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Zimmerman, James Kuper, Ph.D.

City University of New York, 1989

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THE INFLUENCES OF INDIVIDUAL DIFFERENCES AND EXPERIMENTER BEHAVIOR ON THE EFFECTIVENESS OF THE SUBLIMINAL PSYCHODYNAMIC ACTIVATION METHOD

by

JAMES K. ZIMMERMAN

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of requirements for the degree of Doctor of Philosophy, The City University of New York

1989

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This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

12/15/88
Date

Steven J. Ellman
Chair of Examining Committee

December 15, 1988
Date

Herbert D. Seltzer
Executive Officer

Jeffrey Rosen, Ph.D.

Louis J. Gerstman, Ph.D.

Laurence Gould, Ph.D.

Les R. Greene, Ph.D.
Supervisory Committee

The City University of New York

Abstract

THE INFLUENCES OF INDIVIDUAL DIFFERENCES AND EXPERIMENTER BEHAVIOR ON THE EFFECTIVENESS OF THE SUBLIMINAL PSYCHODYNAMIC ACTIVATION METHOD

by

James K. Zimmerman

Adviser: Professor Steven J. Ellman, Ph.D.

The present research was a replication and extension of studies using the subliminal psychodynamic activation method (Silverman et al, 1982). The replication measured the effect of experimental and control stimuli (MOMMY AND I ARE ONE and PEOPLE ARE WALKING, respectively) on subjects' anxiety level as reflected in prepost scores on the State Trait Personality Inventory (STPI (Spielberger, 1979)). The extension included a between-groups manipulation of the behavior of the experimenter to appear "Supportive" or "Confrontive", creating a 2x2 matrix (message condition-by-experimenter behavior style) for statistical analysis. Further, a questionnaire administered after tachistoscopic exposure assessed subjects' attitudes toward the experimenter; also, a measure of subjects' tendencies toward rigid or diffuse self/other boundaries (the Boundary/Fusion Test (Miller et al, in press)) was obtained.

Contrary to prediction, interaction with the Supportive experimenter combined with exposure to MOMMY AND I ARE ONE did not lead to the greatest reduction in STPI Anxiety. Among males, this group reported an Anxiety increase, and only the interaction of experimenter and message conditions was statistically significant. Among females, both groups exposed to MOMMY AND I ARE ONE showed decreases in mean Anxiety scores, but the reduction was greater when the interaction was with the Confrontive experimenter. The above findings occurred despite the fact that Ss were clearly able to delineate between the two experimenter behavior styles.

It was also found that Ss who participated in further research scored significantly lower on Boundary than those who did not, and higher on Fusion (although the difference was not statistically significant).

Although no predictions regarding STPI Anger had been made before research was undertaken, it was found that, for females, Anger functioned inversely to Anxiety, whereas all male groups except one experienced a mean Anger increase.

Findings were discussed in terms of Silverman's concept of an "overdose" of subliminal stimulation, and in relation to early transference manifestations in treatment. Several other theoretical constructs regarding the present findings were also addressed, as was the implementation of more stringent controls to avoid confounded results in future research.

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An undertaking such as this, which is over three years in the making, would not have been possible to complete without the guidance, assistance, and support of many individuals. Among these, I wish first to thank the members of my dissertation committee, Steven J. Ellman, Ph.D., Chairman, Jeffrey Rosen, Ph.D., and Louis J. Gerstman, Ph.D. They all devoted many hours of their time in helping me shape the design of the research, clarify the theoretical underpinnings of the method employed (as well as my own stance), refine the statistical analysis, and consider the implications of the findings. Likewise, the outside readers, Les R. Greene, Ph.D., and Laurence J. Gould, Ph.D., were generous in their comments, which assisted me in further smoothing out the rough edges of the paper.

I also owe a debt of gratitude to several professors at the City College of New York, and several students as well, for their help as recruiters of subjects or as research assistants. In the former group, I include particularly Brett Silverstein, Ph.D., as well as Ruth Ellen Proudfoot, Ph.D., Cynthia Grace, Ph.D., Joanne Sirey, and Anne Marie Felsten. In the latter group, invaluable assistance was provided by Janet English, Arthur Heisermann, Tom Breen, and Paul Kahn. Of course, the research would not have been possible without the participation of hundreds of City College students who were willing to offer their time as subjects.

Further, it is abundantly clear that this research owes a debt to Lloyd Silverman, Ph.D., who was unfortunately lost to us suddenly, and well before his time. Although the findings herein do not fully

ACKNOWLEDGEMENTS (CONT.)

support his point of view, and I believe that there are flaws in the subliminal psychodynamic activation method as it has been instituted in past research, I also feel the lack of opportunity to entertain his response to the body of this paper. His unflagging effort to "empiricize" psychoanalytic concepts was welcome, and it is hoped that his voice will not be lost in what evolves from his seminal work.

Finally, I wish to say that it is rare in life to find someone who is understanding enough to put up with one's frailties and obsessions and remain supportive and loving. I've been highly fortunate to find such a person in my wife, Jan Braun. It's obvious to me, and to many of our close friends, that attaining the goal of the completion of my doctorate would have had far less richness of meaning for me if she were not with me throughout the process. To her, I owe the deepest gratitude of all.

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CHAPTER I: LITERATURE REVIEW AND INTRODUCTION TO RESEARCH

Since the inception of psychoanalytic theory and technique, the concept of the dynamic Unconscious (e.g., Freud, 1900, 1905, 1915) has been central in its explanatory power as a mediating variable. However, it is by no means the case that this concept, among others upon which psychoanalytic theory rests, is a widely accepted, empirically based entity (see, for example, Skinner, 1974, and Miller et al, 1960, for contrasting points of view). In fact, psychoanalytic rules of inference have been called into question often as a result of what is seen as their solipsistic, metaphorical, and hermeneutic qualities. Consequently, psychoanalysis has been challenged to find a more empirical data base for its tenets. The present inquiry will focus on one particular line of research and its influence in helping to provide "hard" evidence for psychoanalytic propositions. In addition to reviewing relevant research and considering some of its implications, an experimental procedure will be described. Finally, the results of this experiment will be discussed in light of past evidence and hypotheses, and areas for further exploration will be delineated.

