10$, $\underline{SD} = 0.99$). On the SHSS:C, highs scored

in the range 8-10 ($\underline{M}$ = 8.91, $\underline{SD}$ = 0.80), mediums scored in the range 4-7 ($\underline{M}$ = 5.91, $\underline{SD}$ = 1.00), and lows scored in the range 0-3 ($\underline{M}$ = 1.90, $\underline{SD}$ = 1.03).

<u>Apparatus</u>

Stimuli were presented on a Toshiba Pentium-based laptop computer running the Inquisit experiment presentation software. The software included speech recognition features which recorded response latencies for each trial. A clip-on microphone was connected to the laptop's microphone port for response recognition. The stimuli were image files (in Windows bitmap format) representing geometric shapes (a circle and a triangle) in white or in colour (red and blue). All stimuli were presented on a black background, and the stimulus order was randomised for each series of trials.

<u>Procedure</u>

<u>Shape-name learning.</u> Following informed consent procedures, the experimenter positioned the laptop computer in front of participants, gave instructions for the shape-name learning task, and positioned the microphone to detect participants' responses. The experimenter then presented the shape-name learning trials. The task required participants to learn the words associated with two shapes (circle -"red" and triangle -"blue"). Each shape was presented twice in white and the associated word was superimposed across the shape in black. Participants controlled the duration of presentation for each stimulus. Following the study trials, each shape was presented four times in white and participants were required to name the associated word. On these trials, the correct word was presented for 500 ms after participants responded and there was a 2 s interval between trials. The verbatim instructions were as follows:

"Okay, now I want you to look at the computer screen in front of you. I am going to show you two different shapes, and each one has a word associated with it. All you have to do is learn which word is associated with each shape. The computer will respond when you say your answers, so I need you to wear this microphone. The computer will respond to any noise you make, so please be careful to not say anything other than your answer. Now, when the shapes appear on the screen, study each one for a while and note the word that is associated with it. When you are ready, say that word and the computer will move on to the next one. After you have been through the shapes twice, the computer will start testing you by showing just the shape on the screen. When each shape appears, the computer will wait for you to say the word that is associated with it. After you give an answer, it will show the correct word on the screen for a short while. Now, are you ready for me to show the first shape? Okay, let's begin."

Shape-name practise. The experimenter then administered a standard hypnotic induction and administered suggestions for hand lowering, moving hands apart, mosquito hallucination, taste hallucination, arm rigidity, dream, age regression, and arm immobilisation (Weitzenhoffer & Hilgard, 1962). Following this, the experimenter administered the shape-name practise task. In summary, the experimenter directed participants to open their eyes and presented a series of shape-naming trials. Each shape was presented six times in white and participants were required to name the associated word. On these trials, the correct word was presented for 500 ms after participants responded and there was a 2 s interval between trials. This task was performed to ensure a strong association between the shape and the associated word. The verbatim instructions were as follows:

"In a moment I am going to ask you to open your eyes, remaining just as hypnotised as you are now. I am placing the computer screen in front of you. Now, just open your eyes and look at the screen. Okay, now I am going to show you the shapes that you saw before the hypnosis session began. When each shape appears on the screen, I want you to say the word associated with that shape as quickly as possible without making any mistakes. After you say each word, the screen will display the correct response before it moves on to the next shape. Are you ready? Okay, let's begin."

Hypnotic colour blindness suggestion. Following the shape-name practise trials, the experimenter instructed participants to close their eyes and administered the suggestion for hypnotic colour blindness. She told participants that they would not be able to see a target colour; half of the participants received a suggestion to not see the colour red and half received a suggestion to not see the colour blue. The experimenter then asked participants to open their eyes and describe what they saw when a square shape in the target colour was presented on the computer screen. Participants who reported being able to see the target colour were administered an additional suggestion, and then were asked to describe what they saw. The experimenter then presented a square of a different colour and asked participants to describe what they saw. The verbatim instructions for hypnotic colour blindness were as follows:

"Okay, now I want you to listen very carefully, because something very interesting is about to happen. In a moment, I am going to ask you to open your eyes, and when you open them you will find that you cannot see the colour blue/red. That's right, you will be colour blind for anything that is blue/red. Everything else will appear as normal. You will see the room around you, and all of the other colours, but you will not be able to see the colour

blue/red. The things that would normally appear as blue/red will be colourless,

completely without colour, but only those things that are blue/red. When you

open your eyes in a moment, remaining comfortably relaxed and deeply

hypnotised, anything that would normally appear blue/red will have lost its

colour. You will be colour blind, unable to see the colour blue/red at all. Now,

open your eyes slowly. Can you see the computer screen in front of you? ...

Good, now I want you to tell me what colour you see on the screen at the

moment.”

The additional suggestion administered to participants who did not initially report

colour blindness was as follows:

“Now as you look at that blue/red screen, you will notice something

interesting. As you look at the screen, the blue/red will fade away to nothing.

That's right, the colour blue/red will gradually disappear, until you will no

longer be able to see the colour of the screen at all. The other colours you can

see around you will remain unchanged, but you will become blind to the

colour blue/red. No longer able to see blue/red at all. The blue/red is fading

from the screen, fading from your vision, so that you will not be able to see

any blue/red at all. The screen is becoming colourless, fading away, losing all

of its colour. As you continue to look at the screen, the blue/red has

disappeared from your vision and you can no longer see it at all. What colour

can you see on the screen now?”

Shape-naming (Reverse Stroop) test. The experimenter then administered the

colour interference test. The shapes were presented in colour, and participants were

required to name the word associated with each shape (as they had previously). Each

shape was presented 20 times (i.e., 40 trials); for half the trials the shape was red and

for half the shape was blue. In other words, there were four conditions with ten trials in each condition: "unseen"-congruent, "unseen"-incongruent, "seen"-congruent, and "seen"-incongruent. There was a 1 s interval between trials, and participants did not receive feedback on their performance. The verbatim instructions for this task were as follows:

"Now I am going to show you the shapes again that you saw earlier. When each shape appears on the screen, I want you to tell me the word associated with that shape. Make sure you say the word as quickly as possible when the shape is displayed but without making any errors. Remember, I want you to tell me the word that you learned earlier was associated with the shape. Do you understand? Okay, let's begin."

Following the shape-naming test, the experimenter cancelled the suggestion, asked participants to describe a square of the target colour, and directed participants to close their eyes. The experimenter then administered the suggestion for posthypnotic amnesia from the SHSS:C and administered a deinduction procedure and recall tests for posthypnotic amnesia. The experimenter then debriefed participants, thanked them for their participation, and ended the session.

<div align="center">Results</div>

All statistical tests used an alpha level of .05. Appendix 1 presents summaries of statistical analyses.

<u>Reported Colour Blindness</u>

In response to the colour blindness suggestion, 18 (56%) high hypnotisable participants and no medium or low hypnotisable participants described seeing the target colour square as grey, black, or colourless.   Chi-square analysis of responses by high, medium, and low hypnotisables yielded a significant effect, $\chi^2(2, N = 85) = $

27.49, $\underline{p} < .001$. Comparison of hypnotisability scores yielded no significant

differences between highs who passed (HGSHS:A : $\underline{M}$ = 8.11, $\underline{SD}$ = 0.83; SHSS:C :

$\underline{M}$ = 9.11, $\underline{SD}$ = 0.83) and failed (HGSHS:A : $\underline{M}$ = 7.64, $\underline{SD}$ = 0.83; SHSS:C : $\underline{M}$ =

8.64, $\underline{SD}$ = 0.63) the suggestion (HGSHS:A : $\underline{t}$(30) = 1.75, $\underline{ns}$; SHSS:C : $\underline{t}$(30) = 1.65,

$\underline{ns}$). Subsequent analyses focused on high hypnotisable participants who passed the

suggestion for colour blindness.

Reverse Stroop Test

The primary data of interest were these participants' reaction times in naming

the word associated with the coloured stimuli. Because incorrect responses reflect

failure to accurately perform the shape-naming task, only trials based on correct

responses were included in the analysis of response latencies. To eliminate outliers,

response latencies include only responses that occurred within 2 s of the stimulus

onset. There were 54 responses (8%) excluded from analyses.

Table 2.1

Experiment 2: Mean Response Latencies during Reverse Stroop Test

	Colour Congruent	Colour Incongruent
"Seen"	1400.87 (317.54)	1502.08 (348.97)
"Unseen"	1494.61 (388.68)	1547.51 (379.58)

Note. Response latencies measured in milliseconds. Standard deviations appear in

parentheses.

Table 2.1 presents the mean response latencies during the Reverse Stroop Test. Participants who received the suggestion to not see the colour blue and those instructed to not see the colour red did not differ on any dependent variables, and accordingly were treated as one group. A 2 (colour congruence) x 2 (colour blindness) repeated measures analysis of variance (ANOVA) of responses latencies indicated significant main effects for colour congruence, $\underline{F}(1, 17) = 52.18$, $\underline{p} < .001$, and colour blindness, $\underline{F}(1, 17) = 5.01$, $\underline{p} < .05$. Importantly, the interaction effect was not significant, $\underline{F}(1, 17) = 1.46$, $\underline{ns}$. That is, hypnotically colour blind participants displayed slower responses for colour-incongruent shapes than colour-congruent shapes for those shapes irrespective of whether they were "blind" or not "blind" to them. Furthermore, colour blind participants named shapes to which they were "colour blind" slower than those to which they were not "colour blind".

Discussion

Participants who reported experiencing the suggestion demonstrated a robust interference effect for shapes to which they were reportedly colour blind. This finding is consistent with previous reports that hypnotic colour blindness does not affect performance on indirect measures of visual performance (Cunningham & Blum, 1982; Harvey & Sipprelle, 1978; Miller et al., 1970), and with evidence that hypnotically blind participants continue to process visual information (Bryant & McConkey, 1989, 1990a, 1990b). Although participants reported successfully experiencing the suggestion, their performance on the Reverse Stroop Test indicated they continued to focus on the stimulus and processed perceptual characteristics that conflicted with the suggestion.

These findings may be interpreted in terms of a dissociation between implicit and explicit expressions of visual perception (Kihlstrom et al., 1992). Alternately,

social psychological theories argue that hypnotic participants attempt to enact responses that accord with the perceived experimental demands (Spanos, 1986). According to this view, the disparity between explicit reports and indirect responses in the findings result from the difficulty involved with overcoming automatic interference effects, such as those produced by the Reverse Stroop Test. Thus, these findings cannot delineate social and cognitive influences on the management of conflicting information.

<div align="center">General Discussion</div>

Experiments 1 and 2 investigated hypnotic participants' capacity to minimise their awareness of the conflict between reality and suggestion under different conditions. Experiment 1 indicated that some participants employed behavioural strategies to manage conflicting reality information. These participants' responses underscore Kihlstrom and Hoyt's (1988) proposal that hypnotic negative hallucinations are inherently paradoxical: to adopt strategies that avoid objective reality information, participants must already have processed such information. The findings of Experiment 2 provided further evidence of the disparity between participants' processing of reality information and their experiential reports. These findings highlight hypnotic participants' involvement in a problem-solving process that aims to minimise the impact of conflict on their response to the suggestion (McConkey, 1983a).

The findings of Experiment 2 indicated that participants can experience suggested negative visual effects without avoiding the stimulus that is the focus of the hypnotic suggestion. The interference of colour-incongruent stimuli on participants' reaction times highlights that participants who reported phenomenal colour blindness nonetheless processed contradictory perceptual information. These findings argue

against the social psychological view that participants achieve hypnotic blindness simply by not looking at the focus of the suggestion (Barber et al., 1974; Spanos, Flynn, & Gabora, 1989). Although Experiment 1 indicated that some participants use avoidant strategies when they are considered an appropriate way to maintain the desired response, the findings of Experiment 2 suggest that participants may use other strategies to achieve the suggested visual effects. However, the absence of a procedure to index cognitive and experiential dimensions of responding prevents comment on the strategies that participants used to produce and maintain colour blindness.

For Experiment 2, the difference in response latencies for stimuli presented in the "seen" and "unseen" colour is consistent with the notion that hypnotic participants process conflicting information in a cognitively active way that reflects their preparedness to produce appropriate responses. Dual task paradigms have indicated that maintaining a suggestion for hypnotic blindness is very demanding on attentional resources (Bryant & McConkey, 1990a). The finding that participants named shapes of the colour they were "blind" to slower than those they were not "blind" to may be attributed to the additional cognitive load that presentation of the critical colour produced. That is, participants may have had fewer cognitive resources available to name "blind" stimuli than "seen" stimuli because they were employing cognitive strategies to maintain their experience of colour blindness. Also, participants may have been confused about the appropriate response when they were presented with shapes they were instructed to not see. Accordingly, participants' responses may have been delayed as they deliberated about the appropriate response to the ambiguity caused by "unseen" stimuli. These findings point to the complex interrelationship between participants' attempts to find meaning in the social context of the hypnosis

experiment and the cognitive processes underlying their specific responses to the immediate task.

<u>Implications for the Program of Research</u>

In summary, Experiments 1 and 2 highlighted aspects of response to hypnotic conflict that need to be investigated in this research program. Participants' employment of cognitive and behavioural strategies to manage conflict highlighted the active, problem-solving role participants adopt to meet the requirements of the hypnotist's communication. Experiment 1 indicated that some participants sought to direct their attention away from information that contradicted the hypnotic suggestion. However, the findings of Experiment 2 indicated that hypnotic participants can process conflicting aspects of reality and suggestion while maintaining their response to the suggestion. The paradigms employed in Experiments 1 and 2 involved salient changes in demand characteristics because of the overt nature of the changes in conflict. Experiment 3 aimed to develop a methodology that allowed the influence of the conflict manipulation to be introduced in a less overt manner.

CHAPTER 3

EXPERIMENT 3: THE DEVELOPMENT OF A NEW PARADIGM

Introduction

The aim of Experiment 3 was to develop a framework for hypnotic conflict research that allowed the salience of conflict to be manipulated with minimal overt demand characteristics. The findings from Experiments 1 and 2 in the research program pointed to the complexity of participants' management of reality information. Those experiments, however, could not delineate the social and cognitive factors that mediate participants' response to conflict. Accordingly, this experiment sought to develop an alternative paradigm for investigating conflict management during hypnosis.

A central theme of this thesis is that hypnotic responding is notable because of the strong subjective conviction participants display in suggestions that conflict with reality (Sutcliffe, 1960, 1961). To investigate this core feature of hypnosis, researchers often must rely on verbal reports and overt behavioural responses to index subjective effects. An important issue for hypnosis research, therefore, is the extent to which participants' responses accurately reflect their subjective experience of the suggestion. In particular, investigations of hypnotic conflict need to address the possibility that overt manipulations of conflict may bias experimental results. McConkey's (1983b) finding that participants who were provided with suggestion-incongruent information either before or after the hypnotic suggestion responded to the most recent communication of the hypnotist highlights the relevance of demand characteristics to the investigation of hypnotic conflict. Other studies of hypnotic conflict reviewed in Chapter 1 (e.g., Kihlstrom et al., 1980; Zamansky, 1977) employed paradigms that may have directly communicated distinct demand cues in their attempt to modify conflict during hypnosis.

This research program adopted a novel paradigm to index response to hypnotic conflict. An alternative method of investigating hypnotic conflict involves unobtrusively modifying the salience of a stimulus that contradicts the suggested experience. Orne and McConkey (1981) suggested that altering environmental stimuli in a way that was subtle enough to occur without participants' knowledge would index the impact of external influences without response biases. For instance, modifying the salience of a visual stimulus targeted by a suggestion for negative visual hallucination would alter the degree of conflict between reality and suggestion. Accordingly, this program adopted a paradigm that subtly modified visual stimuli so as to manipulate the incongruity between reality and suggestion.

Experiment 3 investigated the effect of stimulus salience on participants' response to a suggestion for negative visual hallucination of the stimulus. This experiment investigated the influence of the conflict manipulation by comparing a group of participants for whom stimulus salience increased during the suggestion with a group for whom stimulus salience remained stable throughout the suggestion. Orne (1967) proposed that hypnosis research paradigms should focus initially on investigating the behaviour of high hypnotisable participants because their responses will highlight the important elements of the hypnotic experience. Accordingly, this experiment focused on high hypnotisable participants' responses to a subtle change in conflict during hypnosis.

Experiment 3 presented participants with computer-generated stimuli that conflicted with the hypnotically suggested hallucination. Participants were administered a suggestion for the disappearance of a light that was projected on the wall. After an initial test phase, the light either became more intense (high conflict) or remained unchanged (low conflict). Participants reported on their negative visual

hallucination by providing verbal ratings during the initial test phase and a second test phase after the stimulus manipulation. In addition, participants gave ratings of their experience during the suggestion using an analogue dial that provides a continuous index of subjective experience (see McConkey et al., 1999). Whereas verbal response measures elicit data about participants' experience at a particular point in time, the analogue dial provides a continuous, real-time method to index experiential changes during an hypnotic suggestion. Therefore, the analogue dial was used to collect data about variations in participants' experience over time.

<div align="center">Method</div>

<u>Participants</u>

Twenty-three (18 female and 5 male) high hypnotisable participants of mean age 19.39 years ($\underline{SD}$ = 2.59), who were first-year psychology students at the University of New South Wales, participated in return for research credit. Participants were selected based on their extreme scores on 10-item tailored versions of the group-administered HGSHS:A (Shor & Orne, 1962) and the SHSS:C (Weitzenhoffer & Hilgard, 1962). Participants scored in the range 7-10 on the HGSHS:A ($\underline{M}$ = 8.13, $\underline{SD}$ = 0.76) and in the range 8-10 on the SHSS:C ($\underline{M}$ = 8.43, $\underline{SD}$ = 0.66).

<u>Apparatus</u>

A laptop computer running Microsoft PowerPoint was used to produce the visual stimuli. The percept consisted of a yellow circle that was projected on a wall in front of participants (hue: 42; saturation: 255; initial luminance: 80). To simulate the appearance of a flashlight, a gradient fill effect was used to make the outer edge of the circle darker than its centre. The experimenter controlled the stimulus presentation using the laptop mouse button. The transition from low to high intensity was produced by presenting 40 slides at 1 s intervals, with each slide incrementally increasing the

luminance of the circle at a linear rate (final luminance: 100). The laptop computer's external display cable was connected to an NEC MultiSync MT820G LCD projector via its input port. The projector's lens and the participant's chair were both aligned to face the centre of the same wall, with the projector positioned behind and above the participant. The projector was concealed fully from participants' view. The hypnotist positioned a flashlight (that emitted no light) during the suggestion and pressed its power button and the laptop controls simultaneously to convey to participants that the stimulus was actually a flashlight that generated a constant light.

An analogue dial that comprised a disc of 70 mm diameter attached to a fixed base was positioned on the right arm of the participant's chair. A pointer on the dial and a mark on the base at half way (50) allowed participants to feel how far they had turned the dial. The end positions of the dial's rotation indicated that the participant was not at all experiencing the suggestion (0) or that they were completely experiencing the suggestion (100). The dial was connected to a PC compatible computer via the joystick port. A DOS-based computer program controlled recording of the dial's position each second. The program recorded the dial's position with a resolution of +/- 0.5 degrees.