DEVELOPMENT OF THE SUBLIMINAL PSYCHODYNAMIC ACTIVATION METHOD

One research paradigm that has been employed extensively over approximately the last quarter century is that which includes the subliminal presentation of stimuli (i.e., below the threshold at which an individual can report having perceived them). This method is based on the assumption that if such stimuli are presented under rigorously controlled experimental conditions, and there follows a change in cognition, affect, or motor activity, one can assume that there has been a mediating "internal" process that has not been

accessible to the conscious awareness of the subject (see, for example, Kihlstrom, 1987, for a discussion supporting this point of view). Although the issue is still a controversial one (see Dixon, 1981), many researchers have felt confident in proposing that this mediating process provides evidence for the existence of a psychodynamic Unconscious (see Silverman et al, 1982, for a review of early research). On this basis, they have developed various procedures to test the validity of several psychoanalytic and psychodynamic constructs (see Silverman, 1983, and Silverman and Geisler, 1985, for reviews of pertinent empirical work).

In the early 1960's, Lloyd Silverman began using a procedure he called the "subliminal psychodynamic activation method" (e.g., Silverman and D.K. Silverman, 1964; Silverman and S.E. Silverman, 1967). In essence, the procedure includes the delivery of verbal and/or pictorial messages through a tachistoscope--a machine designed to deliver stimuli under precisely controlled conditions of duration and illumination. Typically, a message is presented four times, at four milliseconds per presentation, with an interstimulus interval of ten seconds. There is ample evidence that this duration of the stimulus, particularly at lower levels of illumination, is not consciously perceived by an individual looking into the tachistoscope (Silverman et al, 1982; Dixon, 1981). Obviously, these levels of illumination and the duration of the stimulus must be precisely measured and controlled. This will be considered further in the "Methods" section below (Chapter III).

Hypothetically, then, the messages register subconsciously, and the content of the message should be predictive, as an independent variable, of changes in the dependent variable in a given experiment.

Furthermore, such changes should be related to the arousal of psychodynamic issues which the stimulus is assumed to influence.

Of course, there is an underlying basic assumption which needs to be addressed here, and that is whether there exists such a thing as a "subconscious" aspect of cognition. Although this is certainly a highly debated issue, there is compelling evidence for the existence of levels of processing of which one is unaware (see, for example, Hilgard, 1986; Dixon, 1981; Winson, 1985; see also Polanyi, 1966, for an interesting philosophical treatise on the existence, and logical necessity, of levels of knowing which motivate us in powerful but unspoken ways). Unawareness, however, does not necessarily mean "Unconscious" in the psychoanalytic sense--i.e., psychodynamic, drive-related, etc.--but for the sake of the present argument, it will be assumed that there <u>is</u> the possibility of the existence of just this sort of processing without awareness.

<u>Early Research</u>

In a series of studies, Silverman and his colleagues found that subliminal presentation of aggressively-laden stimuli increased thought disorder in schizophrenics under controlled laboratory conditions (see Silverman et al, 1982, for a review of research). It was also found that this effect seemed to be specific to schizophrenics, and that the subliminal presentation of stimuli presumed to stir up other kinds of psychopathology did not have a similar disorganizing effect (Silverman and S.E. Silverman, 1967; Silverman et al, 1969; Silverman et al, 1976).

Even more intriguing, it was found that other messages that should have effects specific to certain forms of pathology did indeed have influence in the predicted directions, in accordance with

various tenets of psychoanalytic theory. For example, homosexual orientation increased in homosexual men after presentation of a stimulus assumed to arouse incest wishes (Silverman et al, 1973; Silverman et al, 1976); stuttering was intensified in stutterers after presentation of stimuli presumed to evoke anal wishes (Silverman et al, 1972; Silverman et al, 1976); and so on (see Silverman, 1983, for a more comprehensive review).

Throughout his research, Silverman controlled for such possible confounds as partial cues (Dixon, 1981), ineffective registration of stimuli (Silverman et al, 1978), and experimenter effects (at least those prevented by double-blind conditions (Rosenthal, 1966)). Apparently, what was beginning to emerge was a body of "hard-nosed" empirical literature to support psychoanalytic propositions, and, even more exciting to Silverman and other researchers, the possibility of a paradigm that could pave the "royal road to the Unconscious" with solid empirical evidence (Silverman et al, 1982, following Freud, 1900).[1]

A Paradigm to Reduce Pathology

Another important direction which evolved in research using the subliminal psychodynamic activation method was toward discovering and refining subliminal stimuli that would reduce pathology and/or enhance adaptation. Certainly, this was motivated partially by ethical and moral issues engendered by the presentation of stimuli that increase pathology, although it is apparent that the effects of subliminal stimulation are short-lived unless dosage is consistent and is maintained for several weeks (Silverman and Weinberger, 1985; Garske, 1984). However, more to the point is the fact that a central task of psychotherapy is the reduction of pathology and enhancement

of adaptation. A major focus of Silverman's last work was to direct his attention to ways in which adaptation-enhancing subliminal stimuli could be used to develop a deeper understanding of the tools and techniques of the psychotherapeutic process (Silverman et al, 1982; Silverman and Weinberger, 1985; Silverman, in press). Clearly, he assumed that such stimuli and their presumed effect on unconscious processes can be employed to inform improvements in technique.

The message used to attempt to reduce pathology in schizophrenics was MOMMY AND I ARE ONE, a phrase used as a self-soothing "mantra" by a schizophrenic treated by Silverman's wife (Silverman et al, 1982). The theoretical assumption underlying the use of this stimulus (following Winnicott, 1965, and Mahler et al, 1975) is that it evokes unconscious fantasies of merger with the "good mother of childhood"--otherwise known as "symbiotic-like oneness fantasies" (Silverman, 1983; Silverman et al, 1982). Indeed, MOMMY AND I ARE ONE was found to reduce thought disorder in schizophrenics (see Silverman et al, 1982, and Silverman, 1983, for reviews).

Several interesting exceptions and individual differences also became apparent. First of all, it was found that MOMMY AND I ARE ONE was pathology-reducing only for relatively differentiated schizophrenics; that is, those whose concept of self was more clearly delineated from their concept of their mother (Silverman et al, 1969). This suggested the possibility that level of self/other differentiation could influence the strength and direction of response to the stimulus. In fact, the message actually increased pathology in less differentiated patients. Secondly, the effect seemed to be restricted to MOMMY AND I ARE ONE, and was not evident

for phrases that would seem to be closely related semantically but not psychodynamically, such as MOMMY AND I ARE ALIKE and MOMMY AND I ARE THE SAME (Kaplan, 1976; Bronstein and Rodin, 1983; Fribourg, 1981; Kaplan et al, 1985). This demonstrated the specificity of the effect, lending further credence to the possibility that in fact a certain train of semantic associations, or fantasy, was evoked by each stimulus. Third, the effect seemed to be dependent upon the subject's actual use of the word "mommy" in childhood (Loveland, 1977), implying that stimuli had to access actual linguistic pathways that had been familiar to subjects in early childhood. This led to the restriction of subject pools to those who came from English-speaking backgrounds, excluding Southerners as well (where the word "mama" was more likely to have been used).

Finally, women did not evidence as much pathology reduction as did men in response to MOMMY AND I ARE ONE, but responded well to stimuli such as DADDY AND I ARE ONE and MY LOVER AND I ARE ONE (Cohen, 1977; Jackson, 1983; Florek, 1978). Women also responded with pathology reduction to the phrase MOMMY AND I ARE TWO, leading Silverman to the hypothesis that these apparent sex differences in response intensity and direction to the stimuli were based on differences in developmental differentiation processes between males and females.

To summarize, the discovery of these individual differences in response to subliminal stimulation supports the supposition that subliminal stimuli do in fact register cognitively in fairly specific ways based on semantic processing. Also, these differences seem to suggest that there are unconscious clusters of associations that will be accessed differently according to individual differences in

ontogeny, gender, and personality. The above progression of empirical evidence strengthens the hypothesis that there exists some form of "dynamic Unconscious" with motivating power which is accessed by subliminal stimuli of the sort Silverman and his colleagues have employed.

However, Balay and Shevrin (1988) raise the issue of the relationship between semantic and episodic pathways in memory (Tulving, 1972), and question whether it is clear what clusters of associations to "mommy" are raised by the presentation of the phrase MOMMY AND I ARE ONE. In fact, they make the point that it is unclear why there would even be a general salutory effect of this message on heterogeneous groups of individuals. In other words, are the Unconscious minds of randomly selected groups of people likely to be affected in identical ways by one generic form of stimulation, or are different people likely to vary considerably in their responsiveness to stimulation such that messages should be tailored to the life experience and psychodynamics of each individual? Haspel and Harris (1982) advanced this possibility, and Shevrin (in press) will report on research following up on this line of reasoning. The research reported in the present paper will also attempt to shed some light on this question. However, to fully debate this issue is well beyond the scope of this inquiry; further, since the research here is based on replication of research which accepted the possibility of generic subliminal psychodynamic activation, it requires at least an open mind on the matter. Finally, the current research was not undertaken to dispute or support the existence of a psychoanalytic Unconscious, but more to clarify some of the areas of confusion in past research using the subliminal psychodynamic activation method.

Nonclinical Populations

Silverman extended his research to nonclinical populations, and the trends found in schizophrenics held up quite well (Silverman, 1983; Silverman and Geisler, 1985; Silverman and Grabowski, 1982). MOMMY AND I ARE ONE (or its variants, depending upon gender of subjects, etc.) was shown to be effective in enhancing other forms of treatment (Silverman et al, 1974; Martin, 1975; Palmatier and Bornstein, 1980; Linehan and O'Toole, 1982; Packer, 1982; Schurtman et al, 1982) and in improving academic performance (Ariam and Siller, 1982; Zuckerman, 1980; Parker, 1982). By Silverman's last report (Silverman and Weinberger, 1985), the ratio of replications to failures-to-replicate (including doctoral dissertations and unpublished papers) was approximately 3:1 for all known studies using the subliminal psychodynamic activation method.[2]

The exact meaning of these effects is unclear, however. As has been discussed above (p. 5), Silverman attributes it to the evocation of unconscious symbiotic-like oneness fantasies. It is obvious, though, that since these fantasies are unconscious, they cannot be directly observed, and their motive power can only be seen empirically in derivatives. Logically, then, in order to be sure that the effects are caused by this evocation, all other competing hypotheses would have to be demonstrated to be false, or at least minimal in their influence. Although the evidence presented above seems to be compelling enough to consider Silverman's line of thought as a plausible hypothesis, the elimination of other possibilities has yet to be accomplished.

THEORETICAL FOUNDATIONS

Before considering alternative hypotheses and methodology

designed to test these hypotheses, it is necessary to focus briefly on several theoretical foundations of Silverman's position regarding the data compiled to date.