Procedure

Initial instructions. An experimenter welcomed participants and administered informed consent procedures. Following this, participants were taken to the hypnotist, who then instructed participants about the use of the analogue dial. The hypnotist told participants they should turn the dial to indicate changes in their experience (0 = "not at all experiencing the suggestion", 100 = "completely experiencing the suggestion"), and gave participants an opportunity to practice turning the dial through its full range of motion. The verbatim instructions were as follows:

"During some suggestions I will ask you to use the dial on the right arm of the chair to indicate how much you are experiencing things that I am asking you to experience. Just place your hand on the dial to see how it feels. When I ask you to begin to use the dial, you can turn it to indicate how much you are experiencing the things I am asking you to experience. You can use the dial to indicate changes in your experience of each suggestion. The dial begins all the way to the left, which means you are not at all experiencing what I am asking you to experience. The dial goes all the way to the right, which means that you are completely experiencing what I am asking you to experience. You will be able to show how much you are experiencing by moving the dial from left to right or anywhere in between. When I ask you to start using the dial, I would like you to begin to indicate how much you are experiencing what I am asking you to experience. I want you to continue until I tell you to stop. You will notice a pointer on the top of the dial and a marker at halfway to help you. Sometimes you will be asked to use the dial with your eyes closed. Just close your eyes now and practice using the dial to get a sense of how far it goes. Now just bring the dial back to its original position all the way to the left. Okay, you can open your eyes again. There will be no need to think too much about the dial. Your hand will know what to do and you will find the task easy. Do you understand? For now you can just let your hand rest comfortably on the arm of the chair."

Negative visual hallucination suggestion. The hypnotist then administered an hypnotic induction procedure based on the SHSS:C and tested participants on suggestions for vertical hand separation, verbal inhibition, arm levitation, age regression, and positive visual hallucination. The arm levitation, age regression, and

positive visual hallucination suggestions each included instructions to use the analogue dial. The hypnotist then instructed participants to use the dial during the negative visual hallucination. The hypnotist told participants they should turn the dial left or right to indicate their experience of the suggested hallucination. The verbatim instructions were as follows:

> "Now in a moment you are going to notice something interesting. In a moment, the light will begin to fade. Soon I am going to ask you to use the dial again. Place your right hand back on the dial. Now just listen. You will be able to use the dial to indicate changes in how well you see the light on the wall. When the dial is turned all the way to the left, it will mean you can see the light clearly. Turning the dial to the right will mean the light is fading, is disappearing. When I tell you that you can begin to use the dial, you can use it to express changes in what you see. Just remember about using the dial throughout everything that I say until I say 'you can stop using the dial now'. All right, you can begin to use the dial now."

The hypnotist then administered the suggestion for the negative visual hallucination. The negative visual hallucination item was composed of an 80 s suggestion phase, two 40 s test phases separated by a 40 s transition phase, and an 80 s cancellation phase. The suggestion for the negative visual hallucination instructed participants that the light from the flashlight would become weaker and weaker until it totally faded. Following this, the hypnotist asked participants to describe what they saw on the wall. Participants who reported being able to see the light were administered an additional suggestion and then were asked to describe what they saw on the wall. When participants reported not being able to see the light, the hypnotist

instructed them to continue looking at the blank wall. The verbatim instructions for

the negative visual hallucination suggestion were as follows:

> "The light will begin to fade. That's right, the light will gradually become
>
> fainter and fainter until you will not be able to see it. The more you look at the
>
> light, the less you will be able to see it. Remain relaxed, and notice that the
>
> light becomes fainter and fainter, weaker and weaker. As you look at the wall,
>
> you will become aware that the light does not matter any more. You don't need
>
> to see it. As time goes by, the light is simply not there and you don't have to
>
> notice it. It is becoming more and more faint. It is going, going, gone. There.
>
> The wall is blank. Tell me, what do you see on the wall just now?"

The additional suggestion administered to participants who reported seeing the light

was as follows:

> "Okay, that's fine. It sometimes takes a little time for the light to fade. I want
>
> you to continue to feel relaxed, look at the wall, and be aware that the light
>
> does not matter any more. There is no need for you to notice it. Simply let the
>
> light fade ... fade ... fade. The more you relax, the more light becomes fainter
>
> and fainter. Weaker and weaker. It is going, going, gone. Totally gone. What
>
> do you see on the wall now?"

For Test Phase 1, the hypnotist asked participants to rate their confidence that

there was nothing on the wall (1 = "not at all sure", 10 = "extremely sure"). During

the transition phase, the hypnotist pressed the mouse button to advance the stimulus

presentation. For participants in the low conflict condition, the stimulus remained

unchanged. For participants in the high conflict condition, the stimulus gradually

increased in intensity until it reached its maximum luminance. During Test Phase 2,

the hypnotist asked participants to describe what they were seeing on the wall and to

rate their confidence that there was nothing on the wall. During the cancellation phase, the hypnotist cancelled the suggestion and terminated the stimulus presentation.

Postexperimental inquiry. The hypnotist then administered a deinduction procedure and escorted participants to the original experimenter. This experimenter conducted a postexperimental inquiry into participants' experiences during the suggestion. To distinguish between test phases, the experimenter asked participants about their experiences "just after the suggestion" and "just before you were asked to close your eyes". The experimenter also asked participants to rate changes in experience across the two test phases ("stronger", "same", "weaker"). To determine knowledge of the manipulation of the stimulus intensity, the experimenter also inquired about participants' attributions concerning changes in their experience of the light. Finally, the experimenter debriefed participants, thanked them for their participation, and ended the session.

<div align="center">Results</div>

All statistical tests used an alpha level of .05. Post hoc pairwise comparisons used the Bonferroni procedure to maintain a family-wise Type I error rate of .05. Appendix 2 presents summaries of statistical analyses.

Participant Characteristics

A planned comparison indicated that participants in the high conflict condition displayed marginally higher SHSS:C scores ($\underline{M} = 8.67$, $\underline{SD} = 0.78$) than participants in the low conflict condition ($\underline{M} = 8.18$, $\underline{SD} = 0.40$), $\underline{t}(21) = 1.85$, $\underline{p} < .10$.

Confidence Ratings

Table 3.1 presents the mean ratings of confidence in the suggested experience at Test Phase 1 and Test Phase 2. A 2 (condition) x 2 (test) mixed-model ANOVA

yielded a significant main effect for test, $\underline{F}(1, 21) = 17.86$, $\underline{p} < .001$, and a significant interaction effect, $\underline{F}(1, 21) = 8.34$, $\underline{p} < .01$. That is, confidence ratings for participants in the high conflict condition decreased from Test Phase 1 to Test Phase 2 ($\underline{p} < .001$) but did not change significantly for participants in the low conflict condition.

Table 3.1

Experiment 3: Mean Confidence Ratings during Test Phase 1 and Test Phase 2

Conflict Condition	Test Phase 1	Test Phase 2
Low ($\underline{n} = 11$)	5.73 (2.15)	5.27 (2.45)
High ($\underline{n} = 12$)	7.50 (2.28)	5.08 (3.45)

Note. For confidence ratings, 1 = "not at all sure", 10 = "extremely sure". Standard deviations appear in parentheses.

Analogue Dial Positions

Mean analogue dial positions were calculated for six 20 s intervals, such that Intervals 1 and 2 made up Test Phase 1, Intervals 3 and 4 made up the transition phase, and Intervals 5 and 6 made up Test Phase 2. Figure 3.1 presents the mean analogue dial position for each interval. A 2 (condition) x 6 (interval) mixed-model ANOVA yielded a significant main effect for interval, $\underline{F}(5, 105) = 7.06$, $\underline{p} < .001$, and a significant interaction effect, $\underline{F}(5, 105) = 4.13$, $\underline{p} < .01$. Further analysis of the interval main effect revealed a significant linear trend, $\underline{F}(1, 21) = 8.95$, $\underline{p} < .01$, and a significant cubic trend, $\underline{F}(1, 21) = 9.54$, $\underline{p} < .01$. Separate trend analyses for each

conflict condition indicated no significant trends for the low conflict condition, but a significant linear trend, $F(1, 11) = 8.80$, $p < .05$, and a significant cubic trend, $F(1, 11) = 8.74$, $p < .05$, for the high conflict condition. In other words, whereas the analogue dial position for participants in the low conflict condition tended to remain stable, the dial position for participants in the high conflict condition tended to be stable during the early intervals, then declined before becoming relatively stable again.
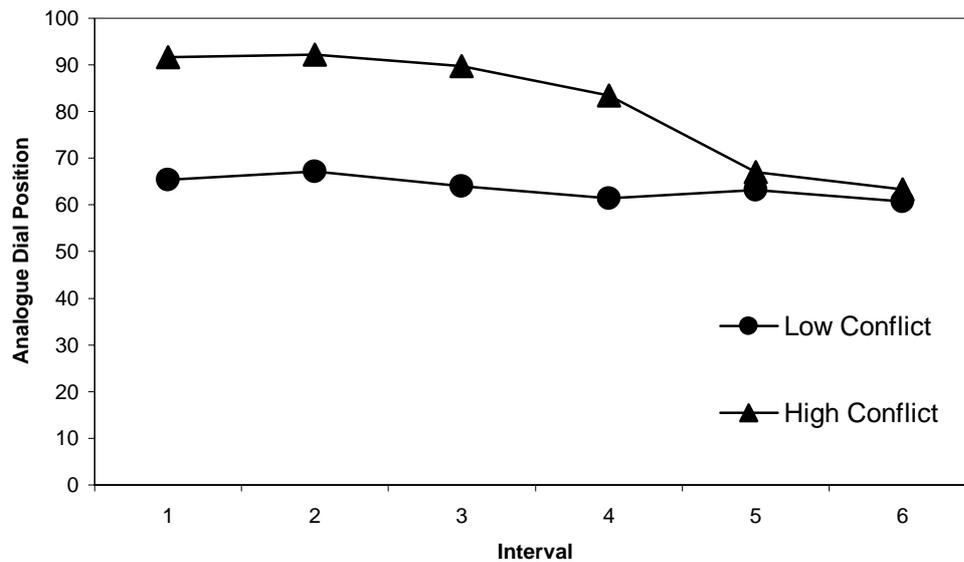
Figure 3.1. Experiment 3: Mean analogue dial positions for each 20 s interval. Test Phase 1 = Intervals 1-2; Transition phase = Intervals 3-4; Test Phase 2 = Intervals 5-6.

Postexperimental Inquiry

Postexperimentally, more participants in the high (42%) than low (0%) conflict condition reported a weaker experience of the suggestion in Test Phase 2 than Test Phase 1, χ^2 (N = 23) = 7.22, $p < .05$. Importantly, no participants reported awareness that the luminance of the stimulus was experimentally manipulated during the experiment. Participants typically reported that individual factors, such as loss of concentration and decreased hypnotic depth, might have contributed to the decline in their experience. For instance, one participant commented that: "I felt like my eyes

had been open for a long time and maybe I was more aware of my surroundings and less involved in the hypnosis. I think that is why the light started to come back." During the postexperimental inquiry, several participants also reported that using the analogue dial interfered with their involvement in the hypnotic suggestion. For instance, one participant said the following: "I found that occasionally I would have to think to turn the dial, and that seemed to take my thoughts away from what was happening on the wall."

<div align="center">Discussion</div>

Although the stimulus intensity was the same for both conditions during Test Phase 1, participants in the high conflict condition tended to report more confidence in the suggestion during the first test phase than low conflict participants did. Despite the impact of increased stimulus intensity on high conflict participants' responses, their verbal ratings and analogue dial data during the second test phase were comparable to low conflict participants. One possible explanation of this finding stems from the observation that the random allocation of participants resulted in the high conflict group being marginally more hypnotisable than the low conflict group. It is possible that the difference in hypnotisability between conditions produced differences in the initial level of hallucination. Alternatively, it is possible that the hypnotist's communication with participants differed subtly based upon their conflict condition allocation. This unexpected finding notwithstanding, analysis of the within-participant changes during the experiment points to the different pattern of responding when conflict was increased relative to its initial level.

Overall, participants' verbal ratings, analogue dial ratings, and postexperimental reports reflected a decline in the strength of the suggested experience when the salience of conflicting information increased. Conversely,

participants for whom the stimulus intensity held stable maintained the suggested hallucination. This finding suggests that the paradigm adopted in Experiment 3 altered the degree of conflict between suggestion and reality in a way that influenced participants' responses. Although no participants reported that the increased salience of the stimulus resulted from experimental manipulation, the relevance of demand characteristics to participants' response to conflict remains unclear. It is possible that participants detected the change in reality information but did not report their awareness of the manipulation during the postexperimental inquiry. Moreover, Experiment 3 focused on the response of high hypnotisable participants to a conflict manipulation during an hypnotically suggested hallucination. The management of conflict by high hypnotisable participants might differ from that of low hypnotisable participants, and the hypnotic instructions administered to participants might have influenced their response to the conflict manipulation. However, the findings of Experiment 3 indicated that the reality manipulation paradigm could be employed to investigate these issues.

The analogue dial data pointed to the role of the conflict manipulation in reducing high conflict participants' experience of the suggestion. Whereas the difference between verbal ratings during the two test phases might have resulted from a linear decline in responding throughout the suggestion, the significant cubic trend indicated that the decline occurred in response to the increase in stimulus intensity. High conflict participants' dial responses were stable during both test phases, but indicated a deterioration in their hallucination experience while the conflict between reality and suggestion was increasing. Thus, the analogue dial data extended the findings from verbal confidence ratings by providing a fine-grained representation of changes in participants' experience. However, participants' postexperimental reports

suggested that the cognitive demands of the analogue dial might have influenced their response to the suggestion. Therefore, subsequent experiments in the research program did not employ the analogue dial.

<u>Implications for the Program of Research</u>

The findings of Experiment 3 indicated that gradually modifying the salience of a stimulus which was the target of a suggestion for a negative visual hallucination produced changes in conflict. Accordingly, subsequent experiments employed the paradigm developed in this experiment in order to investigate the role of cognitive and social factors in conflict management. The disparity between the initial response levels of high and low conflict participants underscored that future investigations must ensure comparable levels of the suggested experience across conditions before conflict manipulation. Subsequent experiments in the research program applied more sophisticated experimental designs within the paradigm developed in this chapter to investigate the relevance of three factors to participants' management of conflict during hypnosis. Firstly, Experiment 4 investigated the role of hypnotisability and hypnosis in mediating participants' response to conflict by comparing high and low hypnotisable participants' responses during hypnotic and nonhypnotic suggestions. Secondly, Experiments 5 and 6 employed the nonexperiment (Orne, 1969, 1970) and real-simulating (Orne, 1959, 1979) procedures to index the demand characteristics associated with the reality manipulation paradigm. Finally, Experiments 7 and 8 investigated the role of cognitive strategies in mediating the response to hypnotic conflict and indexed experiential responses to the conflict manipulation.

CHAPTER 4

EXPERIMENT 4: THE ROLE OF HYPNOTISABILITY

AND HYPNOSIS IN MANAGING CONFLICT

Introduction

The aim of Experiment 4 was to investigate the roles of hypnotisability and hypnosis in determining participants' response to conflict between reality and suggestion. Experiment 3 indicated that changes in the salience of conflicting perceptual information had an appreciable impact on the response to an hypnotic suggestion for negative visual hallucination. However, the findings of Experiment 3 did not indicate the extent to which individual differences in hypnotic responsiveness might influence the impact of conflict. Accordingly, Experiment 4 investigated high and low hypnotisable participants' response to changes in the degree of conflict. Moreover, the interactionist perspective adopted in this thesis recognises that the social context in which the suggestion is administered may play an important role in shaping participants' response to conflicting information. Of particular importance is the impact of hypnosis on participants' management of conflict between reality and suggestion. Accordingly, Experiment 4 compared the response to conflict between a suggested experience and objective reality in hypnotic and nonhypnotic contexts.

The emphasis of this thesis on hypnotic participants' active involvement in experiencing hypnotic suggestions suggests that motivation to experience the suggested phenomena is necessary for successful responding. Sheehan (1991) proposed that participants' responsiveness to hypnotic suggestions is determined by both aptitude factors and participants' willingness to successfully satisfy the requirements of the hypnotist. This view emphasises hypnotic participants' motivated commitment to employ cognitive strategies to respond in accord with the hypnotist's communications. From this perspective, hypnotisable participants may be regarded as strongly motivated by the context of hypnosis to minimise the impact of objective reality on the suggested experience.

A nonhypnotic context that is comparable to the hypnotic setting can be employed to investigate the influence of hypnosis on participants' management of conflicting information. The relevance of hypnosis to participants' responses may be indexed by comparing hypnotised participants with a group who receive imagination instructions (e.g., Barber et al., 1974; Johnson et al., 1972; Spanos, 1986). Accordingly, Experiment 4 involved instructing participants to experience a negative visual hallucination during either hypnosis or imagination exercises. High and low hypnotisable participants were administered an hypnotic induction procedure or instructions to use their imagination to experience the suggested effects. Experiment 4 employed the paradigm developed in Chapter 3 to manipulate the degree of conflict between the suggested hallucination and objective reality. Following the initial test phase, the reality stimulus became slowly more intense for all participants. It was hypothesised that low hypnotisable participants would be unable to produce the suggested experience and therefore increased conflict would not have an appreciable effect on their performance. Furthermore, it was hypothesised that high hypnotisable participants would be more committed to resolve conflict in a way that produced a successful response to the suggestion during hypnosis rather than imagination. Accordingly, it was expected that hypnotised highs would maintain their responding in the face of increased conflict more successfully than highs in the imagination condition.

<div align="center">Method</div>

Participants

Twenty-four (18 female and 6 male) high hypnotisable individuals of mean age 20.13 years ($\underline{SD}$ = 5.42) and 24 (13 female and 11 male) low hypnotisable individuals of mean age 20.00 years ($\underline{SD}$ = 2.78), who were undergraduate

psychology students at the University of New South Wales, participated in return for research credit. Participants were selected based on their extreme scores on 10-item tailored versions of the HGSHS:A (Shor & Orne, 1962) and the SHSS: C (Weitzenhoffer & Hilgard, 1962). Highs scored in the range 7-10 ($\underline{M} = 8.50$, $\underline{SD} = 0.72$) on the HGSHS:A and in the range 8-10 ($\underline{M} = 8.78$, $\underline{SD} = 0.80$) on the SHSS:C. Lows scored in the range 0-3 ($\underline{M} = 1.33$, $\underline{SD} = 0.87$) on the HGSHS:A and in the range 0-3 ($\underline{M} = 1.83$, $\underline{SD} = 1.17$) on the SHSS:C.