The Schizophrenic's "Boundary Problem"

Silverman (in Silverman et al, 1982) presents the following line of argument: He suggests that schizophrenics show evidence of a "boundary problem" (p. 58), which follows from inadequacies in the phase of "symbiosis" (Mahler et al, 1975). Developmentally, it is during this phase that the infant begins to become aware of self/other boundaries (as well as boundaries between the "dual unity within one common boundary"--i.e., the infant and its mother--and the external world beyond (Mahler et al, 1975, p. 44)). Following Blatt and Wild (1976), Silverman suggests that one cluster of symptoms, including thought disorder and hallucinations, can be thought of as manifestations of the "inability to maintain boundary distinctions" (Blatt and Wild, 1976, p. 66). On the other hand, a second cluster of symptoms, including paranoia and withdrawal, "can be seen as serving to maintain or restore boundary differentiations and to ward off the feelings of merging, dissolution, and annihilation that the absence of boundary distinctions frequently lead to" (Silverman et al, 1982, p. 59). Silverman goes one step further, however, seeing the boundary deficit as psychodynamically motivated, "as an expression of an unconscious wish to obtain symbiotic-like gratification" (Silverman et al, 1982, p. 59; emphasis theirs). From this perspective, the above-mentioned symptom clusters "can be seen as expressing hidden symbiotic-like wishes...and...as serving defensive needs to ward off these wishes" (p. 59), respectively.

Silverman operationalizes his discussion of the schizophrenic's

"boundary problem" by providing clinically and empirically verifiable predictions. It is stated that pathology would be exacerbated under conditions in which symbiotic-like wishes are frustrated, or in which they are gratified in such a way that the individual's sense of self is threatened with fragmentation or dissolution (Silverman et al, 1982, p. 61). Alternatively, diminution of pathology should result when "symbiotic-like wishes are gratified safely--that is gratified without threatening the sense of self" (p. 62). This is in fact the cornerstone of Silverman's position. Stated another way: "**Unconscious oneness fantasies can enhance adaptation if, simultaneously, a sense of self can be preserved**" (p. 1; emphasis the present author's).

Clearly, this hypothesis has explanatory power in relation to the body of empirical literature that Silverman and other researchers have compiled, both with schizophrenic and with "normal" populations. First of all, the adaptive (i.e., pathology-reducing) effect of the message MOMMY AND I ARE ONE can thus be explained as resulting from the stimulation and gratification of unconscious wishes for symbiotic-like merger with the "good mother of infancy" (Silverman et al, 1982, p. 80). Secondly, the difference in response between relatively more versus less differentiated schizophrenics can be explained by reference to the requirement that a sense of self be preserved. Presumably, the less differentiated subjects are too close to fragmentation and too threatened by fears and fantasies of engulfment to tolerate a symbiotic-like oneness fantasy.

Thirdly, the sex difference in response to the stimulus can be considered to be a result of differences in development between males and females. It is reasoned that females do not need to

differentiate from their mothers in order to establish socially appropriate gender identifications, at least not in the way males do.[3] In fact, it is suggested that the lack of differentiation causes females to be more susceptible to the negative effects of the evocation of merger fantasies. Stated concisely, females have a more difficult time tolerating symbiotic-like oneness fantasies without experiencing a threat to their sense of self. As evidence to support this contention, Silverman points out that phrases such as MOMMY AND I ARE TWO and MY LOVER AND I ARE ONE--seen as evoking oneness fantasies of a more differentiated (and ontogenetically later) sort--are effective with females, whereas the effect of MOMMY AND I ARE ONE is inconsistent (Silverman et al, 1982).

The Influence of Kohut

Silverman also sees Kohut's (1971, 1977) view of the development of narcissistic personality disorders as relevant to his theory of the function of oneness fantasies. He suggests a parallel between attempts to restore self-cohesion through the use of "mirroring selfobjects" (Kohut, 1977) and his own concept of "'symbiotic-like objects' with whom the narcissistic person attempts to restore an adequate sense of self by means of a oneness fantasy" (Silverman et al, 1982, p. 183). In other words, the need for merger could be seen as being in service of the restoration of an intact sense of self. One is reminded of a "rapprochement" child (Mahler et al, 1975) who struggles to maintain contact with "mommy" while at the same time developing its own individual uniqueness; this suggests that merging can be used to aid separation/individuation.

It would follow, then, that MOMMY AND I ARE ONE evokes a maternal selfobject in fantasy, allowing the individual to "merge in

order to re-emerge" (Rose, 1972, p. 185) in the service of adaptation to separateness. It is as if the stimulus would cause the re-enactment of a "transmuting internalization" (Kohut, 1977)--i.e., aspects of one's image of "mommy" would be taken into one's self and used in an ameliorative way. It would seem, then, that individuals with a greater need to "merge in order to re-emerge", should be more profoundly affected by MOMMY AND I ARE ONE in an ameliorative way--again, so long as a sense of self is preserved.[4]

Oneness Fantasies in Treatment and the Laboratory

Logically, it follows that more than insight alone may be required as agents of change in psychoanalysis. To the point, Silverman et al (1982) maintain that terms such as Kohut's "empathic mirroring selfobject" (Kohut, 1971, 1977) and Winnicott's "holding environment" (Winnicott, 1963; Modell, 1976), "involve the activation of...the fantasy of symbiotic-like oneness" (p. 194, following Silverman, 1979). A parallel is drawn between the provision of a "holding environment" and the behavior of the "good symbiotic mother", and the suggestion is made that the activation of symbiotic-like oneness fantasies cannot be avoided in psychotherapeutic treatment. Simply put, "such desirable qualities in a clinician as being accepting of a patient and conveying a sense of understanding and helpfulness can activate these fantasies. Thus, in order to prevent their activation, the psychoanalytic clinician would have to suppress these qualities" (p. 196). Presumably, then, the suppression of these qualities would neutralize pathology-reducing effects, and may even produce effects antithetical to what would be the desired outcome in treatment. Clearly, it is assumed that MOMMY AND I ARE ONE evokes the appropriate symbiotic-like oneness

fantasies, paralleling the effect of an appropriate therapeutic environment and relationship.