<u>Apparatus</u>

The equipment used was that described in Experiment 3, with the exception that the analogue dial was not used. Due to the lighting conditions of the different laboratory room in which this experiment was conducted, the stimulus used in Experiment 4 was a white circle (hue: 170, saturation: 0), and its range of intensity differed from that used in Experiment 3 (initial luminance: 200; maximum luminance: 240).

<u>Procedure</u>

<u>Hypnosis and imagination instructions.</u> An experimenter welcomed participants and explained that a second experimenter would administer the experiment. The first experimenter told participants in the hypnosis condition they would be given a hypnotic induction procedure and suggestions similar to their earlier hypnosis sessions. The experimenter explained to participants in the imagination condition that the experiment was concerned with the experience of imaginative involvement and they would not be hypnotised. The verbatim instructions for participants in the hypnosis condition were as follows:

"You have helped us out with a couple of other hypnosis sessions, and we very

much appreciate your willingness to come along again. The study we are

currently running is looking at people's experiences and reactions to a variety of hypnotic phenomena. In a little while I will take you to meet another experimenter. He will give you an hypnotic induction procedure similar to those you have had before, and then he will ask you to experience a number of different suggestions. After this, he will ask you some questions about your experiences. Do you have any questions at this stage?"

The verbatim instructions for participants in the imagination condition were as follows:

"You have helped us out with a couple of other sessions, and we very much appreciate your willingness to come along again. Today's session, however, is a little different. The study we are currently running is looking at people's experiences and reactions to a variety of tasks concerned with imaginative involvement. In a little while I will take you to meet another experimenter. He will ask you to do a number of different activities, and then later he will ask you some questions about your experiences. Do you have any questions at this stage?"

Following informed consent procedures, the first experimenter then introduced participants to the second experimenter. The second experimenter gave participants in the hypnosis condition a standard hypnotic induction procedure. Participants in the imagination condition were given a filler task for 13 minutes that involved dividing an L-shape into a number of equal-sized parts. Following this, the experimenter gave suggestions/instructions for moving hands together, finger lock, taste hallucination, and positive visual hallucination. The difference between conditions was that the suggestions/instructions referred to hypnosis for participants in the hypnosis condition and imagination for participants in the imagination condition.

Negative visual hallucination suggestion. The experimenter then administered a suggestion/instruction for a negative visual hallucination. In summary, the experimenter activated the stimulus presentation and told participants to look at the flashlight shining on the wall. The experimenter told participants the flashlight would fade away and disappear, and then asked participants to describe what they were seeing on the wall. Participants who reported being able to see the light were administered an additional suggestion and asked to describe what they saw on the wall. The verbatim instructions for the negative visual hallucination were as follows:

"Now you are going to notice something interesting. The light will begin to fade. That's right, the light will gradually become fainter and fainter until you will not be able to see it. The more you look at the light, the less you will be able to see it. Remain relaxed, and notice that the light becomes fainter and fainter, weaker and weaker. As you look at the wall, you will become aware that the light does not matter any more. You don't need to see it. As time goes by, the light is simply not there and you don't have to notice it. It is becoming more and more faint. It is going, going, gone. There. The wall is blank. Tell me, what do you see on the wall just now?"

The additional suggestion administered to participants who reported seeing the light was that administered in Experiment 3.

The experimenter then asked participants to rate their confidence that there was nothing on the wall (Test 1; 1 = "not at all sure", 10 = "extremely sure"). Following this, the experimenter pressed the laptop mouse button to commence the transition from low intensity to high intensity. After 40 s, the experimenter asked participants to describe what they were seeing and to rate their confidence that there was nothing on the wall (Test 2). Following this, the experimenter told participants

they could see normally, asked them to close their eyes, and terminated the stimulus presentation.

Postexperimental inquiry. The experimenter then administered a deinduction procedure to participants in the hypnosis condition or a counting procedure to participants in the imagination condition. Following this, the experimenter conducted a postexperimental inquiry into participants' experiences during the negative visual hallucination. To distinguish between conflict levels, the experimenter asked participants about their experiences "just after the suggestion" and "just before you were asked to close your eyes". For each phase, the experimenter asked participants to describe their thoughts during the experience, their involvement in experiencing the hallucination, and their attributions about changes in the experience. Finally, the experimenter debriefed participants, thanked them for their participation, and ended the session.

Results

All statistical tests used an alpha level of .05. Post hoc pairwise comparisons used the Bonferroni procedure to maintain a family-wise Type I error rate of .05. Appendix 3 presents summaries of statistical analyses.

Behavioural Data

Table 4.1 presents the mean confidence ratings of participants during Test 1 and Test 2. A 2 (hypnotisability) x 2 (condition) x 2 (test) mixed-model ANOVA indicated significant main effects of hypnotisability, $\underline{F}(1, 44) = 51.95$, $\underline{p} < .001$, condition, $\underline{F}(1, 44) = 12.64$, $\underline{p} < .001$, and test, $\underline{F}(1, 44) = 12.28$, $\underline{p} < .001$. Mean ratings of confidence in the hallucination were greater for highs rather than lows, were greater for participants who received hypnosis instructions than imagination instructions, and were greater when the stimulus intensity was low rather than high.

Table 4.1

Experiment 4: Mean Confidence Ratings during Test 1 and Test 2

Hypnotisability and Instruction condition	Test 1	Test 2
High		
Hypnosis (n = 13)	7.15 (3.16)	7.77 (2.71)
Imagination (n = 11)	5.45 (3.56)	1.73 (1.35)
Low		
Hypnosis (n = 12)	2.08 (1.93)	1.25 (0.87)
Imagination (n = 12)	2.42 (1.73)	1.17 (0.39)

Note. For confidence ratings, 1 = "not at all sure", 10 = "extremely sure". Standard deviations appear in parentheses.

Analysis also yielded a significant Hypnotisability x Condition interaction effect, $F(1, 44)$ = 14.38, p < .001, a significant Condition x Test interaction effect, $F(1, 44)$ = 10.30, p < .01, and a significant three-way interaction effect, $F(1, 44)$ = 7.01, p < .05. That is, the confidence ratings of highs in the hypnosis and imagination conditions differed significantly (p < .001) whereas lows did not differ across conditions, and participants in the wake condition gave lower confidence during Test 2 than Test 1 (p < .001) whereas hypnotic participants did not. Furthermore, the confidence ratings of high hypnotisable participants in the imagination condition were

lower during Test 2 than Test 1 ($p < .001$), whereas the confidence ratings of highs in the hypnosis condition and lows in both conditions did not change significantly.

<u>Postexperimental Inquiry</u>

High hypnotisable participants who were administered hypnosis and imagination instructions reported distinct experiential responses in the postexperimental inquiry. In particular, the reports of hypnotic highs suggested a motivated cognitive commitment that was not present in highs in the imagination condition. A number of high hypnotisable participants in the imagination condition reported no longer attempting to produce the hallucination when the stimulus became more salient. For example, one high in the imagination condition commented that, "When the light came back after a while I just thought, 'Oh, that's over then,' and I didn't try to make it go away." Conversely, hypnotised highs were characterised by a commitment to experience the suggested hallucination despite the increased challenge presented by conflicting information. An example of the commitment displayed by highs in the hypnosis condition can be seen in the following: "The flashlight was a battle of will. It was a constant fight; it would come back and I would try to push it away. This was not one of those passive experiences. It was really hard to get rid of it, and I was a bit surprised at the amount of effort I had to put in. Sometimes I was winning and sometimes I was losing, but I just kept working at it."

During the postexperimental inquiry, no high hypnotisable participants and one low hypnotisable participant reported that he suspected the stimulus had been experimentally manipulated.

<div align="center">Discussion</div>

The aim of Experiment 4 was to investigate the influence of hypnotisability and hypnosis on the management of conflict between real and suggested experiences.

High hypnotisable participants reported initially experiencing stronger hallucinations than lows, regardless of whether the hallucination was suggested during hypnosis or imagination. Consistent with the hypothesis, however, hypnotic highs were distinguished from their imagination counterparts by a persistent maintenance of the hallucination when the conflict between reality and suggestion was made more salient. It is interesting that whereas hypnotic highs did not display a change in their experience in Experiment 4, a change was observed in Experiment 3. It should be noted that the exact lighting and stimulus conditions could not be replicated across experiments and this may have produced disparity in the level of conflict in these experiments. Further, the absence of the analogue dial in Experiment 4 may have enabled participants to devote more cognitive resources to resolving the conflict and experiencing the hypnotic suggestion.

In contrast to the hypnotised participants, highs who were instructed to imagine the hallucination were no more successful than lows during increased conflict. These findings suggest that hypnotic communications impact upon highs' capacity to resolve conflict in a way that allows them to maintain the suggested experience. Highs in the imagination condition showed marked reduction in their hallucination experience as the conflicting information became more salient. This finding demonstrates that high levels of hypnotisability alone are not sufficient to enable one to manage conflicting information. Although high hypnotisable individuals are skilled in imagination and absorption in subjective experiences (Roche & McConkey, 1990; Wilson & Barber, 1981), it appears that instructions that define and shape the situation as hypnotic are necessary for participants to manage the increased conflict in a way that allows them to continue their belief in the genuineness of the suggested effect.

The findings of Experiment 4 indicate the relevance of participants' expectations about the hypnotic setting and their interpretation of the role of an hypnotic participant on their management of conflict. It is possible that the social demands to maintain a response consistent with the negative visual hallucination were stronger within the context of hypnosis rather than imagination. Consistent with participants' reports during the postexperimental inquiry, Sheehan (1991) proposed that the hypnotic context leads hypnotisable participants to work actively to produce the suggested experience. It appears that hypnotisable participants in the hypnosis condition were motivated sufficiently to engage in strategies that allowed them to maintain belief in the suggestion in response to heightened conflict. In contrast, their counterparts in the imagination condition apparently recognised that the reality information was increasingly salient, and responded in a comparable manner to low hypnotisable participants.

Implications for the Program of Research

The findings of Experiment 4 indicated that high hypnotisable participants maintain their hallucination response more successfully during hypnosis rather than imagination. Subsequent experiments focused on the social and cognitive mechanisms underlying this commitment to believe in the suggestion and the resultant management of conflicting information. In particular, Experiments 5 and 6 investigated the social demands associated with the experimental procedure and its role in shaping participants' response to conflict. Experiments 7 and 8 investigated experiential dimensions of hypnotic participants' response, with particular emphasis on the cognitive strategies participants employed in order to manage conflict successfully.

CHAPTER 5

EXPERIMENTS 5 AND 6: DEMAND CHARACTERISTICS

IN MANAGING HYPNOTIC CONFLICT

General Introduction

The aim of Experiments 5 and 6 was to investigate the relevance of social demands to how hypnotised participants' manage conflict between reality and suggestion. Although the paradigm developed in the previous experiments sought to minimise the overt demand characteristics associated with changes in conflict, there is a need to index the role of social cues in participants' responses. Orne (1970) argued that hypnosis research must take into account participants' motivation to provide desirable experimental responses and present themselves in a positive light to the experimenter. Consistent with this view, Kihlstrom (1995) emphasised that hypnosis experiments should be understood as the outcome of participants' attempt to collaborate with the experimenter by understanding the nature of the experiment they are participating in and responding appropriately. Accordingly, the research program recognised the importance of investigating participants' interpretation of the social demands placed upon them within the context of the hypnosis experiment.

EXPERIMENT 5

Introduction

The aim of Experiment 5 was to investigate the role of demand characteristics on participants' response to the increased salience of conflict. The nonexperiment procedure (Orne, 1969, 1970) was used to provide an index of the cues available in the paradigm developed in Chapter 3. In the nonexperiment procedure, participants are provided with the exact details of the experiment and are asked to respond as they believe real hypnotised participants would. According to the rationale of the nonexperiment procedure, if the responses of participants do not differ from those of actual hypnotised participants then it is possible that the experimental procedure communicated the expected response to participants. Conversely, if participants

administered the nonexperiment procedure display a different pattern of responding

than experimental participants, then factors other than social demands are required to

explain hypnotised participants' responses. Participants in Experiment 5 received a

description of the procedure employed in Experiment 3. The analogue dial was not

used because the nature of the nonexperiment procedure precluded the collection of

continuous data for comparison with hypnotised participants.

Method

Participants

Twenty (13 female and 7 male) medium hypnotisable participants of mean age

21.82 years ($\underline{SD}$ = 8.13), who were first-year psychology students at the University of

New South Wales, participated in return for research credit. Participants were selected

based on their scores on 10-item tailored versions of the group-administered

HGSHS:A (Shor & Orne, 1962) and the SHSS:C (Weitzenhoffer & Hilgard, 1962).

Participants scored in the range 4-6 on the HGSHS:A ($\underline{M}$ = 5.23, $\underline{SD}$ = 1.18) and in

the range 4-6 on the SHSS:C ($\underline{M}$ = 5.09, $\underline{SD}$ = 0.92).

Procedure

The nonexperiment procedure was administered in small groups of two to four

participants. Each group was assigned randomly to either the high conflict ($\underline{n}$ = 10) or

low conflict ($\underline{n}$ = 10) condition. Following informed consent procedures, the

experimenter distributed response booklets and instructed participants in the

nonexperiment procedure. The verbatim nonexperiment instructions were as follows:

"Today I want to find out how you think participants would behave in a

particular experiment. You are not going to actually do the experiment.

Rather, I am going to describe to you what will be done. What I would like

you to do is give me the responses that you think the actual participants who

do the experiment would give. What I want to find out is exactly how you think the participants who are tested will behave when given this experiment. To do this I would like you to try to imagine what participants would do when faced with these various procedures. The people participating in this study are high hypnotisable first year psychology students. They have been selected on the basis of performing very well on previous hypnotic testing. I test each participant individually. The session takes around an hour. I will now describe the experiment to you. At appropriate times, I will ask you to give responses by writing in your booklet. I would like you to answer in the way that you think hypnotised participants would respond. Remember; try to imagine how a very hypnotised participant would respond in this experiment."

The experimenter then explained the experimental procedure. He described the hypnotic induction procedure, presented the verbatim instructions for the vertical hand separation, verbal inhibition, arm levitation, age regression, and positive visual hallucination suggestions, and asked participants to write their responses following each suggestion. Following this, the experimenter described the verbatim suggestion for negative visual hallucination and asked participants to rate their confidence that there was nothing on the wall (Test 1; 1 = "not at all sure", 10 = "extremely sure"). He then instructed participants in the high conflict condition, "Now imagine that as time passes, your eyes seem to perceive the light as a little brighter than it was before." The experimenter then asked participants to provide a second rating of their confidence that there was nothing on the wall (Test 2), described the cancellation of the suggestion and the deinduction procedure, and explained that participants were then taken to a second experimenter. Following this, he asked participants to write their responses to the following postexperimental inquiry questions: "When the

experimenter first asked you to not see the light, can you tell me what happened?";

"Now I want you to shift your attention to just before the experimenter asked you to

close your eyes, and he was still asking you to see nothing on the wall. What was

happening at that time?" Finally, the experimenter thanked participants for their

participation, provided a debriefing, and ended the session.

Results

All statistical tests used an alpha level of .05. Post hoc pairwise comparisons

used the Bonferroni procedure to maintain a family-wise Type I error rate of .05.

Appendix 4 presents summaries of statistical analyses.

Confidence Ratings

Table 5.1 presents the mean ratings of confidence in the suggested experience

at Test 1 and Test 2. A 2 (condition) x 2 (test) mixed-model ANOVA revealed a

significant main effect of test, $\underline{F}(1, 18) = 12.24$, $\underline{p} < .01$, and a significant interaction

effect, $\underline{F}(1, 18) = 12.24$, $\underline{p} < .01$. That is, the confidence ratings of participants in the

high conflict condition decreased from Test 1 to Test 2 ($\underline{p} < .001$) but did not

significantly change for participants in the low conflict condition. These findings are

comparable to the findings in Experiment 3.

Postexperimental Inquiry

When asked to provide postexperimental inquiry responses, more participants

in the high conflict (60%) than the low conflict (0%) condition reported that their

experience of the suggestion was weaker at Test 2 than Test 1, χ^2 (N = 20) = 8.57, $\underline{p} <$

.01. These reports are comparable to the responses of hypnotised participants in

Experiment 3.

Table 5.1

Experiment 5: Mean Confidence Ratings during Test 1 and Test 2

Conflict Condition	Test 1	Test 2
Low ($\underline{n}$ = 10)	7.60 (2.63)	7.60 (2.50)
High ($\underline{n}$ = 10)	7.50 (2.27)	4.20 (2.39)

Note. For confidence ratings, 1 = "not at all sure", "10 = extremely sure". Standard deviations appear in parentheses.

Discussion

The findings of Experiment 5 indicate that the experimental demand of this paradigm might be to report diminished belief in the suggestion when the stimulus is intensified. In other words, these findings suggest that participants might interpret changes in the salience of conflict between reality and suggestion as a cue to report diminished response to the suggestion. This is consistent with McConkey's (1983b) finding that participants' response to a suggestion declined when conflicting communications were administered after the suggestion.

It must be recognised, however, that the covert nature of the conflict manipulation in Experiment 3 could not be accurately replicated by the nonexperiment procedure. The description of the conflict manipulation in Experiment 5 may have been more overt than the gradual increase in intensity that actually occurred in Experiment 3. Further, whereas Orne's (1969, 1970) nonexperiment procedure suggests that nonexperiment participants be drawn from the same hypnotisability group as experimental participants, Experiment 5 was conducted using

medium hypnotisable participants because of the limited availability of high

hypnotisable participants. It is possible that medium hypnotisable participants

administered the nonexperiment procedure were unable to imagine and mimic the

responses of high hypnotisables. Accordingly, Experiment 6 aimed to provide a more

rigorous index of the demand characteristics associated with participants'

management of conflict.

EXPERIMENT 6

Introduction

Experiment 6 employed the real-simulating procedure (Orne, 1959, 1979) to

evaluate the social demands associated with conflict management. The real-simulating

procedure involves comparing the responses of real, high hypnotisable participants

with a quasi-control group of low hypnotisable participants who are instructed to

simulate the behaviour of a hypnotised individual. According to the rationale of this

procedure, differences between "reals" and "simulators" indicate that hypnotised

participants are not simply complying with the demands conveyed by the

experimental context. On the other hand, if no differences between groups are found,

then it is possible that responses of hypnotised participants might result from demand

characteristics. Thus, the real-simulating procedure indexes the relevance of

hypnotised participants' expectancies and their perception of the social demands

associated with the hypnotic context.

Real and simulating participants were tested within the conflict manipulation

paradigm developed in Chapter 3. Following the initial test phase, the intensity of the

reality stimulus became slowly more intense for all participants. Some evidence

suggests that reals and simulators may be distinguished by their experiential reports,

even when the behavioural responses of simulators are similar to reals (Bryant &

McConkey, 1989b). Accordingly, Experiment 6 indexed key aspects of participants' subjective experience of the suggested hallucination using the Experiential Analysis Technique (EAT; Sheehan & McConkey, 1982). After the hypnosis session, participants viewed a videotape of their session with an independent experimenter and were encouraged to comment about their experiences. In particular, videotapes of the EAT inquiry were rated to provide data on real and simulating participants' reports of (a) the vividness of their experience, (b) their belief that the experience was real, and (c) the cognitive effort they exerted in responding to the suggestion. Experiment 6 distinguished between vividness and belief because previous work suggests that hypnotic participants can maintain belief that suggested effects are real despite reduced vividness of the suggested experience (Bryant & McConkey, 1989b).

It was expected that the subtle change in conflict employed by the paradigm would minimise overt changes in demand characteristics. Accordingly, it was hypothesised that the conflict manipulation would have no appreciable effect on simulators' verbal ratings and experiential reports. Conversely, and consistent with the findings of previous experiments in this research program, it was expected that reals would maintain their belie in the genuineness of the suggested effect despite the influence of heightened conflict on other experiential dimensions.

Method

Participants

Seventeen (14 female and 3 male) high hypnotisable reals of mean age 20.41 years ($\underline{SD}$ = 7.41) and 18 (13 female and 5 male) low hypnotisable simulators of mean age 20.22 years ($\underline{SD}$ = 3.26), who were undergraduate psychology students at the University of New South Wales, participated in return for research credit. Participants were selected based on their extreme scores on 10-item tailored versions of the

HGSHS:A (Shor & Orne, 1962) and the SHSS:C (Weitzenhoffer & Hilgard, 1962). Reals scored in the range 7-10 ($\underline{M}$ = 7.94, $\underline{SD}$ = 0.83) on the HGSHS:A and in the range 8-10 ($\underline{M}$ = 9.29, $\underline{SD}$ = 0.69) on the SHSS:C. Simulators scored in the range 0-3 ($\underline{M}$ = 2.39, $\underline{SD}$ = 0.70) on the HGSHS:A and in the range 0-3 ($\underline{M}$ = 1.94, $\underline{SD}$ = 1.06) on the SHSS:C.

<u>Apparatus</u>

The equipment and lighting conditions were those used in Experiment 4. To maximise the salience of the conflict manipulation, the disparity between initial (195) and final intensity (255) was increased. Also, a VHS video camera was used to record the hypnosis and EAT inquiry sessions, and a VHS videotape player and television were used to view the hypnosis sessions during the EAT inquiry.

<u>Procedure</u>

<u>Real-simulating procedure instructions.</u> An experimenter initially welcomed participants and instructed them according to the real-simulating procedure (Orne, 1959, 1979). This experimenter informed participants that they would be taken to a second experimenter, who would administer a hypnotic induction procedure and a number of suggestions. She also explained that the hypnosis session would be videotaped and that participants would watch the videotape with the hypnotist so as to give their viewpoint on the session. In addition, the experimenter told simulators their task would be to fool the hypnotist into thinking they were highly hypnotisable individuals. Simulators were told that the hypnotist did not know which participants were faking hypnosis and that he would terminate the session if he detected a participant who was faking. The experimenter told simulators they should use whatever cues were available in deciding how to respond, and they should continue

acting as if they were really hypnotised throughout the inquiry following hypnosis.

The verbatim instructions for reals were as follows:

> "Now, you have taken part in a group session with us, and in an individual session. Your performance in those other sessions was excellent, and told us that you have exactly the sort of abilities that can help us in our research. Tell me, what aspects of those other sessions did you find of interest?"

The verbatim instructions for simulators were as follows:

> "As you know, you have tried to enter hypnosis before and have found it difficult to do so. From your experience in the group session and in the previous individual session, the hypnotic procedure has not affected you as much as it does many other individuals. Is that right? ... That's perfect, because today I am going to ask you to do a very interesting task. Shortly I am going to introduce you to the hypnotist. Your task will be to pretend to him that you are an excellent hypnotic subject and able to enter deep hypnosis. There will be only two kinds of subjects in this experiment: those who can enter deep hypnosis, and those, like yourself, who are unable to do so but will be trying to fake hypnosis. You are to make the hypnotist think that you are an excellent hypnotic subject and are, in fact, deeply hypnotised by the procedure. I know that you will not enter hypnosis because you find it extremely difficult to do so. Instead, your job will be to fool this experimenter. You are to use whatever you know about hypnosis, whatever cues you get from the hypnotist, and whatever you learn from the situation to figure out how a deeply hypnotised subject would behave and your task is then to use this information in your faking of hypnosis. Do you understand so far what I am asking you to do? ... Obviously, you cannot tell the hypnotist that you are faking. He will, in fact,

know that some of the subjects are attempting to simulate hypnosis but he will not know who they are. If he catches on to the fact that you are faking, he will stop the experiment immediately. Unless he stops the experiment, you will know that he has not caught on. This is a difficult task, but one which intelligent subjects have been able to do successfully. Do not assume that you have made a mistake and given yourself away unless he stops the experiment. Always remember, if he does not stop the experiment, then he has not caught on. Do you have any questions? ... When you are finished with the experiment, I will meet you back here. It is important that you do not let on that you are faking hypnosis until I am back here with you. Remember to continue to simulate the behaviour of a hypnotised subject the whole time you are with the hypnotist, until I meet you at the end of the experiment. We will then discuss your experience. It is a difficult task, so good luck! I will bring the hypnotist in now."

Negative visual hallucination suggestion. Following informed consent procedures, the first experimenter introduced participants to the hypnotist. The hypnotist administered an hypnotic induction procedure, followed by suggestions for hand lowering, emotion suppression, moving hands together, finger lock, and positive visual hallucination. He then administered instructions for a negative visual hallucination, activated the stimulus presentation and told participants to look at the flashlight shining on the wall. The hypnotist told participants the flashlight would fade away and disappear, and then asked participants to describe what they were seeing on the wall. Participants who reported being able to see the light were administered an additional suggestion and asked to describe what they saw on the wall. The verbatim instructions for the negative visual hallucination and the additional instructions given

to participants who reported being able to see the flashlight were those used in

Experiment 4.

The hypnotist then asked participants to rate their confidence that there was

nothing on the wall (Test 1; 1 = "not at all sure", 10 = "extremely sure"). Following

this, the hypnotist pressed the laptop mouse button to commence the transition from

low intensity to high intensity. After 40 s, the hypnotist asked participants to describe

what they were seeing and to rate their confidence that there was nothing on the wall

(Test 2). The hypnotist told participants they could see normally, asked them to close

their eyes, and terminated the stimulus presentation.

EAT inquiry. The hypnotist then administered a deinduction procedure and

conducted the EAT inquiry. He informed participants that he would show them a

videotape of their hypnosis session and this would help them to recall their

experiences of hypnosis. The hypnotist told participants they could ask him to stop the

videotape at any time and describe their experiences at that point. In addition, he told

participants he would stop the videotape playback at a number of places and ask about

their experiences at those points. This procedure allowed participants to comment on

the parts of the session that were particularly meaningful in their experience, and

allowed the hypnotist to collect data regarding a number of predetermined points in

the session. In addition, the hypnotist informed participants that the EAT session

would be videotaped. The verbatim EAT instructions were as follows:

> "As you know, the hypnosis session was videotaped and we are going to
>
> watch that videotape now. Watching the videotape will provide you with a
>
> precise, detailed record of what happened, and therefore you will probably
>
> find it easier to recall how you felt and what you thought, for instance, than
>
> you would if there was no videotape to watch. During the hypnosis session,

you probably felt and thought many things that you did not or were not able to say aloud. Generally the mind works faster than the voice and so there were probably times when you did not have the time to say all that you wanted, or else you might have had some vague impressions or reactions or ideas that were not verbalised at all. As you watch the videotape, you will find that these sorts of thoughts and feelings will come back to you. I want you to feel completely free to tell me to stop the videotape at any point and tell me about whatever it is that you are recalling. Anything at all that you recall, just ask me to stop the videotape right then and tell me about it. It may be a little point that you remember or it may be a bigger point. No matter how important you consider it to be, any time you want me to stop the videotape and comment is fine. All your comments are important and valuable. It is important, though, that we stop the videotape as soon as you wish to comment on anything. Do not wait until later but ask me to stop the videotape immediately. I am also going to stop the videotape at a number of places, and ask you about your experiences. Okay, do you have any questions? ... Fine, if you are ready, I will start the videotape."

The decision to stop the videotape playback was left primarily to participants. When participants commented on their experiences, the hypnotist responded by asking questions that encouraged participants to provide further information. The hypnotist's responses were designed to prompt participants to elaborate on their initial description without conveying obvious cues about particular types of experiential reports. When participants did not spontaneously comment on their experience of the negative visual hallucination, the hypnotist stopped the videotape playback and asked questions to encourage participants to describe their experience of the suggestion.

Similarly, he asked participants to comment on their experience toward the end of the session if they did not spontaneously comment on their experience at that time. Examples of the questions asked during the EAT inquiry are presented in Appendix 4. After completing the EAT inquiry, the hypnotist debriefed participants, thanked them for their participation, and ended the session.

Rating of Inquiry Information

The data collected from the inquiry was based on participants' reports of their thoughts, beliefs, and experiences during the negative visual hallucination item. The hypnotist and a rater (who was unaware of the aims of the experiment) independently evaluated the videotapes of the EAT sessions. Participants' comments about the negative visual hallucination item were rated on three dimensions: (a) vividness of the suggested experience (1 = "not at all vivid", 10 = "extremely vivid"); (b) belief in the genuineness of the negative visual hallucination (1 = "no belief at all", 10 = "extreme belief"); and (c) effort involved in responding to the suggestion (1 = "no effort at all", 10 = "extreme effort"). Separate ratings were made for Test 1 and Test 2.

Results

The hypnotist correctly identified 12 (71%) reals and 13 (72%) simulators at the conclusion of the session. Because simulators were instructed to perform as highly responsive hypnotised participants would, one simulator and two reals were omitted from analyses because they did not initially report passing the suggestion for the negative visual hallucination (defined by confidence rating of < 5).

All statistical tests used an alpha level of .05. Post hoc pairwise comparisons used the Bonferroni procedure to maintain a family-wise Type I error rate of .05. Appendix 4 presents summaries of statistical analyses.

Confidence Ratings

       Table 5.2 presents the mean confidence ratings of participants during Test 1 and Test 2. A 2 (group) x 2 (test) mixed-model ANOVA indicated significant main effects for group, $F(1, 30) = 5.71$, $p < .05$, test, $F(1, 30) = 12.49$, $p < .001$, and a significant interaction effect, $F(1, 30) = 6.65$, $p < .05$. That is, whereas simulators reported significantly higher confidence ratings during Test 2 than Test 1 ($p < .001$), reals' confidence did not change significantly across the tests.

Table 5.2

Experiment 6: Mean Confidence Ratings during Test 1 and Test 2

	Test 1	Test 2
Reals ($n = 15$)	7.33 (1.50)	7.60 (2.26)
Simulators ($n = 17$)	7.76 (1.52)	9.47 (1.72)

Note. For confidence ratings, 1 = "not at all sure", 10 = "extremely sure". Standard deviations appear in parentheses.

EAT Inquiry

       The inter-rater reliability across these dimensions ranged from .81 to .93. The experiential data reported are those provided by the independent rater. Table 5.3 presents the mean EAT inquiry ratings of vividness, belief, and effort. Separate 2 (group) x 2 (test) mixed-model ANOVAs were conducted for each dimension. In terms of vividness, there was a significant interaction effect, $F(1, 30) = 4.78$, $p < .05$. Pairwise comparisons between reals and simulators were conducted for each test

Table 5.3

Experiment 6: Mean EAT Inquiry Ratings of Vividness, Belief, and Effort during Test

1 and Test 2

	Test 1	Test 2
Reals (n = 15)		
Vividness	8.13 (1.41)	7.07 (2.22)
Belief	7.27 (2.49)	7.33 (2.32)
Effort	3.60 (2.82)	6.27 (2.05)
Simulators (n = 17)		
Vividness	8.12 (1.80)	8.71 (1.05)
Belief	7.53 (2.00)	9.18 (0.88)
Effort	2.65 (1.46)	3.24 (2.19)

Note. For vividness, 1 = "not at all vivid", 10 = "extremely vivid"; for belief, 1 = "no

belief at all", 10 = "extreme belief"; for effort, 1 = "no effort at all", 10 = "extreme

effort". Standard deviations appear in parentheses.

because comparisons across tests for reals and simulators did not indicate any

significant differences. Whereas the vividness reports of reals and simulators did not

significantly differ at Test 1, reals reported significantly lower vividness than

simulators when the stimulus intensity increased (p < .05). In terms of belief, there

was a significant main effect for test, $F(1, 30) = 4.99$, p < .05, and a significant

interaction effect, $\underline{F}(1, 30) = 4.24$, $\underline{p} < .05$. Whereas reals gave comparable belief ratings across tests, simulators reported a statistically significant increase in belief during the second test ($\underline{p} < .01$). In terms of effort, there were significant main effects for group, $\underline{F}(1, 30) = 10.50$, $\underline{p} < .005$, test, $\underline{F}(1, 30) = 12.57$, $\underline{p} < .001$, and a significant interaction effect, $\underline{F}(1, 30) = 5.13$, $\underline{p} < .05$. Whereas reals reported significantly more effort during the second test than the first test ($\underline{p} < .001$), simulators reported comparable effort during the two tests.

Postexperimentally, no reals and two simulators reported that they suspected the flashlight had been experimentally manipulated.

Discussion

The aim of Experiment 6 was to investigate the role of demand characteristics in determining hypnotised participants' management of conflict. Reals and simulators demonstrated similar behavioural and experiential responses to the hallucination when the stimulus was at its initial intensity. The groups differed, however, in their responses to the increased conflict. During Test 2, reals reported less confidence, less vividness, less belief, and more effort than simulators. Although reals indicated a diminishment of the vividness of the suggestion, they nonetheless reported maintaining their belief in the suggestion. Moreover, reals demonstrated that this maintenance of belief required marked effort on their part. Thus, the findings of Experiment 6 indicated that simulators overplayed the success and ease of reals in managing the heightened conflict.

The greater than chance identification of reals and simulators by the hypnotist indicate that it is possible the strict parameters of the real-simulating procedure may not have been satisfied. Participants' performance during the experiment, including their response to the suggested negative visual hallucination and their reports during

the EAT procedure, may have provided the hypnotist with an indication of participants' identity as a real or simulator.

The finding that reals and simulators differed in their response to increased conflict suggests that demand characteristics alone cannot adequately explain reals' reported management of the hypnotic conflict. Simulators were either unaware that the salience of reality information had changed or did not believe the conflict manipulation would interfere with reals' responding. Interestingly, simulators' responses indicated increased belief in the suggested experience during the increased conflict. This pattern suggests that the demand characteristics of the repeated questions communicated to participants that the experimenter expected reports about the hypnotic experience that reflected greater confidence in the reality of the suggestion. Further, simulators' responses indicated that the experimental demand was for participants to achieve the experience with minimal effort. This overall pattern indicates that simulators did not perceive the complexities of reals' responses, and that these findings cannot be attributed simply to compliance with experimental demands.

The responses of the real, hypnotised participants highlighted the complexity of conflict resolution in hypnosis. Although reals indicated a reduction in the vividness of the hallucination as the conflict increased, they indicated they were able to maintain belief in the suggestion. Participants displayed a commitment to the suggestion even though they apparently had more difficulty in maintaining the experience as the conflict became more salient. This finding is consistent with previous reports that during hypnotic blindness participants can report a compelling belief in the suggested blindness even though they report some awareness of visual stimuli (Bryant & McConkey, 1989b). This response points to how hypnotic

participants manage conflict by imposing cognitive frameworks on events that may interfere with the desired experience. Although hypnotic participants reported during the EAT an increased awareness of the light during the increased conflict, they also reported exerting increased effort to maintain the belief that they did not see the light. Hypnotised participants apparently undertook a reappraisal of the experience in a way that allowed them to believe in the suggested experience despite the increased salience of conflicting information.

General Discussion

Despite the finding of Experiment 6 that the conflict manipulation did not convey demands to provide diminished responses to the suggestion, increased conflict had an appreciable impact on the reports of hypnotisable participants. That is, although the social cues associated with the increase in conflict indicated that participants' experience should be the same or stronger than it had been initially, the increased conflict lessened the reported vividness of reals' experiences. Furthermore, reals responded to these changes by exerting greater cognitive effort to maintain their experience of the suggestion; in fact, they were successful in maintaining their belief that the suggested effect was real. These findings underscore participants' motivated cognitive involvement in managing conflicting information in a way that facilitates their belief in hypnotic suggestions.

Implications for the Program of Research

Experiment 6 indicated that hypnotised participants' response to variations in the conflict between reality and suggestion cannot be explained purely in terms of demand characteristics. These findings highlight that the salience of conflict impacts upon hypnotised participants' experience of the suggestion, even when social demands do not indicate that their responses should change. The processes that

permitted reals to maintain their belief in the suggestion points to the need for closer investigation of the role of cognitive strategies in conflict management. Accordingly, Experiments 7 and 8 focused on experiential elements of the response to conflict in hypnosis, and investigated the role of cognitive strategies in mediating the impact of conflict.

CHAPTER 6

EXPERIMENTS 7 AND 8: HYPNOTIC CONFLICT AND

THE ROLE OF COGNITIVE STYLE

General Introduction

The aim of Experiments 7 and 8 was to investigate the cognitive dimensions of hypnotic participants' response to conflict. The findings from previous experiments in the research program demonstrated the importance of understanding the cognitive strategies underlying participants' behavioural responses to hypnotic conflict. Although the previous experiments in the program of research highlighted several key aspects of hypnotic conflict management, they did not specifically address the role of cognitive strategies in managing hypnotic conflict. Experiments 7 and 8 sought to systematically investigate the cognitive dimensions of conflict management in hypnosis.

Detailed analyses of cognitive activity during hypnosis have indicated that whereas ideomotor items can be achieved with a concentrative cognitive style (Sheehan & McConkey, 1982), more demanding challenge and delusory suggestions often require active problem-solving approaches (Bryant & McConkey, 1989b, 1990b; Gorassini, 1997). Considering that the degree of conflict between reality and suggestion is typically greater for delusory than ideomotor items (McConkey, 1983b), these findings point to the potential role of active problem solving in resolving hypnotic conflict. In addition to cognitive style, a number of phenomenal dimensions may be relevant to understanding hypnotic participants' response to conflicting information. For instance, involuntariness has been regarded as a hallmark of hypnotic responding (Weitzenhoffer, 1974), and Lynn et al. (1990) proposed that attention to reality information interferes with participants' feelings of involuntariness. Belief in the reality of the suggested effect is another construct that is central to theories of hypnosis (Sutcliffe, 1960, 1961), and may be adversely affected by heightened conflict. Further, the findings of Experiment 6 indicated that different levels of

conflict produced distinct phenomenal reports among high hypnotisable participants. Accordingly, Experiment 7 investigated the relevance of reported cognitive strategies to the management of conflict between reality and suggestion.