In fact, Silverman maintains that the therapeutic alliance perforce includes the activation of oneness fantasies (Silverman et al, 1982, p. 215), and later suggests that nonspecific treatment ("placebo") effects derive their dynamic power from the evocation of these fantasies as well (p. 261). There are personality characteristics that are correlated with the occurrence of placebo effects: "For patients, these are suggestibility, faith, and hope; for physicians, interest in and liking of the patient, and investment in the treatment" (p. 262).

A substitution of the word "subject" for "patient", and "experimenter" for "physician" makes the above statement very germane to the research to be described in the following pages. For who is more likely to be invested in the results of an experiment than the experimenter himself? Even if conditions are double-blind, the experimenter will want to be doing a good job, and is likely to want to establish a comfortable relationship with the subject, no matter how brief their interaction may be. According to Orne (1962), subjects are just as invested, if not more so, in that the subject's basic aim is to be a "good" one--that is, to make the experiment successful--by trying to "penetrate the experimenter's inscrutability and discover the rationale of the experiment" (Orne, as quoted in Rosenthal, 1966, p. 189). Of course, the intent is also to cooperate. Further, much of the effect of the experiment in terms of subject set occurs in the first few minutes, even as the subject is being given orienting instructions (Rosenthal, 1966). From another perspective, Greene and Rosenkrantz (1983) suggest that, with regard

to entry into a group under conditions of ambiguity and unclear boundaries (in their case, "Tavistock" groups), one seeks to discover the parameters of one's relationships in the group (one's "projective fit" (p. 11)), and this is done on a fantasy level immediately upon entry into the group.

There are obvious parallels between Orne's work with subject/experimenter relationships, Greene and Rosenkrantz' work with groups, and occurrences in psychoanalytic treatment. What situation could be more ambiguous than the patient's first visit to the analyst? And who could be in a more highly aroused (and anxiety-laden) affective state than this hypothetical patient? Certainly, this would be a time when a need for some sort of comfort, some handles to hold onto, would be highly activated. Further, a warm, empathic, interested response on the part of the analyst would likely be anxiety-reducing--providing that a sense of self is preserved (Silverman et al, 1982, p. 1). One would think that some aspects of the relationship, if not components of the transference itself, would fall into place in very short order.

In fact, some psychoanalytic thinkers support this point of view. For example, Greenson maintains that "the patient comes to the initial interview with a preformed relationship to [the analyst]" (Greenson, 1978, p. 215), and Glover (1955) refers to "floating" transference reactions early in treatment. Both Frank (1973) and Basch (1980) also stress the importance of the experience of initial contact, and the effects of therapist (or experimenter) behavior on patient (or subject) response.

Again returning to the environment of the laboratory, it seems that this line of reasoning would hold true there as well. Namely,

variations in subject "suggestibility, faith, and hope" should have as profound an effect on experimental outcome as will variations in experimenter "interest, liking, and investment", and this influence should be in place very early in the encounter. It would follow, then, that "first impression" attributes of not only the subject, but also of the experimenter, should have a profound influence on the variables one wishes to measure empirically. Further, one would want carefully to consider and control for the effects of these influences. This will be taken up in greater detail in describing the research done in the present inquiry; first, a further examination of Silverman's point of view will be undertaken.

An Inconsistency

Silverman vacillates in regard to the influence of the relationship in the laboratory on the results of subliminal psychodynamic activation research. He emphasizes that a quality crucial to the therapeutic relationship, characterized by "caring" and the "similarity of patient and therapist", can be attributed, at least in part, to the activation of symbiotic-like oneness fantasies (Silverman and Weinberger, 1985, p. 1304). He also suggests mediating processes that might make behavior more adaptive after activating oneness fantasies under experimental conditions: 1) The allaying of anxiety and mobilization of positive affects; 2) the gratification of dependency needs, leading to increased capacity for independent action; and 3) increased receptiveness "to the interventions offered by helping persons who may be unconsciously perceived...as 'mommy'" (p. 1303). Examples of research offered as corroborating evidence are as follows: 1) For allaying anxiety-- Silverman et al, 1973; Fulford, 1980; Silverman and Grabowski, 1982;

Garske, 1984; 2) for the gratification of dependency needs--Palmatier and Bornstein, 1980; Schurtman et al, 1982; Bryant-Tuckett and Silverman, 1984; and 3) for increased receptiveness--Schurtman et al, 1982; Linehan and O'Toole, 1982.

Moreover, the following anecdote is offered elsewhere (Silverman et al, 1982, p. 231) as an example of the evocation of oneness fantasies in everyday life: A friend of one of the authors began taking lessons with a female tennis pro, and "could feel [himself] hitting differently almost before she said anything. It was something about her manner...She was low-keyed, smiling, never irritated, and always accepting...she was totally with me and for me..." Clearly, the sort of immediate set described as occurring in the treatment room and laboratory is thought of as an event common to life in general.

This would lead one to believe that Silverman and his associates consider that the relationship itself--between patient and therapist, subject and experimenter, student and teacher--is central to the evocation of symbiotic-like oneness fantasies with pathology-reducing, adaptive effects. However, this does not seem to be categorically the case: "The pathology-reducing effects of the subliminally presented phrase MOMMY AND I ARE ONE...can thus be better ascribed to its having activated unconscious fantasies of oneness than to the creation of a symbiotic relationship in the laboratory situation" (Silverman et al, 1982, pp. 93-94). This assumption is based upon the brevity of the subject/experimenter relationship, the maintenance of double-blind conditions, and the fact that a control condition is used which is identical to the experimental condition except that a "neutral" message (generally,

PEOPLE ARE WALKING) is employed.[5]

As can be seen from the above discussion, however, this does not necessarily obviate all differential effects other than stimulus condition. Assuming that symbiotic-like oneness fantasies are in fact evoked by the experimental stimulus MOMMY AND I ARE ONE, it is nevertheless possible that individual differences in character and developmental achievement will influence subjects' response intensity and direction (i.e., pathology reduction or increase). It is also possible that the interaction between the subject's set and the experimenter's behavior will influence the direction and quality of response to the stimulus. Before the evocation of unconscious oneness fantasies can be accepted as a strong explanatory hypothesis, the effects of these variables must be investigated.