EXPERIMENT 7

Introduction

High and low hypnotisable participants were tested within the conflict manipulation paradigm developed in Chapter 3. Following the initial test, the intensity of the reality stimulus gradually increased for all participants. Participants provided verbal ratings during the initial test and a second test after the stimulus manipulation. The verbal rating scale differed from that used in previous experiments so as to maximise the impact of conflict on participants' phenomenal response. Spanos (1986) noted that the wording of hypnotic instructions may alter participants' interpretation of the experimental communication. To make the conflict between reality and suggestion more salient, participants in Experiment 7 were asked to rate their confidence that the stimulus was present rather than absent.

Experiment 7 used the EAT procedure to index phenomenal dimensions that previous experiments in the research program had indicated were relevant to participants' management of conflict. The finding of Experiment 6, for instance, indicated that the vividness of participants' experience and their belief that the experience was real were differentially affected by conflict. Moreover, the findings of Experiments 4 and 6 suggested that hypnotised participants display a motivated cognitive commitment to minimise the impact of conflict on their responding, and that they exerted cognitive effort to manage conflicting information. Accordingly, videotapes of participants' EAT inquiry sessions were rated to provide data on (a) the vividness and (b) involuntariness of their experience, (c) their belief that the suggested

experience was real, and (d) the cognitive strategies participants employed in response to the suggestion. It was expected that all participants would report decreased vividness in the suggestion when the stimulus was made more intense. It was expected that highs, but not lows, would maintain their belief in the suggestion despite the increased salience of the stimulus.

Method

Participants

Ten (7 female and 3 male) high hypnotisable individuals of mean age 20.30 years (SD = 2.63) and 10 (4 female and 6 male) low hypnotisable individuals of mean age 22.40 years (SD = 7.68), who were undergraduate psychology students at the University of New South Wales, participated in return for research credit. Participants were selected based on their extreme scores on 10-item tailored versions of the HGSHS:A (Shor & Orne, 1962) and the SHSS:C (Weitzenhoffer & Hilgard, 1962). Highs scored in the range 7-10 (M = 9.30, SD = 1.64) on the HGSHS:A and in the range 8-10 (M = 9.20, SD = 0.92) on the SHSS:C. Lows scored in the range 0-3 (M = 1.80, SD = 0.63) on the HGSHS:A and in the range 0-3 (M = 2.10, SD = 0.88) on the SHSS:C.

Apparatus

The equipment was that used in Experiment 6. The lighting conditions and the stimulus presentation were those used in Experiment 3 (hue: 42; saturation: 255; initial luminance: 80; final luminance: 100).

Procedure

Initial instructions. The hypnotist welcomed participants and explained that the session would involve two experimenters. The hypnotist informed participants that they would be hypnotised and given a number of suggestions, and after the hypnosis

session they would be given an opportunity to discuss their experiences with a second experimenter. She then explained that the hypnosis session would be videotaped for viewing during the EAT. Following this, the hypnotist administered informed consent procedures.

      <u>Negative visual hallucination suggestion.</u> The hypnotist then administered an hypnotic induction and tested participants on suggestions for vertical hand separation, finger lock, verbal inhibition, and positive visual hallucination. The hypnotist then administered instructions for a negative visual hallucination, activated the stimulus presentation and told participants to look at the torchlight shining on the wall. The hypnotist instructed participants that the torchlight would fade away and disappear, and then asked participants to describe what they were seeing on the wall. Participants who reported being able to see the light were administered an additional suggestion and asked to describe what they saw on the wall. The verbatim instructions for the negative visual hallucination were those used in Experiments 4 and 6. She then asked participants to rate their confidence that the light was present on the wall (Test 1; 1 = "not at all sure", 10 = "extremely sure"). Following this, the hypnotist pressed the laptop mouse button to commence the transition from low intensity to high intensity. After 40 s, she asked participants to describe what they were seeing and to rate their confidence that the light was present (Test 2). Following this, the hypnotist told participants they could see normally. She then instructed participants to close their eyes, terminated the stimulus presentation, and administered a deinduction procedure. Following this, the hypnotist escorted participants to the inquirer for the EAT.

EAT inquiry. The inquirer then conducted the EAT inquiry. The inquirer informed participants he would show them a videotape of their hypnosis session and this would help them to recall their experiences of hypnosis. He told participants that they could ask him to stop the videotape at any time and describe their experiences at that point. In addition, he told participants he would stop the videotape playback at a number of places and ask about their experiences at those points. This procedure allowed participants to comment on the parts of the session that were particularly meaningful in their experience, and allowed the inquirer to collect data regarding a number of predetermined points in the session. In addition, he informed participants that the EAT session would be videotaped. The verbatim EAT instructions were those used in Experiment 6.

The decision to stop the videotape playback was left primarily to participants. When participants commented on their experiences, the inquirer responded by asking questions that encouraged participants to provide further information. The inquirer's responses were designed to prompt participants to elaborate on their initial description without conveying obvious cues about particular types of experiential reports. When participants did not spontaneously comment on their experience of the negative visual hallucination, the inquirer stopped the videotape playback and asked questions to encourage participants to describe their experience of the suggestion. Similarly, he asked participants to comment on their experience toward the end of the suggestion if they did not spontaneously comment on their experience at that time. Examples of the questions asked during the EAT inquiry are presented in Appendix 5. After completing the EAT inquiry, the inquirer debriefed participants, thanked them for their participation, and ended the session.

Rating of inquiry information. The inquirer and a rater (who was unaware of the aims of the experiment) independently evaluated the videotapes of the EAT sessions. Participants' comments about the negative visual hallucination item were rated on four dimensions: (a) involuntariness of the suggested experience (1 = "not at all involuntary", 10 = "extremely involuntary"); (b) vividness of the suggested experience (1 = "not at all vivid", 10 = "extremely vivid"); (c) belief in the genuineness of the negative visual hallucination (1 = "no belief at all", 10 = "extreme belief"); and (d) cognitive style involved in the suggested experience. Following protocols developed by Sheehan and McConkey (1982), cognitive style was categorised as reflecting either concentrative (e.g., "I just followed the hypnotist's words") or constructive (e.g., "I imagined a white mist spreading across the wall") strategies. Separate ratings were made for Test 1 and Test 2. In addition, participants' attributions about the source of their experience were categorised as referring to an external source (e.g., "I thought you might have made the light brighter somehow") or no external source (e.g., "After a while the light came back a bit, because my eyes had been open for too long").

Results

All statistical tests used an alpha level of .05. Post hoc pairwise comparisons used the Bonferroni procedure to maintain a family-wise Type I error rate of .05. Appendix 5 presents summaries of statistical analyses.

Confidence Ratings

Table 6.1 presents the mean confidence ratings for Test 1 and Test 2. A 2 (hypnotisability) x 2 (test) mixed-model ANOVA indicated significant main effects for hypnotisability, $\underline{F}(1, 18) = 64.22$, $\underline{p} < .001$, and test, $\underline{F}(1, 18) = 28.92$, $\underline{p} < .001$,

and a significant interaction effect, $\underline{F}$ (1, 18) = 5.86, $\underline{p}$ < .05. That is, low hypnotisable

participants were more confident that the light was present during Test 2 than Test 1

($\underline{p}$ < .001), whereas high hypnotisable participants' confidence ratings did not change

significantly.

Table 6.1

Experiment 7: Mean Ratings of Confidence in the Presence of the Stimulus

Hypnotisability	Test 1	Test 2
High ($\underline{n}$ = 10)	2.40 (1.26)	3.50 (2.46)
Low ($\underline{n}$ = 10)	6.60 (1.58)	9.50 (0.85)

Note. For confidence ratings, 1 = "not at all sure", 10 = "extremely sure". Standard

deviations appear in parentheses.

Experiential Data

The interrater reliability of EAT data was strong for both ordinal (range: .84 to

.92) and categorical (kappa value: .91) ratings. The experiential data presented are

those provided by the inquirer. Table 6.2 presents the mean ratings of involuntariness,

vividness, and belief. Separate 2 (hypnotisability) x 2 (test) mixed-model ANOVAs

on each dimension indicated significant main effects of hypnotisability for

involuntariness, $\underline{F}$ (1, 18) = 24.71, $\underline{p}$ < .001, vividness, $\underline{F}$ (1, 18) = 40.36, $\underline{p}$ < .001, and

belief, $\underline{F}$ (1, 18) = 22.24, $\underline{p}$ < .001. Highs reported greater involuntariness, vividness,

and belief in the suggested experience than did lows. The analyses also yielded

significant main effects of test for involuntariness, $\underline{F}$(1, 18) = 18.64, $\underline{p}$ < .001, and

vividness, $\underline{F}(1, 18) = 24.29$, $\underline{p} < .001$. Participants' experiences were less involuntary and less vivid during Test 2 than Test 1. There were also significant interaction effects for involuntariness, $\underline{F}(1, 18) = 9.93$, $\underline{p} < .01$, and vividness, $\underline{F}(1, 18) = 4.57$, $\underline{p} < .05$. That is, the reported involuntariness of participants' experience was lower at Test 2 than Test 1 for highs ($\underline{p} < .001$), but did not change significantly for lows. Similarly, the reported vividness of the suggested experience declined significantly for highs ($\underline{p} < .001$) but not for lows. For belief ratings, however, both the main effect of test, $\underline{F}(1, 18) = 2.90$, $\underline{ns}$, and the interaction effect, $\underline{F}(1, 18) = 0.01$, $\underline{ns}$, were not significant. High hypnotisable participants' comments reflected the maintenance of belief in the experience despite changes in its vividness. For example, one high hypnotisable participant commented, "I knew there was a flashlight or something shining on the wall, but it's like my brain didn't need to see it. So I just told myself that there was nothing there".

All high hypnotisable participants attributed changes in their experience to factors other than manipulation by the experimenter. For example, one high hypnotisable participant said the following: "I think after a while my concentration started to wander a little. I wasn't as focused on not seeing the light and at that stage it came back a little." Two low hypnotisable participants, however, reported that they considered the possibility that the stimulus intensity had been externally manipulated. For instance, one participant said the following: "The light seemed to be brighter than it was originally and it occurred to me that [the hypnotist] might be changing it."

Table 6.2

Experiment 7: Mean EAT Inquiry Ratings of Involuntariness, Vividness, and Belief

Experiential dimension	Test 1	Test 2
High hypnotisability (n = 10)		
Involuntariness	7.60 (2.41)	4.40 (2.50)
Vividness	8.40 (1.51)	4.60 (1.71)
Belief	7.10 (2.73)	6.00 (4.27)
Low hypnotisability (n = 10)		
Involuntariness	2.60 (1.35)	2.10 (0.74)
Vividness	3.90 (2.02)	2.40 (1.43)
Belief	2.30 (1.42)	1.30 (0.48)

Note. For involuntariness, 1 = "not at all involuntary", 10 = "extremely involuntary";

for vividness, 1 = "not at all vivid", 10 = "extremely vivid"; for belief, 1 = "no belief

at all", 10 = "extreme belief". Standard deviations appear in parentheses.

Table 6.3 presents the number of participants who employed constructive or

concentrative cognitive styles during each test. Fisher's exact test indicated a

significant effect for Test 2 ($p < .05$). Whereas highs and lows did not differ in their

reports of cognitive style for Test 1, more highs than lows reported a constructive

cognitive style for Test 2. The constructive, problem-solving approach adopted by a

proportion of highs in response to increased conflict involved the selection of

idiosyncratic and personally appropriate strategies. Individual participants' use of

constructive cognitive strategies can be seen in the following: "When I started to see

the flashlight, I began to imagine a white mist spreading across the wall and then I

couldn't see anything." Similarly: "I made the light stay away by imagining I had a

blind spot, like you have in your eyes, and I looked around the wall for the place

where the light was in that blind spot." Highs who adopted a constructive cognitive

style in Test 2 reported higher belief ratings ($\underline{M}$ = 9.40, $\underline{SD}$= .55) than highs who

adopted a concentrative cognitive style ($\underline{M}$ = 2.00, $\underline{SD}$= 1.00), $\underline{t}$(8) = 14.51, $\underline{p}$ < .001.

The disproportionate number of participants who adopted concentrative strategies at

Test 1 precluded comparisons between participants reporting different cognitive

strategies during this phase.

Table 6.3

Experiment 7: Number of Participants Displaying Types of Cognitive Style

Cognitive style	Test 1	Test 2
High hypnotisability ($\underline{n}$ = 10)		
Constructive	1	5
Concentrative	9	5
Low hypnotisability ($\underline{n}$ = 10)		
Constructive	1	0
Concentrative	9	10

Discussion

High hypnotisable participants maintained their belief in the suggested experience after the conflict increased despite reporting that the vividness of the negative visual hallucination had diminished. That is, whereas the heightened conflict appeared to influence the vividness and involuntariness associated with the suggestion, highs' belief in the experience was largely unaffected. Half of the highs adopted a constructive, problem-solving approach in response to the increased conflict. It seems that whereas most highs could achieve the suggested experience initially using a concentrative cognitive style, the increased demands of heightened conflict required a more active engagement with the suggestion. The finding that highs reported less involuntariness when conflict increased is consistent with the notion that they adopted a more active approach to manage the conflicting information. Accordingly, Experiment 8 investigated directly the relevance of constructive and concentrative cognitive styles to participants' management of conflict.

EXPERIMENT 8

Introduction

The aim of Experiment 8 was to investigate the influence of specific cognitive styles on the response to hypnotic conflict. Various studies have indicated that directing participants to engage in goal-directed strategies often leads to more compelling experiences of hypnotic suggestions (Bryant & McConkey, 1990b; Spanos, Spillane, & McPeake, 1976). Also, some low hypnotisables display increased hypnotic responsiveness following instructions to adopt specific cognitive strategies (Bates, Miller, Cross, & Brigham, 1988; Diamond, Steadman, Harada, & Rosenthal, 1975; Spanos, Flynn, & Niles, 1989). These findings suggest that employing

cognitive strategies that minimise awareness of the conflict between the suggested experience and reality information may enhance hypnotic conflict management. This interpretation is consistent with the finding of Experiment 7 that some hypnotised participants adopted a constructive cognitive style in response to increased conflict.

Experiment 8 aimed to extend the findings of Experiment 7 by instructing participants to adopt a particular cognitive style during the negative visual hallucination suggestion. Participants in Experiment 8 were instructed to use either a constructive or a concentrative cognitive style when responding to a suggestion for negative visual hallucination. Similar to the procedure employed in Experiment 7, after the suggestion for a negative visual hallucination, the stimulus was manipulated to produce a subtle increase in conflict. Consistent with the findings of Experiment 7, it was expected that participants instructed to employ a constructive rather than concentrative cognitive style would be more likely to maintain a belief in the suggested hallucination during the increased conflict.

<div align="center">Method</div>

<u>Participants</u>

Thirty-one (22 female and 9 male) high hypnotisable participants of mean age 20.35 years ($\underline{SD}$ = 7.29) and 24 (16 female and 8 male) low hypnotisable participants of mean age 21.00 years ($\underline{SD}$ = 6.57), who were undergraduate psychology students at the University of New South Wales, participated in return for research credit. Participants were selected based on their extreme scores on 10-item tailored versions of the HGSHS:A (Shor & Orne, 1962) and the SHSS:C (Weitzenhoffer & Hilgard, 1962). Highs scored in the range 7-10 on the HGSHS:A ($\underline{M}$ = 8.10, $\underline{SD}$ = 0.86) and SHSS:C ($\underline{M}$ = 9.00, $\underline{SD}$ = 0.87). Lows scored in the range 0-3 on the HGSHS:A ($\underline{M}$ = 2.00, $\underline{SD}$ = 1.06) and SHSS:C ($\underline{M}$ = 2.00, $\underline{SD}$ = 1.06).

<u>Apparatus</u>

The equipment was identical to that used in Experiment 4. The lighting conditions and the stimulus presentation were the same as those used in Experiment 4 (hue: 170, saturation: 0; initial luminance: 200; maximum luminance: 240).

<u>Procedure</u>

<u>Cognitive style instructions.</u> Following informed consent procedures, the hypnotist administered an hypnotic induction procedure and suggestions for vertical hand separation, verbal inhibition, and positive visual hallucination. She then informed participants that they would be asked to look at a flashlight on the wall and she would administer a suggestion that the flashlight would disappear. Following this, the hypnotist instructed participants according to their allocation to either the constructive or the concentrative condition. The verbatim instructions given to participants in the constructive condition were as follows:

"In a moment I am going to give you an interesting hypnotic suggestion. This suggestion will tell you to not see a flashlight that will be shining on the wall in front of you. I want you to be able to do this successfully, so listen carefully to what I tell you next. Past research has shown that the best way to be successful with this suggestion is to become actively involved in what I say. Making the light disappear is not so much something you let happen as something you actively do. Rather than just listening to me and waiting for it to happen, you will need to use certain skills so that you do not see the light on the wall. That is, you will need to think in ways, and perhaps do certain things, that will help you to be aware that there is nothing on the wall. Different strategies work for different people, and you will have to choose which strategy you wish to use. Now you may wish to use one strategy or you may

wish to use a number of strategies. But to make the light disappear, and to

keep it from reappearing, you will need to use some type of strategy

throughout this experience. The important point is that you can use whatever

strategy helps you see nothing on the wall. By using strategies in this way, you

will make the light disappear."

The verbatim instructions given to participants in the concentrative condition were as

follows:

"In a moment I am going to give you an interesting hypnotic suggestion. This

suggestion will tell you to not see a flashlight that will be shining on the wall

in front of you. I want you to be able to do this successfully, so listen carefully

to what I tell you next. Past research has shown that the best way to be

successful with this suggestion is to just listen to what I say and let the effect

happen. Making the light disappear is not so much something you do as

something you let happen. It involves just letting yourself go. Rest your

conscious mind and just allow the experience to happen. By relaxing your

mind, it can easily just absorb my words and they will become real. I do not

want you to think or do anything in particular; just listen to what I say. Just by

allowing yourself to follow the suggestion to not see the light on the wall, you

will notice that it can happen. I do not want you to try to make it happen. And

I do not want you to do or think about anything other than simply listening to

my words. Just try to follow the suggestion by listening to me, and allowing it

to occur. So just let it happen by following my words. It's important that you

just allow it to happen by simply listening to what I say. By just letting

yourself go and listening to my words in this way, the light will disappear."

Negative visual hallucination suggestion. The hypnotist then administered the negative visual hallucination item, activated the stimulus presentation, and told participants to look at the flashlight shining on the wall. She instructed participants that the flashlight would fade away and disappear, and then asked participants to describe what they were seeing on the wall. Participants who reported being able to see the light were administered an additional suggestion and asked to describe what they saw on the wall. The verbatim instructions for the negative visual hallucination were those used in Experiment 4.

The experimenter then asked participants to rate their confidence that there was nothing on the wall (Test 1; 1 = "not at all sure", 10 = "extremely sure"). Following this, she pressed the laptop mouse button to commence the transition from low stimulus intensity to high intensity. After 40 s, the hypnotist asked participants to describe what they were seeing and to rate their confidence that there was nothing on the wall (Test 2). Following this, she told participants they could see normally, asked them to close their eyes, and terminated the stimulus presentation. The hypnotist then instructed participants they could see normally, told participants to close their eyes, and administered a deinduction procedure.

Postexperimental inquiry. The hypnotist then conducted a brief postexperimental inquiry into participants' response to the negative visual hallucination suggestion. In particular, the hypnotist asked participants to describe their thoughts during the suggestion and their recall of the hypnotist's instructions. Finally, the hypnotist debriefed participants, thanked them for their participation, and ended the session.

Results

All statistical tests used an alpha level of .05. Post hoc pairwise comparisons used the Bonferroni procedure to maintain a family-wise Type I error rate of .05. Appendix 5 presents summaries of statistical analyses.

<u>Reported Cognitive Style</u>

An independent rater categorised the participants' postexperimental reports in terms of the use of a constructive or concentrative cognitive style during the suggestion. Participants were considered to have adhered to the cognitive style instructions if their reported cognitive style during Test 1 matched their assigned condition. Nineteen highs complied, and 12 did not; 16 lows complied, and 8 did not. Subsequent analyses focused on the 19 high and 16 low hypnotisable participants who complied with the experimental instructions.

<u>Confidence Ratings</u>

Table 6.4 presents the mean confidence ratings at Test 1 and Test 2. A 2 (hypnotisability) x 2 (instruction condition) x 2 (test) mixed-model ANOVA indicated a significant main effect for hypnotisability, $\underline{F}(1, 31) = 75.68$, $\underline{p} < .001$. Highs were more confident in the suggested hallucination than were lows. There was also a significant main effect for test, $\underline{F}(1, 31) = 7.50$, $\underline{p} < .01$, a significant Hypnotisability x Test interaction effect, $\underline{F}(1, 31) = 4.17$, $\underline{p} < .05$, and a significant three-way interaction effect, $\underline{F}(1, 31) = 6.18$, $\underline{p} < .05$. That is, high hypnotisable participants gave significantly lower confidence ratings during Test 2 than Test 1 ($\underline{p} < .001$), whereas the confidence ratings of low hypnotisable participants did not change significantly. Furthermore, the change in confidence ratings from Test 1 to Test 2 was significant for highs in the concentrative condition ($\underline{p} < .001$) but not for highs in the constructive condition.

Table 6.4

Experiment 8: Mean Ratings of Confidence in the Suggested Experience

Hypnotisability and cognitive style	Test 1	Test 2
High hypnotisability		
Constructive (n = 11)	7.82 (2.14)	7.73 (2.10)
Concentrative (n = 8)	7.00 (2.00)	5.38 (1.85)
Low hypnotisability		
Constructive (n = 8)	2.13 (1.89)	1.87 (1.64)
Concentrative (n = 8)	1.75 (0.89)	1.75 (1.16)

Note. For confidence ratings, 1 = "not at all sure", 10 = "extremely sure". Standard deviations appear in parentheses.

Although the primary analysis focused on the responses of participants who used the cognitive style the hypnotist asked them to, a number of participants failed to carry out the hypnotist's instructions to employ constructive or concentrative cognitive strategies. Although the number of participants who did not comply with the cognitive style instructions was insufficient to allow statistical analysis, several characteristics of their responses can be noted. For instance, three of the high hypnotisable participants who employed a concentrative style despite being instructed to employ a constructive cognitive style provided a confidence rating of 10 during

Test 1, indicating high confidence in the reality of the negative visual hallucination. Following the stimulus manipulation, one of these participants maintained a confidence rating of 10, whereas the remaining two participants indicated a decline in confidence. The one who maintained a complete hallucination reported adopting a constructive cognitive style during Test 2. This participant's adjustment from a concentrative to constructive cognitive style can be seen in the following: "It got to a point where just staring at [the flashlight] didn't work. I started moving my eyes around the wall and distracted myself by focusing on other things, like little marks on the wall. Doing that kept the light from coming back." These comments suggest that the participant's change in cognitive style reflected a strategic attempt to maintain his belief in the suggested experience rather than a belated attempt to comply with the hypnotist's instructions. On the other hand, one participant who initially reported extreme confidence in the suggestion subsequently provided a confidence rating of 1 when conflict increased. This participant continued to employ a concentrative style throughout the suggestion. In contrast to the diverse responses of the non-compliant high hypnotisables in the constructive condition, none of the high hypnotisable participants in the concentrative condition who reported using constructive strategies indicated a decline in confidence when the stimulus intensity increased.

Discussion

High hypnotisable participants who were instructed to adopt a constructive style maintained the suggested experience during the increased conflict. In contrast, highs who were instructed to adopt a concentrative style became less confident in their hallucination when the stimulus became more intense. The confidence ratings of participants who did not comply with the cognitive style instructions suggest that although some participants chose to employ personally appropriate cognitive

strategies, a constructive style was more effective in resolving the challenge presented by an increase in conflict. These findings are consistent with the experiential reports of participants in Experiment 7, and highlight the importance of cognitive style in mediating the response to the conflict that is inherent in all hypnotic suggestions.

General Discussion

The aim of Experiments 7 and 8 was to investigate the phenomenal aspects of hypnotic conflict management, with particular emphasis on the role of cognitive strategies in responding to conflicting information. The experiential data from Experiment 7 indicated that greater conflict was associated with a more active effort to maintain the suggestion. The findings, however, pointed to a discrepancy between changes in the vividness of the suggested hallucination and participants' belief in the experience. Whereas the increased salience of reality information impacted upon the vividness of participants' experience, it did not have an appreciable effect on their reported belief in the reality of the hallucination. This finding is consistent with the findings of Experiment 6 and research which has indicated that some high hypnotisable participants are able to believe in suggested hypnotic blindness despite reporting visual experiences that are inconsistent with the suggestion (Bryant & McConkey, 1989b). Participants' phenomenal reports reflected the dual awareness of suggestion and reality that allows some hypnotised participants to acknowledge conflicting information while also minimising the impact of that conflict (McConkey et al., 1991).

The increased intensity of the stimulus in Experiment 7 prompted a proportion of high hypnotisable participants to employ constructive strategies. Further, although high hypnotisables in Experiment 8 could initially experience the hallucination regardless of the cognitive style they adopted, a constructive cognitive style was more

suited to managing the challenge of increased conflict. This pattern suggests that the impact of particular cognitive strategies is dependent, in part, on the discrepancy between reality and suggestion. Consistent with views of hypnosis that emphasise the importance of strategic problem-solving by participants (Sheehan & McConkey, 1982; Spanos & Barber, 1974), it appears that adopting a constructive approach that uses problem-solving strategies to meet the changing demands of the hypnotic environment is associated with the successful management of conflict.

The finding that constructive and concentrative cognitive styles were differentiated by their impact on high hypnotisable participants' response to heightened conflict is consistent with the notion that focusing on high hypnotisable individuals placed in challenging situations can highlight the processes involved in hypnotic responding (Barnier & McConkey, 1999; McConkey et al., 1989). Capacity to adopt cognitive styles that facilitate belief in suggested experiences, especially under conditions of salient conflict, may be a critical factor in mediating successful hypnotic response. Although Experiment 8 indicated a discrepancy between the impact of increased on conflict on participants who adopted the cognitive style they had been instructed to use, a substantial number of high and low hypnotisable participants did not comply with the instructions to adopt a specific cognitive style. Participants may have been unwilling or unable to adopt the instructed cognitive style. There is considerable evidence that individuals respond to hypnotic suggestions with a preferred cognitive style (Jackson & Sheehan, 1986). Sheehan and McConkey (1982) noted in their analysis of hypnotic participants' experiential responses that some participants will interpret hypnotic suggestions and employ strategic responses in ways that are idiosyncratic and consistent with their individual style of appraising the hypnotic situation. Furthermore, the findings of Experiment 7 suggest that some high

hypnotisable individuals were characterised by a flexible approach that allowed them to change from a concentrative to a constructive cognitive style when necessary. Individuals who can adapt to changes in the hypnotic setting by modifying their cognitive strategies might be more likely to manage conflict successfully across a range of suggestions and conditions.

Low hypnotisables who were instructed to adopt constructive and concentrative cognitive styles responded comparably. This contrasts with previous findings that a variety of instructional procedures can enhance response to suggestions both in hypnotic and nonhypnotic contexts (Spanos, Flynn, & Niles, 1989; Spanos et al., 1976). It is possible that more comprehensive instruction or training may have enhanced the effectiveness of constructive strategies in lows, and that the brief instruction given to participants in Experiment 8 was not enough to increase responsiveness. Alternatively, perhaps instructing low hypnotisable participants to employ constructive strategies does not result in them overcoming marked conflict between reality and suggestion. It is relevant to note that strategies aimed at enhancing hypnotic responding have had only partial success in increasing hypnotic responding in low hypnotisable participants (Spanos, Lush, & Gwynn, 1989) The findings of Experiment 8 indicate that using a constructive cognitive style can facilitate management of the conflict between suggestion and reality in participants who have an aptitude for hypnotic responding but not for those who are low hypnotisable.

Overall, the findings of Experiments 7 and 8 suggest that hypnotised participants who respond to an hypnotic suggestion by employing active problem-solving strategies can effectively maintain their belief in the suggestion despite challenging levels of conflict. These findings indicate that high levels of

hypnotisability or constructive styles are by themselves insufficient to resolve increased conflict. Successful management of the conflict appears to be mediated by high hypnotisability, use of constructive strategies that minimise awareness of suggestion-incongruent information, and specific constructions of experience that permit neglect of incompatible reality information. This interaction of factors may explain why relatively few high hypnotisable individuals are able to successfully respond to suggestions that are characterised by salient incongruity between reality and suggestion.

Implications for the Program of Research

Experiments 7 and 8 highlighted the relevance of phenomenal response dimensions and cognitive strategies to understanding hypnotic conflict management. The findings of these experiments indicated that hypnotised participants are committed to employ strategies that maintain their belief that the suggestion is real, despite the salience of conflicting information. High hypnotisable participants who adopted an active, problem-solving approach were successful in maintaining their belief in the hallucination when conflict increased, despite reporting that their experience became less involuntary and vivid. Moreover, the findings suggested that the relative effectiveness of particular cognitive strategies is dependent on the degree of conflict, and that flexibility in employing cognitive strategies might facilitate the successful management of conflict in the hypnotic setting.

CHAPTER 7

GENERAL DISCUSSION: TOWARD AN UNDERSTANDING

OF HYPNOTIC CONFLICT

The program of research conducted for this thesis investigated the management of conflict between an hypnotic suggestion and reality information. An underlying theme of the research was that hypnotic participants' management of conflict should be understood in terms of the interaction of social and cognitive processes. Experiment 1 used an overt manipulation to investigate participants' responses when a successful hypnotic experience was contradicted by sensory information. Although conflict impeded the responding of most participants, experiential reports indicated cognitive or behavioural strategies were instrumental in reducing the impact of conflict by diverting attention away from the reality information. Experiment 2 used a Reverse Stroop task to investigate the response to conflicting information when inattention to conflict was not a possible response strategy. Participants who reported that they were colour blind nonetheless displayed an interference effect consistent with normal colour perception. This study indicated that participants could respond successfully to the hypnotic suggestion despite the influence of conflict on their behaviour.

These initial experiments modified conflict between reality and suggestion in overt ways that may have involved salient demand cues. Accordingly, the next phase of the research used a paradigm that aimed to index changes in hypnotic conflict in a less overt manner. Experiment 3 indicated that conflict that was gradually increased without overt communication to the participant diminished some features of responding to a suggestion for a negative visual hallucination. The remaining experiments employed this paradigm to investigate the impact of specific factors on conflict management in hypnosis. Experiment 4 indicated that hypnosis provided a motivational context in which high hypnotisable participants particularly were committed to resolve conflict in a way that maintained belief in the hypnotic

suggestion. Application of the nonexperiment procedure in Experiment 5 and the real-simulating procedure in Experiment 6 highlighted the role of social demands in mediating conflict resolution. These experiments indicated that salient changes in reality information can convey demand characteristics that influence responding. These experiments suggested, however, that the responses of real, hypnotised participants could not be attributed solely to demand characteristics. Application of the EAT inquiry procedure in Experiment 6 indicated that during increased conflict, reals were distinguished from simulators by their experiential reports. Accordingly, Experiments 7 and 8 focused on selected dimensions of experience and the cognitive processes involved in managing conflicting information. These experiments indicated that instructing participants to adopt a constructive cognitive style facilitated the successful response in the face of strong conflict. Overall, the program of research involved experiments that addressed key social and cognitive factors that influence participants' resolution of the conflict between objective reality and hypnotic suggestion.

This final chapter focuses on the major findings and issues that have arisen in the program of research. The aim of this chapter is to present a theoretical perspective on hypnotic conflict management that is consistent with contemporary views of cognitive and social processes in hypnosis, and is based on the data obtained in the program of research. The chapter turns now to discuss (a) the role of belief and commitment in managing conflict, (b) the relevance of cognitive style, (c) the influence of social factors, (d) issues of response measurement, and (e) a theoretical perspective on hypnotic conflict.

<u>The Role of Belief and Commitment</u>

This thesis recognises that hypnotic phenomena can be characterised as delusional experiences in which participants display a subjective conviction that the suggested effects are genuine, despite conflicting reality information (Kihlstrom & Hoyt, 1988; Sutcliffe, 1960, 1961). Consistent with this view, the findings of the research program indicated that participants can believe a suggestion is real in the face of contradictory information. For instance, a participant in Experiment 1 maintained her belief that there were only two boxes present even while her hand touched a third "unseen" box. These findings underscore the importance of hypnotic participants' capacity to manage conflicting information in a way that promotes a subjective conviction that the suggested effects are real. Accordingly, this thesis argues that the management of conflict in hypnosis should be understood in terms of the processes that allow participants to maintain their belief that the suggested experience is genuine despite contradictory information.

The program of research extended the existing literature on hypnotic conflict management by investigating the impact of conflict on several dimensions of phenomenal experience. In particular, application of the EAT procedure in Experiments 6 and 7 highlighted that a major characteristic of their experience is participants' belief that the suggestion is genuine even though the perceptual quality of their experience might change. Despite the pattern of diminished vividness of participants' experience as conflict increased, participants maintained their belief that the experience suggested by the hypnotist was genuine. These findings suggest that hypnotic participants' delusory conviction about suggested effects is somewhat independent of the vividness of their experience. The apparent paradoxical

relationship between vividness and belief in hypnotic experiences seems inconsistent with the broader framework of current theories of reality judgements. Johnson (1988; Johnson et al., 1993) proposed that individuals engage in an ongoing process of "reality testing" to decide whether experiences are attributed to internal sources (i.e., imagination and thought processes) or external sources (i.e., objective events). According to this view, whereas individuals are more likely to attribute reality to an experience that involves considerable perceptual information and little information about cognitive operations, they are more likely to attribute imagination to an experience that involves substantial cognitive processing and has little perceptual detail.

Johnson (1988) noted two categories of cognitive processing that could make an imagined experience seem subjectively compelling: processes that enhance the "reality" content of the experience (e.g., processes of visual imagery that are similar to real perception), and processes that modify the criterion for reality testing judgements. Although previous work has emphasised the relevance of imaginative involvement to hypnotic responding (e.g., de Groh, 1989; Hilgard, 1970; Wilson & Barber, 1981), the findings of the current research program suggest that hypnotic conflict also involves changes in the latter category of process. Experiments 6 and 7 indicated that participants' beliefs about the reality of their experience did not decline in parallel with participants' decreased vividness of the hallucination. These findings indicate that belief in hypnotic suggestions is not simply a product of compelling imagined experiences. Rather, the independence of belief and vividness in participants' experiential reports suggests that the process by which hypnotic participants make reality attributions is discrepant from reality testing in nonhypnotic situations.

Hypnotic participants' capacity to maintain a subjective conviction that the suggested effect is genuine despite heightened conflict is highlighted by the dual awareness of reality and suggestion some participants displayed. This finding is conceptually similar to trance logic (Orne, 1959) in the sense that it reflects participants' ability to experience simultaneously aspects of reality and suggestion that are logically incompatible. Consistent with Sheehan and McConkey's (1982) account of trance logic, participants imposed cognitive frameworks on reality features that conflicted with the suggested experience in a way that allowed them to remain committed to their experience of the suggestion. Moreover, Experiments 7 and 8 pointed to the active strategies that some high hypnotisable participants implemented to achieve this cognitive engagement.

It appears that reality attribution during hypnosis is partially consistent with reality monitoring theory (Johnson, 1988; Johnson et al., 1993). Whereas the current findings support the proposal that reality attribution is mediated, in part, by modification of the reality criteria, the data do not accord with the proposition that reduced cognitive processing or increased perceptual detail mediate reality attributions. The data in this research program indicate that hypnotised participants achieve belief in the reality of the suggestion in the context of considerable cognitive processing and, at times, with reduced perceptual detail and vividness. Accordingly, this thesis recognises that hypnotic participants' motivated commitment to maintain their belief in the suggestion involved changes in their reality testing criteria such that information about perceptual detail and the use of cognitive strategies did not have an appreciable impact on their reality attributions.

The Relevance of Cognitive Style

The program of research indicated that cognitive style was important in mediating participants' response to increased conflict. Application of the EAT procedure in Experiment 7 and the administration of instructions to adopt a particular cognitive style in Experiment 8 indexed the relevance of the cognitive style that participants adopted to resolve conflicting information. These experiments highlighted that high hypnotisability alone is not sufficient to promote successful management of salient conflict and that the cognitive style adopted by participants influences their response to the suggestion. In particular, the experiments pointed to the success of a constructive rather than concentrative style in maintaining belief that the suggested experience was genuine during a high level of conflict.

Previous research has demonstrated the differential effectiveness of constructive and concentrative styles in producing compelling hypnotic experiences. Bryant and McConkey (1990b), for instance, observed that participants who employed a constructive cognitive style reported more complete hypnotic blindness than those who adopted a concentrative cognitive style. Furthermore, it has been suggested that a constructive cognitive style is most important in cognitive-delusory rather than ideomotor and challenge suggestions (Sheehan & McConkey, 1982; McConkey, 1983b). Although consistent with these proposals, the program of research extends the findings on cognitive strategies in hypnotic responding by demonstrating that the relevance of cognitive style to an hypnotic suggestion is mediated by the degree to which reality information challenges the suggested experience. Whereas a concentrative style was adequate for suggestions characterised by low conflict, a constructive style was required for suggestions involving heightened levels of conflict. This suggests that the appropriateness of particular

cognitive strategies is, in part, a function of the nature and the degree of conflict between reality and suggestion.