INDIVIDUAL DIFFERENCES

The literature includes several articles that report research with bearing on the issue of individual differences that influence subject responsiveness in subliminal psychodynamic activation paradigms.

Garske's Attempt

Garske (1984) decided to proceed on the assumption that the sex difference reported by Silverman had not been definitively demonstrated. He used nonclinical subject pools of males and females, and found that MOMMY AND I ARE ONE reduced anxiety (as measured by Spielberger's State-Trait Personality Inventory (Spielberger, 1979)) in his population, with sex-of-subject not having a significant main or interactive effect.

There are methodological problems with Garske's work, however. First of all, his strongest results in three experiments reported

still did occur with an all-male subject population; this is in line with what Silverman's hypothesis would also predict, and thus does not definitively clarify the gender/differentiation debate. Secondly, and perhaps more salient, a female experimenter was used throughout. Silverman himself reported a sex-of-experimenter effect in two studies: It was found that "female experimenters did not elicit the psychodynamic effects that male experimenters did" (Silverman and Geisler, 1985, p. 9; referring to studies done by Silverman et al, 1978, and Citrin, 1979), although the stimulus used in the experiments referred to was not MOMMY AND I ARE ONE. Nevertheless, it seems that individual differences in the experimenter <u>are</u> thought to exert an effect on the experiment in at least some forms of Silverman's experimental paradigm. In addition, by extrapolation from Greene and Rosenkrantz' (1983) research, one may well assume that the use of a female experimenter would have a differential effect, not necessarily broken down along lines of sex, but certainly along lines of level of differentiation.

Perhaps the most significant methodological problem with Garske's research is a technical one: Subjects in his experiments were not shown a central focal dot on blank field cards in the tachistoscope; they were merely told to focus on the middle of the card (Garske, personal communication). Silverman maintains that foveal presentation is crucial to ensure subliminal registration of stimuli (Silverman and Geisler, 1985), and Spence et al (in press) contend that without a focal dot, it is impossible to be sure that foveal registration has occurred at all.

In sum, Garske's claim that there is no differential influence of sex-of-subject on outcomes in research using the psychodynamic

activation method is certainly debatable, and further replication to confirm or dispute his finding is in order.

The Impact of Defensive Style

There is also evidence in the literature to suggest that differences in defensive style may influence susceptibility and response direction to subliminal stimulation. Subjects with defenses that are more permeable to the irruption of unconscious drive derivatives or the eruption of anxiety have been shown to be more profoundly affected by subliminal psychodynamic activation (Litwack et al, 1979; Carroll, 1980; Glennon, 1983). Conversely, "there is evidence to suggest that responsiveness...is less likely to occur in subjects who are relatively well defended against the psychodynamic content that the experimental stimuli activate" (Silverman and Geisler, 1985, p. 17).

If the findings reported in the above research are in fact correct, it should follow that the constructs of "permeability of defenses" on the one hand, and "well-defendedness" on the other, should apply to the current research as well. It is suggested here that subjects who have intense needs for symbiotic-like gratification ("fusion" or "merger"), or an inability to "screen out" such impulses, are those whose defenses are more permeable, and who should manifest greater changes in anxiety after stimulation with a "oneness" stimulus such as MOMMY AND I ARE ONE. In addition, those who manifest high levels of need for, or inability to exclude, experiences of "merger", concurrent with high levels of defensive warding off of fears of engulfment and annihilation ("boundary"--see p. 9 above) would be considered not likely to respond to the MOMMY AND I ARE ONE stimulus with a reduction in anxiety. If this stimulus

does in fact evoke symbiotic-like oneness fantasies, these fantasies would be particularly conflictful, and presumably anxiety-provoking, for such subjects.

On the other hand, subjects with less intense needs for, or experiences of, merger and defense against it, or those with high levels of need for merger coupled with lower levels of need to maintain rigid defensive boundaries, should be more likely to experience the stimulus as ameliorative.

The Boundary/Fusion Test

An instrument that was developed to measure levels of need for (or involvement with) merger, and levels of defense against blurring of boundaries, is the Boundary/Fusion Test (Miller et al, in press; see Appendix F). It is a factor-analytically derived scale with two orthogonal factors: 1) Boundary--that is, the tendency of a respondent to maintain more or less rigid spatial, temporal, and interpersonal boundaries--including such items as "I allow plenty of time between tasks so I don't have to rush" and "There is a clear distinction between rational and irrational thinking"; and 2) Fusion--the tendency of a respondent to experience greater or lesser levels of blurring of boundaries, lack of bodily intactness, and self/other merger--including items such as "The thought has occurred to me that various parts of my body don't fit together well" and "I often think I can read people's minds". The scale includes 41 items, the response to each of which is on a seven-point spectrum, from 1 ("Strongly disagree") to 7 ("Strongly agree"); 16 of these items load on the Boundary factor, and 16 on the Fusion factor.

The Boundary/Fusion Test is a relatively recently developed scale, and psychometric data, such as standard scores and differences

among various populations, are still in the process of being collected and analyzed. Nevertheless, it was felt that this measure would be particularly appropriate for the research to be presented in this paper, because data are obtained on both the tendencies toward merger and the presumed defense against them. Comparisons could then be made between subgroups of interest; for example, between those who have both a high tendency to experience merger phenomena and a high need to defend against loss of clear boundaries (i.e., those who would score high on both Boundary and Fusion) on the one hand, and those who have high tendencies toward merger without the need to defend against them (low Boundary, high Fusion). According to the argument presented above, the former should experience an increase in anxiety after exposure to MOMMY AND I ARE ONE, whereas the latter should experience an ameliorative (i.e., anxiety-reducing) effect.