Application of the EAT in Experiments 6 and 7 indexed the impact of conflict on the cognitive effort that participants devoted to the suggestion and the involuntariness of participants' response to the hypnotist's instructions. The finding that participants reported their experience as being less involuntary and requiring more cognitive effort when conflict was greater highlights the active involvement of hypnotised participants in structuring their cognitions to minimise the impact of reality information. Consistent with frameworks that characterise hypnotic participants as active, problem-solving agents (Coe & Sarbin, 1991; Lynn & Sivec, 1992; Sheehan & McConkey, 1982; Spanos, 1986), the current experiments indicate that participants respond to demanding levels of conflict by actively employing cognitive strategies that allow them to maintain the suggested experience. These findings point to participants' role in evaluating the appropriate response to the contradictory information and then enacting cognitive and behavioural strategies that facilitate this response.

It should be noted that a substantial number of participants in Experiment 8 did not follow the cognitive style instructions that were administered to them. This finding indicated that some participants were either unwilling or unable to employ the specified cognitive style; also, it is consistent with the argument that hypnotic participants vary in their ability and preference for particular cognitive styles (Sheehan & McConkey, 1982). Thus, the research program suggests that hypnotic participants select and employ personally appropriate cognitive strategies to resolve the conflict between suggestion and reality in a way that facilitates successful hypnotic responding. Although a constructive style was generally the more effective

means of managing increased conflict, Experiment 7 indicated that some individuals mastered the conflict effectively by adopting a concentrative style. Moreover, the finding in Experiment 8 that some participants chose idiosyncratic strategies that were inconsistent with the instructed style points to the preferences that hypnotised individuals hold to specific styles of responding. The heterogeneity of cognitive strategy cautions against simplistic conclusions about a uniform manner in which hypnotised participants manage hypnotic conflict.

<u>The Influence of Social Factors</u>

This thesis recognises the impact of the nexus of experimental demands on hypnotic participants' experience of and response to suggestions. The comparison of hypnosis and imagination instructions in Experiment 4 highlighted the importance of the social context in which hypnotic suggestions are administered in prompting participants to resolve conflict in a way that achieves the suggested experience. Consistent with the notion that high hypnotisable participants respond to suggestions with or without an hypnotic induction procedure, highs responded to the hallucination instructions during both hypnosis and imagination. However, the findings indicated that the hypnotic context was distinguished from nonhypnotic situations by participants' ability to maintain their response to the suggestion when conflict became more salient. This suggests that communications that establish the social context as involving hypnosis prompt participants to resolve conflict more successfully and to maintain their experience of the suggestion.

The finding that hypnotic and nonhypnotic participants differed in their response to conflict manipulation can be explained in at least two ways. First, it is possible that hypnotic communications convey stronger cues that indicate participants should respond in accord with the suggestion despite conflict, and participants'

management of conflict could be seen as compliance with those demand characteristics. Second, hypnotic communications might provide a context in which participants are highly motivated to employ strategies that allow them to maintain their belief in the suggestion. In other words, hypnotised participants' successful management of conflict might reflect direct behavioural compliance with the demand characteristics of hypnosis or might instead reflect participants' efforts to structure their cognitions in a way that produces a genuine subjective conviction that events are as the hypnotist suggests. Although hypnotised participants' postexperimental reports were consistent with the motivated cognitive commitment that Sheehan (1991) proposed is characteristic of hypnotised individuals, current findings could not conclusively delineate between the two explanations. Consequently, the research program investigated the influence of social demands on participants' response to hypnotic conflict.

The program of research indexed the relevance of demand characteristics to hypnotic participants' management of conflict through applications of the nonexperiment procedure (Orne, 1969, 1970) in Experiment 5 and the real-simulating procedure (Orne, 1959, 1979) in Experiment 6. Each of these procedures allows comment about the extent to which demand characteristics can explain participants' response to conflicting information in hypnosis. Notably, even though both procedures index demand characteristics, differences between the procedures can produce discrepant findings. Rather than viewing such discrepancies as problematic, this thesis recognises that these differences highlight specific details about the influence of demand characteristics on responding. Consequently, comparison of the findings of these experiments provides a more complete account of the role of demand characteristics in conflict management than the findings of either experiment alone.

Application of the nonexperiment procedure in Experiment 5 indicated that demand characteristics may account for participants' responses when they are aware of a change in reality information. Thus, these findings suggested that participants' response to conflict between reality information and an hypnotic suggestion is mediated by their interpretation of the appropriate response. The overt presentation of information that challenges the suggestion might prompt participants to conclude that successful hypnotic responding is no longer appropriate. This finding is consistent with the observation that hypnotic participants respond less successfully when countersuggestions are administered following an hypnotic suggestion (McConkey, 1979, 1983b) and that some participants breach posthypnotic amnesia in response to various types of instructions (e.g., Howard & Coe, 1980; Kihlstrom et al., 1980; Schuyler & Coe, 1989). However, the nonexperiment procedure could not replicate the covert manipulation of conflict that occurred in the experimental paradigm developed in Experiment 3; in this sense, its application was limited.

Application of the real-simulating procedure in Experiment 6 allowed direct comparison between reals and simulators who were exposed to the paradigm developed in the program of research. In contrast to Experiment 5, the findings indicated that simulators' responses differed from those of reals. This suggests that the responding of reals within the paradigm cannot be attributed simply to compliance with demand characteristics. Furthermore, the findings of Experiment 5 suggested that simulators who detected a change in reality information would interpret the manipulation as an indication they should display a decline in responding. The performance of simulators in Experiment 6 did not parallel the responses of nonexperiment participants. This disparity in interpretation of the appropriate response suggests that participants who were actually administered the experimental

procedure were unaware that reality information was manipulated or that the manipulation was subtle enough that participants did not perceive it as a cue for diminished response to the suggestion. Therefore, the differential response of reals and simulators to the conflict manipulation suggests that the paradigm developed in the research program is effective in allowing the salience of conflict to be altered without concordant experimental demands.

Rather than indicating a decline in their experience following the stimulus manipulation, simulators reported a more powerful response to the suggestion when conflicting information became more salient. This finding highlights hypnotic participants' active attempts to find meaning in the hypnosis experiment based on the hypnotist's communications and other social cues (Kihlstrom, 1995; Orne, 1970). The most parsimonious explanation of this finding is that the reports of increased experience reflect simulators' interpretation of the experimental demands associated with repeated questioning. That is, when asked to provide a second report about the same suggestion, simulators believed the experimenter expected their experience to change in some way. Given that they did not detect any change in the stimulus or other cues to suggest their experience should decline, it appears simulators decided that the experimenter expected their hallucination responding should improve over time.

Application of the EAT inquiry in Experiment 6 highlighted key characteristics of hypnotised participants' phenomenal experience that simulators could not mimic. In essence, simulators portrayed hypnotic responding as a passive experience that required minimal cognitive input to maintain. On the other hand, reals demonstrated an active approach in which participants worked to resolve the conflict resulting from reality information that contradicted the suggestion. In particular, the

responses of reals differed from simulators in the amount of cognitive effort they reported exerting when conflict was salient. Thus, the findings indicated that hypnotisable participants employed an active approach to address the challenge that conflicting information presented to their experience of the suggestion.

Overall, these findings indicate that participants determine the appropriate outcome of conflict resolution in hypnosis by interpreting the response cues available to them within the hypnotic context. These cues include the hypnotist's communications, the participant's expectations about hypnotic responding, and the nature and degree of conflict between the hypnotic suggestion and other information, including perceptual stimuli. However, the findings also indicate that hypnotic participants do not merely resolve conflict by enacting behaviour consistent with their interpretation, but rather apply cognitive effort to resolving the conflict in a way that results in a compelling subjective belief consistent with their goals. Although demand characteristics do not fully account for participants' response to the manipulation of conflict, the hypnotist's communications influence participants' perception of the appropriate response and their commitment to managing conflict to produce this response. Social factors are an important determinant of participants' management of reality information because they provide the framework that motivates and guides participants' attempts to resolve conflict.

<center>Issues of Response Measurement</center>

The program of research employed a number of different measures to index the impact of conflict on participants' responding. These measures highlighted different aspects of hypnotic participants' management of conflicting information. For instance, the induction of salient tactile conflict in Experiment 1 pointed to some participants' adoption of behavioural strategies that allowed them to avoid conflict. It

may be argued that conflict was avoided, rather than managed, by some participants simply not exposing themselves to the conflict. This issue was addressed in Experiment 2 by applying the Reverse Stroop task. This study confirmed that participants' behaviour reflected the continued processing of perceptual information despite reporting hypnotic colour blindness, and in this sense they maintained blindness while also focusing on the conflicting information. These data highlight the potential for dissociations between implicit and explicit perception during hypnosis (Kihlstrom et al., 1992). Understanding hypnotic conflict requires convergent measures that involve both explicit and implicit levels of response because they delineate different features of the hypnotic response to the conflict.

This program of research recognised the inherent problems of indexing the influence of conflict on hypnotic responding because of the salient demand characteristics associated with most conflict manipulations. Accordingly, Experiments 3, 4, 6, 7, and 8 indexed participants' response to hallucination suggestions through descriptions of hallucinations in the presence of gradual changes in the stimulus that conflicted with the hallucination. Discrepancies between the patterns of findings in these experiments highlight the variability and complexity of the response to hypnotic conflict. Although the experimental conditions were kept as similar as possible across experiments, small variations in hypnotisability levels, perceptual features of the experimental setting, and different experimenters may have influenced participants' responses. These variations resulted from changes in the participant population, laboratory room allocation, and laboratory personnel while the program of research was conducted, and could not be held constant across the experiments. The discrepant pattern of findings from these experiments underscores the importance of

understanding the complex interplay of factors that mediates hypnotic conflict management.

Experiment 3 employed an analogue dial designed to provide a continuous index of the impact of conflict on participants' experience. Previous research has pointed to the usefulness of this tool in investigations of hypnotic experience (McConkey et al., 1999), because it provides a continuous, real-time measure of participants' response to the suggestion. The findings of Experiment 3 indicated that the analogue dial allows investigators to identify the chronology of developments in participants' experience. This methodology provided a fine-grained description of participants' responses during the suggestion and indicated that the decline in participants' experience corresponded to the period when conflict became more salient. The analogue dial represents a useful tool in clarifying the relationship between changes in hypnotic conflict and developments in participants' experience. However, some participants indicated that attending to the analogue dial distracted and detracted from their response to the hypnotic suggestion. This underscores the importance of considering participants' management of competing cognitive demands associated with measurement protocols while responding to hypnotic conflict.

The EAT procedure was employed in Experiments 6 and 7 to index the relevance of hypnotic conflict to dimensions of phenomenal experience. Application of the EAT procedure pointed to the differential impact of conflict on behavioural and experiential responses. Analysis of experimental responses highlighted the subtle, yet important, processes that characterised hypnotised participants' responses to conflict. The distinction between vividness and belief, for example, requires close attention to the subjective comments by participants about how they perceive and believe in the suggested effects. These responses, which were not mimicked by simulators, point to

the importance of qualitative data in understanding management of hypnotic conflict. Although the real-simulating model, as prescribed by Orne (1979) was intended to index demand characteristics associated with behavioural rather than experiential responses, the EAT findings nonetheless highlight the importance of indexing subjective features and the degree to which they are influenced by contextual cues.

The current experiments measured differences in hypnotic responding resulting from an increase in conflict. The absence of a counterbalanced order in the experiments raises the possibility that differences in responding may be attributed to an order effect rather than an increase in conflicting information. Bryant (1999) suggested that order effects might play an important role in the response to manipulation of reality features during hypnosis. Bryant (1999) found that whereas the vividness of a positive visual hallucination remained stable when a projected image consistent with the suggestion was initially absent and then introduced, the hallucination diminished when the image was initially present and then removed. Although an investigation of a possible order effect was not pursued in this research program, it remains a focus of future examination. The apparent inability or unwillingness of hypnotised participants to maintain belief in the suggestion when the image was removed raises questions about the construction and maintenance of hypnotic suggestions. It is possible that participants achieved success with little effort and were not motivated to then construct the hallucination when the suggestion was removed. Alternately, participants may not have developed appropriate strategies in the construction of the hallucination, and consequently did not know what to do, as it were, when faced with the removal of the projected image. Further, it is possible that the demand characteristic of removing the image was to report a diminished hallucination. These issues point to the importance of constructing measurement

approaches that recognise the contextual features that influence development and maintenance of the suggestion across varying degrees of conflict.

<div align="center">A Theoretical Perspective on Hypnotic Conflict</div>

This thesis investigated the processes involved in hypnotic participants' management of the conflict between reality information and hypnotic suggestions. Following Kihlstrom's (1997, 2001) suggestion that hypnosis should be approached from diverse perspectives, this thesis adopted the approach that hypnotic participants' management of conflict is best understood within a framework that emphasises the interaction between social and cognitive processes. This follows specific work on hypnotic conflict (McConkey, 1983a), and is consistent with general frameworks that recognise the importance of cognitive and social factors (e.g., McConkey, 1991; Sheehan & McConkey, 1982).

The current experiments used a number of specific methodologies to investigate the factors that mediate hypnotic conflict management. As Sheehan and Perry (1976) note, each specific methodology has its own limitations and advantages. Consistent with Sheehan and Perry's (1976) proposal, this thesis minimised the impact of the assumptions associated with particular procedures by adopting multiple methodologies. The experiments indicated that the major components in a theoretical account of hypnotic conflict management include the hypnotisability of participants, the role of hypnotic induction, participants' interpretation of the desired response, the belief that participants hold in the reality of the suggested events, and the readiness of participants to employ conflict management strategies to produce the appropriate outcome. Accordingly, this chapter turns now to consider the major elements of the theoretical perspective on conflict management that has been developed. The chapter

then overviews the implications of the theoretical perspective for understanding the nature of hypnotic responding.

Hypnotisability and the Relevance of Conflict

Successful hypnotic responding involves two steps. First, hypnotic participants are highly motivated to produce an experience that is consistent with the suggestions. Second, participants attempt to manage information that contradicts the suggestion. The central goal of participants is to develop and maintain a subjective conviction that the situation is as suggested by the hypnotist. In other words, successful hypnotic responding is characterised by participants' belief in something that is not objectively real (Sutcliffe, 1960, 1961).

From this perspective, participants' failure to respond to an hypnotic suggestion can be conceptualised as unsuccessful conflict management. This thesis holds that successful conflict management requires fundamental skills that are associated with hypnotisability. Accordingly, low hypnotisable participants display a floor effect in the sense that minimal levels of conflict between reality and suggestion represent a marked obstacle to them. High hypnotisable participants, on the other hand, display greater capacity for absorption and imaginative involvement (for a review, see Kirsch & Council, 1992), and are more likely to generate compelling experiences that are consistent with the hypnotic suggestion. Consequently, this thesis proposes that the capacity to manage conflicting information is an important determinant of high hypnotisable participants' belief that their experience of an hypnotic suggestion is genuine.

The Role of Hypnotic Induction

Communications that establish a social context of hypnosis are particularly important to hypnotic conflict management. Kirsch and Lynn (1995) proposed that

"the function of an hypnotic induction is merely to increase suggestibility to a minor degree (p. 847)." This thesis argues that hypnotic instructions establish a context in which participants' management of conflicting information is qualitatively different from nonhypnotic settings. In particular, an hypnotic induction establishes a context in which participants are motivated to consistently resolve the conflict between reality and suggestion by maintaining their belief that the suggested experience is real. Although high hypnotisable participants instructed to imagine alterations in experience without an hypnotic induction can generate successful experiences (e.g., Hilgard & Tart, 1966; Weitzenhoffer & Sjoberg, 1961), participants exposed to nonhypnotic suggestions do not display the same commitment to respond successfully when conflicting information challenges their performance. Kirsch and Council (1992) suggested that an hypnotic induction should be viewed as a situational variable that increases suggestibility. However, the relationship between hypnotic induction and responsiveness to suggestions is not linear, and is mediated by participants' commitment to successfully resolve conflict.

Interpretation of the Desired Response

Participants' responses to an hypnotic suggestion are shaped by their interpretation of the desired response within the experimental setting (Spanos, 1986). This interpretation is constructed from participants' preconceptions about hypnotic responding, their past experience of hypnosis, the nature and wording of the suggestion and other communications, and other cues present in the hypnotic setting. This thesis recognises that participants use diverse cues to decide upon the appropriate method to resolve conflict. The hypnotist's communications provide information about the appropriate response, and these communications motivate participants to resolve conflict such that the role requirements of a successful hypnotic participant

are satisfied. Accordingly, changes in participants' preconceptions about hypnotic responding, the hypnotist's communications, and other situational cues influence hypnotic responding by altering participants' interpretation of the appropriate response to hypnotic conflict.

Within the context of an hypnosis session, participants are inclined to resolve conflict between the suggestion and reality in a way that promotes belief that events are as suggested by the hypnotist. In other words, in the absence of salient cues to the contrary, participants attempt to resolve conflict in favour of the suggestion. However, various cues can alter participants' interpretation of the appropriate goal of conflict resolution. For instance, manipulating participants' expectancies about hypnotic responding can influence their subsequent interpretation of conflict (e.g., Dubreuil et al., 1982; Silva & Kirsch, 1987). Further, salient changes in the experimental context after the suggestion has been administered may lead participants to reinterpret the appropriate outcome of conflict resolution.

This proposal is consistent with McConkey's (1983b) finding that conflicting communications impeded hypnotic responding when administered after an hypnotic suggestion but had no appreciable impact upon responding when administered before the suggestion. Therefore, this thesis proposes that participants are committed to resolve conflict in favour of the hypnotic suggestion unless subsequent communications from the hypnotist prompt them to reinterpret their goals. Although Zamansky (1977) found that countersuggestions administered after the hypnotic suggestion did not impact upon participants' responses, it must be recognised that those participants had prior experience with the same hypnotic suggestion in the absence of conflicting communications. Consequently, Zamansky's (1977)

participants resolved the conflict by attempting to respond in accord with a previous experience of the suggestion.

Belief in the Reality of the Suggested Experience

This thesis proposes that participants' response to contextual cues is based on a motivated cognitive commitment to produce the suggested experience rather than compliance with social demands. Participants are motivated by the hypnotic context to have a subjectively compelling experience that is consistent with the role they have adopted in the hypnotic interaction. Thus, the fundamental aim of hypnotic participants' response to conflict is to promote a believed-in experience that is consistent with the hypnotic suggestion. Accordingly, hypnotic participants adopt a problem-solving approach to the management of conflict between reality and suggestion in which the goal is to generate a subjectively compelling experience of the suggestion. This perspective can be distinguished from social psychological theories of hypnosis that emphasise compliance with demand characteristics (e.g., Wagstaff, 1981), and is supported by the current finding that participants reported maintaining their belief that the suggestion was real, despite the impact of increased conflict on other dimensions of their responding.