An Interaction?

The specific reason for the use of a measure such as the Boundary/Fusion Test is this: An alternative explanation for the alleged sex difference in response to MOMMY AND I ARE ONE is that there may be a confounding of sex-of-subject with levels of need for merger and defense against it. Since females are thought to differentiate to a lesser degree from their mothers (Silverman et al, 1982), one would expect them to have higher levels of experience of merger, coupled with stronger needs in general to defend against re-engulfment (in order to maintain separate intactness of self). If this is true, it follows that females in general should test higher on measures of both merger (i.e., Fusion) and defense against it (i.e., Boundary). They should also experience less anxiety reduction (or even an anxiety increase) after exposure to MOMMY AND I ARE ONE,

since it would presumably be more likely to threaten the integrity of their sense of self. Furthermore, there should be a correlation among males and females between measures of merger and defense against it on the one hand, and response direction and magnitude (i.e., anxiety reduction or increase) on the other (for specific predictions, see p. 25). This correlation should parallel the "level-of-differentiation" difference found among male schizophrenics (Silverman et al, 1969).

Note that the argument developed here requires that one make a more basic assumption that schizophrenic pathology is continuous with nonschizophrenic pathology, as well as with psychological health; further, one must assume that there is an ontogenetic basis for differential responses to symbiotic-like oneness fantasies among all individuals. This is implicit in the logic Silverman used in moving from schizophrenic to nonschizophrenic populations (Silverman et al, 1982; see also Garske, 1984), which line of thinking subscribes to the developmental theories of writers such as Mahler and her associates (Mahler et al, 1975). Following these assumptions, then, all subjects, whether schizophrenic or not, would have some level of susceptibility to the influence of oneness fantasies, and would exhibit some level of need for merger and for defense against it. Certainly this latter assumption is one of a higher order, and has not been definitively demonstrated empirically; however, for the sake of the present argument and the research that evolves from it, the continuum hypothesis will be subscribed to.

In sum, the possible confounding of individual differences in sex-of-subject with those of self/other differentiation levels is still an open question in research using the subliminal psychodynamic

activation method. In addition, the effect of subject/experimenter interaction has not been addressed at all.

FOCUS OF RESEARCH

The research to be proposed in this paper will focus on the relationship of subject responsiveness and response direction to subject and experimenter attributes. Questions to be addressed are the following:

1) Is it possible that the behavior style of the experimenter has an influence on the effectiveness of the MOMMY AND I ARE ONE stimulus? The development of Silverman's argument (Silverman et al, 1982) depends on an interactional, object relations substrate; even Mahler maintains that "the need for symbiotic mothering gradually becomes...an object-bound affect of longing for the mother" (Mahler et al, 1975, p. 46). It seems unlikely, then, that symbiotic-like oneness fantasies happen in a psychodynamic vacuum devoid of interpersonal influence. Silverman himself has suggested that one mediating process in making behavior more adaptive after activation of these fantasies might be increased receptiveness "to the interventions offered by helping persons who may be unconsciously perceived...as 'mommy'" (Silverman and Weinberger, 1985, p. 1303; see also p. 15 above). No research using the subliminal psychodynamic activation method has directly examined this possible interpersonal variable, and such research is sorely needed to factor out the salient contributing influences in the effects found in subliminal psychodynamic activation studies.

2) Is it possible that the apparent sex difference in response to MOMMY AND I ARE ONE is in fact a difference in levels of unconscious wishes for merger on the one hand and the need to defend

against this wish for fear of engulfment on the other? As mentioned above (p. 5), Silverman found a "level of differentiation" difference in response to the stimulus among schizophrenics (Silverman et al, 1969; Silverman et al, 1982). This individual difference variable has not been explored in nonclinical populations using the subliminal psychodynamic activation method, although there is evidence for its existence from other areas of research (e.g., Greene and Rosenkrantz, 1983). If sex-of-subject variance can be separated from level-of-differentiation variance, another puzzling issue in regard to Silverman's research will be clarified.

HYPOTHESES

The following hypotheses can be generated from the above:

1) Using changes in anxiety level as the dependent variable[6], behavior style of the experimenter should have an interactive effect with message condition (experimental versus control) in the following ways: a) A more nurturant, supportive experimenter will effect more change in the direction of adaptation and amelioration (i.e., anxiety reduction) than will a more confrontive experimenter (see pp. 12ff above). b) The experimental condition (MOMMY AND I ARE ONE) should lead to anxiety reduction as compared with the control condition in general. c) Subjects who interact with a supportive experimenter, and who are presented with the experimental message, should exhibit the greatest anxiety reduction; those who interact with a confrontive experimenter, and who are presented with the control message, should exhibit the least (or, perhaps, an anxiety increase). [Note that these predictions are exclusive of the influences of sex-of-subject and level of differentiation, which will be considered in Hypothesis II below.] If the activation of oneness fantasies is in fact the

sole determining factor in anxiety reduction, there will be no such interactive effect, nor will experimenter behavior have an influence on responsiveness or response direction. It is the contention of this paper, however, that both experimenter behavior and message condition will have an effect on subject responsiveness, and that there should be evidence for interactions between these independent variables as well.

2) If Sex-of-Subject is the sole determining variable in response differences between males and females, there should not be significant relationships between Boundary and Fusion scores, on the one hand, and response to the "oneness" stimulus on the other. Conversely, if the existence of derivatives of wishes for symbiotic-like oneness and defenses against these wishes is the salient variable, Boundary and Fusion scores should predict response to MOMMY AND I ARE ONE. Specifically, it should follow from the above discussion that 1) those with high scores on both Boundary and Fusion should be more conflicted about symbiotic-like oneness fantasies, and therefore should not report a reduction in anxiety as a result of stimulation with the message MOMMY AND I ARE ONE; in fact, they may even report an anxiety increase. 2) On the other hand, those with low Boundary scores and high Fusion scores should be most likely to experience the message as ameliorative. 3) It is further possible that there is an interaction between Sex-of-Subject, wish-derivatives of merger fantasies, and defense against re-engulfment fears, such that females may score higher on both Boundary and Fusion in general than males do, and may also respond differently to the experimental message. 4) In fact, it is predicted that there will be evidence for such an interaction.