Conflict Management Strategies

The thesis holds that hypnotic participants attempt to manage conflict by enacting strategies intended to facilitate their interpretation of the appropriate response. These behavioural and cognitive strategies can be both complex and idiosyncratic. The strategies that individual participants select are determined by their skills and preferences, the nature of the suggestion and the information that conflicts with it, and the available response alternatives. For instance, participants will enact behavioural responses that allow them to avoid confronting conflict if such responses

are possible. If avoidant strategies are not appropriate to the suggestion, then participants may select strategies that minimise the impact of conflict on their belief that the suggested effect is genuine. In other words, hypnotic participants structure their cognitions such that information that would seem contradictory to an observer does not impede the personal coherence of their hypnotic experience.

Although the research program demonstrated that constructive cognitive strategies were particularly relevant to managing the conflict between a salient percept and a suggestion for negative visual hallucination, this thesis does not propose that constructive strategies are optimal for all types of participants or all types of hypnotic conflict. To the extent that the nature of conflict between reality and suggestion varies across hypnotic phenomena, the relative effectiveness of various cognitive and behavioural strategies will also differ. As discussed in Chapter 1, McConkey (1983b) suggested that delusory items typically involve greater conflict between reality and suggestion than ideomotor and challenge items. Accordingly, this thesis holds that conflict management strategies will differ in their nature and relevance depending upon the type of suggestion. Ideomotor suggestions generally do not involve salient conflict between reality and suggestion and reality information might be consistent with the suggestion. For example, when a person extends their arm for a period of time while the hypnotist administers a suggestion for arm heaviness, the reality may be compatible with the suggestion. Consequently, participants who can generate the suggested ideomotor experience should not need to employ conflict management strategies.

Delusory or cognitive suggestions involve a diverse range of distortions in experience, behaviour, and memory, such as hallucinations, age regression, and posthypnotic amnesia. Thus, many of these suggestions require hypnotic participants

to generate an experience that is saliently contradicted by the available information about objective reality. Rather than finding meaning in two opposing instructions administered by the hypnotist, the experience of such suggestions entails successful management of the conflict produced by sensations and memories that are inconsistent with the hypnotist's instructions. This thesis proposes that participants who can successfully manage the conflict involved in one type of suggestion will not necessarily be capable of resolving conflict in other types of suggestion. Empirical evidence exists to suggest that hypnotic responsiveness consists of several dimensions corresponding to the different types of suggestion (e.g., Kihlstrom, 2001; McConkey et al., 1996; McConkey, Sheehan et al., 1980; Tellegen & Atkinson, 1976). Accordingly, this thesis suggests that the capacity to manage these different types of conflict is associated with responsiveness to ideomotor, challenge, and cognitive suggestions.

Implications of the Theoretical Perspective

The current research program identified a number of alterations in cognitive processing associated with hypnotic participants' management of conflicting information. In particular, this thesis recognises that hypnotic conflict management is facilitated by dissociations between information processing and awareness and by changes in participants' reality monitoring processes. Consistent with Kihlstrom et al.'s (1992) interpretation, this thesis holds that perceptual events that conflict with the suggested experience may be processed in the absence of phenomenal awareness of the percept. Moreover, following Sheehan and McConkey's (1982) comments, this thesis holds that the dissociation between implicit and explicit perception results from hypnotic participants' structuring of their cognitions such that information from multiple sources does not impact on their phenomenal experience. From this

perspective, dissociations between explicit and implicit perception reflect high hypnotisable participants' skill in organising their cognitive processes so that competing sets of information do not interfere with each other. However, such divisions of awareness represent only one implementation of hypnotic participants' skills. Consistent with some demonstrations of trance logic and hidden observer responding (e.g., Hilgard et al., 1975; Orne, 1959), this thesis proposes that high hypnotisable participants can also integrate seemingly disparate information to produce a coherent and compelling experience despite apparent conflict.

The research program highlighted that hypnotic participants can maintain their belief that the suggested effects are real even when conflict impinges on their conscious experience. Accordingly, hypnotic participants' capacity to maintain their subjective conviction that an hypnotic suggestion is real, despite conflicting information, reflects qualitative differences between hypnotic and nonhypnotic reality testing processes. In contrast to the normal process by which reality attributions are made (Johnson et al., 1993), hypnotic participants adjust their criteria for attributing reality to an experience in such a way that their belief can be maintained despite the impact of conflicting perceptual and cognitive information.

The interactionist perspective on conflict management presented in this thesis seeks to integrate, rather than argue against, the neodissociation and social psychological points of view. This thesis proposes a framework that recognises the importance of the relationship between social and cognitive processes in hypnotic responding, and which draws on elements of both major theoretical perspectives. Consistent with the social psychological framework, for instance, this thesis recognises that participants direct conflict management toward goals defined by their interpretation of the hypnotist's communications, which in turn is influenced by their

expectancies about hypnotic responding and their perception of other cues in the hypnotic setting. This thesis holds in common with the neodissociation framework the view that hypnotic responding can involve divisions of awareness such that conflicting information is processed independently of participants' conscious experience of the suggestion.

Whereas this thesis proposes a number of mechanisms that are consistent with both neodissociation and social psychological perspectives, the proposed model also argues against some variants of both social psychological and neodissociation theories. For example, the notion that the management of conflicting information requires cognitive effort and the active employment of strategies argues against Kirsch and Lynn's (1997) social psychological perspective, which holds that participants' expectancies result in the automatic and involuntary execution of hypnotic responses. Moreover, the current findings are also problematic for the neodissociation theory of Woody and Bowers (1994), which regards hypnotic responding as automatic and involuntary due to a disruption in executive control processes. Thus, although this thesis highlights the relevance of both social psychological and neodissociation frameworks to understanding hypnotic conflict, it points to issues concerning hypnotic participants' management of conflict that these theories should address more rigorously.

<u>Some Future Directions</u>

Although the theoretical perspective on conflict in this thesis was developed from the literature and the experiments conducted, the predictions, assumptions and limitations of this perspective should be tested further by future work. As discussed in Chapter 1, the major theoretical perspectives generally have not provided explicit accounts of the mechanisms by which participants manage conflict. This thesis has

provided a framework for understanding hypnotic conflict that future investigations should extend and refine. In turn, the development of this framework will advance theoretical analysis of more general issues in hypnosis.

The theoretical perspective presented in this thesis recognises that different hypnotic suggestions involve different types and degrees of conflict. For instance, ideomotor items typically are not accompanied by salient information that contradicts the suggestion, challenge items typically require participants to resolve the conflict between the hypnotist's communications that they are unable to perform a particular behaviour and a subsequent request to execute that behaviour, and delusory-cognitive items typically involve distortions in experience that are not consistent with the normal experience of reality. Accordingly, this thesis predicts that the relevance of particular cognitive styles to the successful management of conflict is dependent on the parameters of conflict present in any particular suggestion. Whereas this research program found that constructive cognitive strategies were most effective in allowing participants to maintain their belief that the negative visual hallucination was genuine despite salient visual conflict, this thesis acknowledges that other strategic approaches might be better suited to other types of suggestion or conflict. Future research should investigate the relevance of skills in managing particular types of conflict with responsiveness to different types of hypnotic suggestion. In addition to extending the theoretical understanding of conflict management, such research would address theoretical issues about the number and nature of abilities underlying hypnotic responding.

This thesis adopted a theoretical framework that emphasises the active, problem-solving role of participants in interpreting and resolving conflict during hypnosis. Although the findings of the research program indicated that hypnotic

participants reported greater active involvement in hypnotic responding when conflict became more salient, it did not directly index the role of allocating attentional resources to conflict management strategies. Accordingly, future research should manipulate the allocation of attention to conflict management through, for instance, the use of a dual task paradigm. This thesis predicts that the attentional demands of performing an additional task that is unrelated to the suggestion will reduce participants' capacity to successfully respond to conflict. Consequently, participants will be less able to maintain their belief in the suggested experience during salient conflict when simultaneously performing a secondary task.

Although the order of stimulus manipulation was not counterbalanced in the research program, this thesis recognises the potential for order effects to influence the response to conflict manipulation during an hypnotic suggestion. This thesis emphasises hypnotic participants' active involvement in selecting and employing cognitive strategies to manage conflict that are appropriate to the level and nature of the conflict between reality and suggestion. Changes in the degree and timing of conflict can require participants to modify their approach to conflict management. Accordingly, the thesis predicts that hypnotic participants will manage a challenging level of conflict more successfully when it exists during the time when the suggestion is administered than when conflict is increased following the suggestion. Future research should employ the paradigm developed in this thesis to evaluate order effects in the response to changes in conflict.

The theoretical perspective presented in this thesis recognises the importance of participants' motivated involvement in successfully managing hypnotic conflict. This viewpoint regards participants' commitment to collaborate with the hypnotist in producing good experimental results as an important element of participants'

motivation to respond successfully during hypnosis. Consequently, this thesis predicts that characteristics of the hypnotic setting which increase participants' motivation to respond in accord with the hypnotist's instructions will improve participants' management of challenging levels of conflict. Future work should investigate the extent to which characteristics of the relationship between hypnotist and participant, such as rapport (Sheehan, 1980), mediate conflict management. Such research would refine the interactionist perspective's understanding of the relevance of motivational factors to the management of conflict between reality and suggestion.

<div align="center">Concluding Comment</div>

This investigation of managing conflict between an hypnotic suggestion and objective reality has highlighted the complex interaction of social and cognitive processes that mediate participants' hypnotic beliefs. The hypnotist's communications, participants' expectancies and the cues available in the hypnotic setting define the goals of conflict management and motivate participants to achieve these goals. Participants evaluate the available response alternatives and, within their abilities, select strategies that minimise the relevance of conflict to their experience. The hypnotic participant can resolve situations that appear inherently contradictory to an observer so that they ignore objective reality or integrate elements of it into their hypnotic response. The processes by which participants resolve conflict are diverse and depend upon the individual participant, the suggestion, and the situation. In general these attempts seek to maintain the hypnotised participant's subjective conviction that events are as suggested by the hypnotist. This conviction is the central feature of hypnotic engagement.

The findings from the research program can be understood in terms of the theoretical perspective on hypnotic conflict presented in this thesis. This perspective

is consistent with an interactionist orientation that recognises the importance of both social and cognitive processes in mediating hypnotic responding, and that emphasises the relevance of hypnotic participants' experience in shaping their behavioural responses. Although the research program addressed the management of a particular type of conflict in a specific hypnotic phenomenon, it identified key issues that are relevant to hypnotic conflict and hypnotic phenomena in general. Thus, it provides a framework for explaining the management of conflict between reality and suggestion that can be applied to all hypnotic phenomena.

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Appendix 1

EXPERIMENTS 1 & 2: ISSUES IN HYPNOTIC CONFLICT

Experiment 2

1.   Statistical Summaries

EXPERIMENT 2

Statistical Summaries

<u>Table A1.1</u>

ANOVA Summary Table for Response Latencies

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	1.59E08	1	1.59E08	323.82	.000
Error	8349749.60	17	491161.74		
Within subjects:					
CC	106871.13	1	106871.13	52.18	.000
Error (CC)	34821.38	17	2048.32		
CB	87151.38	1	87151.38	5.01	.039
Error (CB)	295630.86	17	17390.05		
CC x CB	10504.52	1	10504.52	1.46	.243
Error (CC x CB)	121946.37	17	7173.32		

Appendix 2

EXPERIMENT 3: THE DEVELOPMENT OF A NEW PARADIGM

1.	Statistical Summaries

Statistical Summaries

Table A2.1

ANOVA Summary Table for Confidence Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	1595.98	1	1595.98	125.78	.000
C	7.19	1	7.19	0.57	.460
Error	266.46	21	12.69		
Within subjects:					
TP	23.66	1	23.66	17.86	.000
TP x C	11.05	1	11.05	8.34	.009
Error (TP)	27.82	21	1.33		

Table A2.2

ANOVA Summary Table for Analogue Dial Positions

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	722761.22	1	722761.22	128.54	.000
C	10587.08	1	10587.08	1.88	.184
Error	118076.82	21	5622.71		
Within subjects:					
I	6189.60	5	1237.92	7.06	.000
I x C	3616.71	5	723.34	4.13	.002
Error (I)	18402.28	105	175.26		

Table A2.3

Trend Analysis Contrast Table for Analogue Dial Positions

SOURCE	SS	DF	MS	F	P
Interval:					
Linear	5559.23	1	5559.23	8.95	.007
Quadratic	416.81	1	416.81	3.03	.096
Cubic	183.00	1	183.00	9.54	.006
Order 4	18.41	1	18.41	0.28	.601
Order 5	12.15	1	12.15	0.37	.552
Interval x Condition:					
Linear	2827.44	1	2827.44	4.55	.045
Quadratic	383.91	1	383.91	2.79	.109
Cubic	60.95	1	60.95	3.18	.089
Order 4	296.06	1	296.06	4.54	.045
Order 5	48.35	1	48.35	1.45	.242
Error (Interval):					
Linear	13043.44	21	621.12		
Quadratic	2886.06	21	137.43		
Cubic	402.96	21	19.19		
Order 4	1370.79	21	65.28		
Order 5	699.02	21	33.29		

Appendix 3

EXPERIMENT 4: THE ROLE OF HYPNOTISABILITY AND HYPNOSIS IN

MANAGING CONFLICT

1.   Statistical Summaries

Statistical Summaries

Table A3.1

ANOVA Summary Table for Confidence Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	1258.98	1	1258.98	189.66	.000
H	344.82	1	344.82	51.95	.000
C	83.89	1	83.89	12.64	.001
H x C	95.46	1	95.46	14.38	.000
Error	292.07	44	6.64		
Within subjects:					
T	40.34	1	40.34	12.28	.001
T x H	1.58	1	1.58	0.48	.492
T x C	33.86	1	33.86	10.30	.002
T x H x C	23.04	1	23.04	7.01	.011
Error (T)	144.59	44	3.29		

Appendix 4

EXPERIMENTS 5 & 6: DEMAND CHARACTERISTICS IN MANAGING

HYPNOTIC CONFLICT

Experiment 5

1.   Statistical Summaries

Experiment 6

1.   Examples of EAT questions

2.   Statistical Summaries

EXPERIMENT 5

Statistical Summaries

<u>Table A4.1</u>

ANOVA Summary Table for Confidence Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	1809.03	1	1809.03	184.13	.000
C	30.63	1	30.63	3.12	.094
Error	176.85	18	9.83		
Within subjects:					
T	27.23	1	27.23	12.24	.003
T x C	27.23	1	27.23	12.24	.003
Error (T)	40.05	18	2.23		

EXPERIMENT 6

Examples of EAT questions

1) What did you expect to happen when I said to you that the light would fade away and disappear?

2) What happened after I suggested here that the light would disappear?

3) Tell me about how easy or difficult you found the task of trying not to see the light.

4) How sure were you that there was no light on the wall?

5) Did it change at all or was the experience always the same for you?

Statistical Summaries

Table A4.2

ANOVA Summary Table for Confidence Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	4123.11	1	4123.11	1114.39	.000
G	21.11	1	21.11	5.71	.023
Error	111.00	30	3.70		
Within subjects:					
T	15.50	1	15.50	12.49	.001
T x G	8.25	1	8.25	6.65	.015
Error (T)	37.23	30	1.24		

Table A4.3

ANOVA Summary Table for EAT Vividness Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	4086.00	1	4086.00	1258.07	.000
G	10.50	1	10.50	3.23	.082
Error	97.44	30	3.25		
Within subjects:					
T	0.91	1	0.91	0.40	.532
T x G	10.91	1	10.91	4.78	.037
Error (T)	68.53	30	2.28		

Table A4.4

ANOVA Summary Table for EAT Belief Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	3904.92	1	3904.92	694.97	.000
G	17.67	1	17.67	3.15	.086
Error	168.57	30	5.62		
Within subjects:					
T	11.70	1	11.70	4.99	.033
T x G	9.95	1	9.95	4.24	.048
Error (T)	70.41	30	2.35		

Table A4.5

ANOVA Summary Table for EAT Effort Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	988.25	1	988.25	164.03	.000
G	63.25	1	63.25	10.50	.003
Error	180.75	30	6.03		
Within subjects:					
T	42.21	1	42.21	12.57	.001
T x G	17.21	1	17.21	5.13	.031
Error (T)	100.73	30	3.36		

Appendix 5

EXPERIMENTS 7 AND 8: HYPNOTIC CONFLICT AND THE ROLE OF

COGNITIVE STYLE

Experiment 7

1.   Examples of EAT questions

2.   Statistical Summaries

Experiment 8

1.   Statistical Summaries

EXPERIMENT 7

Examples of EAT questions

1) What did you expect to happen when the experimenter said to you that the light would fade away and disappear?

2) What happened after the experimenter suggested here that the light would disappear?

3) How did you go about trying not to see the light?

4) Tell me about how easy or difficult you found the task of trying not to see the light.

5) What did you end up seeing after the suggestion?

6) What did you believe was on the wall?

7) How you were feeling at this time?

8) Did not seeing the light become any more or less difficult by this time, or did it stay the same?

9) Did the wall look the same throughout this suggestion?

Statistical Summaries

Table A5.1

ANOVA Summary Table for Confidence Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	1210.00	1	1210.00	298.77	.000
H	260.10	1	260.10	64.22	.000
Error	72.90	18	4.05		
Within subjects:					
T	40.00	1	40.00	28.92	.000
T x H	8.10	1	8.10	5.86	.026
Error (T)	24.90	18	1.38		

Table A5.2

ANOVA Summary Table for EAT Involuntariness Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	697.23	1	697.23	129.32	.000
H	133.23	1	133.23	24.71	.000
Error	97.05	18	5.39		
Within subjects:					
T	34.23	1	34.23	18.64	.000
T x H	18.23	1	18.23	9.93	.006
Error (T)	33.05	18	1.84		

Table A5.3

ANOVA Summary Table for EAT Vividness Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	931.23	1	931.23	334.91	.000
H	112.23	1	112.23	40.36	.000
Error	50.05	18	2.78		
Within subjects:					
T	70.23	1	70.23	24.29	.000
T x H	13.23	1	13.23	4.57	.046
Error (T)	52.05	18	2.89		

Table A5.4

ANOVA Summary Table for EAT Belief Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	697.23	1	697.23	68.71	.000
H	225.63	1	225.63	22.24	.000
Error	182.65	18	10.15		
Within subjects:					
T	11.03	1	11.03	2.90	.106
T x H	0.03	1	0.03	0.01	.936
Error (T)	68.45	18	3.803		

EXPERIMENT 8

Statistical Summaries

Table A5.5

ANOVA Summary Table for Confidence Ratings

SOURCE	SS	DF	MS	F	P
Between subjects:					
Intercept	1346.41	1	1346.41	227.71	.000
H	447.51	1	447.51	75.68	.000
IC	14.456	1	14.46	2.45	.128
H x IC	7.65	1	7.65	1.29	.264
Error	183.30	31	5.91		
Within subjects:					
T	4.15	1	4.15	7.50	.010
T x H	2.31	1	2.31	4.17	.050
T x IC	1.77	1	1.77	3.20	.083
T x H x IC	3.42	1	3.42	6.18	.019
Error (T)	17.14	31	0.553		