IMPORTANCE OF RESEARCH

The direction of the research described herein is of significance for several areas of psychological theory and practice. On the empirical level, there are aspects of subliminal psychodynamic activation research that need clarification. Before the effects found in studies using this method can be attributed with certainty to the activation of symbiotic-like oneness fantasies, it must be demonstrated that competing hypotheses have less explanatory power. The present research is not intended to dispute the possible existence of such fantasies, but rather to examine the effects of other variables on experimental outcome. First, if it is in fact the case that experimenter behavior style explains a significant proportion of the variance relative to message condition (i.e., exposure to MOMMY AND I ARE ONE or to the control message), this would call into question the robustness of the results in some studies, and would require a much more careful control of research procedures than has been done in the past.

Secondly, if individual differences in intensity of wishes for merger and/or defenses against these wishes explains a meaningful proportion of the variance, another area of confusion in the literature will be clarified (and knowledge expanded); namely, differences in response direction and intensity would be linked more directly to vicissitudes of character style as reflected in "level of differentiation".

Finally, if sex-of-subject has a direct influence on response direction or intensity, the results found by Garske (1984) will be called into question, and Silverman's previous insistence that there is in fact a sex difference in response to MOMMY AND I ARE ONE will

be supported.

On the theoretical level, understanding in areas such as ontogeny, character traits, and the nature of transference relationships may be advanced. First of all, if Boundary/Fusion Test levels have an impact on responsiveness to MOMMY AND I ARE ONE, understanding of the relationship of adult character style to developmental experience will be deepened. Of course, this is based on the assumption that the Boundary/Fusion Test measures character traits that are current manifestations of the effects of ontogeny; in other words, that early developmental experience with needs for merger and defenses against engulfment has an influence on adult character style. Although debatable, this assumption is a basic one underlying the thinking of Silverman as well as of those upon whose writings his theories are based (see for example, Silverman et al, 1982; Mahler et al, 1975; Kohut, 1971, 1977; etc.). Therefore, the assumption of a progressive continuity of development, through which earlier life experience has a determining influence on later character and characteristic modes of responding, will be adhered to in the research that follows.

Secondly, if experimenter behavior style has an impact on response to the stimulus, implications regarding the induction and development of the transference will be clarified. Specifically, this finding would have bearing on the immediacy of the development of at least precursors of transference relationships, as well as the possibility of alterations in behavior of the therapist in certain cases in order to facilitate treatment.

Finally, if the above-mentioned variables have no effect on responsiveness or response direction to MOMMY AND I ARE ONE, then

Silverman's hypothesis of the activation of unconscious symbiotic-like oneness fantasies as an ameliorative experience will gain explanatory power as a mediating variable.

FOOTNOTES--CHAPTER I

1. In a recently published article, Balay and Shevrin (1988) raise serious questions about the robustness and replicability of results using the subliminal psychodynamic activation method, including such issues as 1) the lack of rigor in maintaining controls and in following up findings with exact replications; 2) the fact that so-called "control" stimuli used have been questionably neutral; 3) the lack of methodical investigation into what exactly is stimulated or activated with subliminal presentation of stimuli; and 4) the lack of precision in the theoretical claims made by Silverman and his followers.

   The research reported here is an exact replication of previous research, with extensions included that do not violate the principle of exact replication. The research replicated included the use of a control message (PEOPLE ARE WALKING) that has been used often, but whose separate effect has never been investigated; this was taken into account in the decision to replicate previous research without variations (see also Footnote 5 below). The third and fourth issues mentioned above are beyond the scope of the current research, but some reflections in these areas will be discussed in the final chapter of this paper.

2. It should be noted that Balay and Shevrin (1988) dispute Silverman's claim that the ratio is in fact this high, although they do not use unpublished doctoral dissertations in their sample of reported research.

3. Gilligan (1982) offers interesting empirical data and theoretical implications regarding this point.

4. It should also be possible ultimately to construct a set of predictions that would be based on the relationship between stage of separation/individuation achieved by an individual and that individual's likely response to MOMMY AND I ARE ONE. In other words, if the effect of this stimulus is in fact related to level of differentiation and intactness of self structures, one ought to be able to predict how individuals would respond based on an understanding of these aspects of personality. As intriguing as this sounds, it needs to be reserved for future investigation, as it is well beyond the scope of the present research.

5. Note that the phrase PEOPLE ARE WALKING itself is debatably a "neutral" stimulus (Litwack et al, 1979, and Balay and Shevrin, 1988, make a similar point); that is, the effects of this phrase have never been the subject of investigation. Other possibilities might be better; perhaps, for example, an anagram of the experimental stimulus (e.g., MMYMO NAD I RAE NEO), as is employed in Pilot I (p. 32 and Appendix B). Condon and Allen (1980) and Porterfield and Golding (1985) used random control stimuli with visual configurations similar to MOMMY AND I ARE ONE. The present research uses PEOPLE ARE WALKING because of the difficult choice between exact replication of previous research and improving upon it while risking adding confounding variables. As much

as was practicable, exact replication was chosen. See also Footnote 1.

6. Anxiety level is the dependent variable to be used for several reasons: First, the research described hereunder includes a replication of research done by Garske (1984), who was himself following research by Florek (1978) and Silverman and Grabowski (1982). Spielberger's State-Trait Personality Inventory (or STPI --Spielberger, 1979) was used in the research to be replicated, with changes in measured anxiety as the focus of research outcome. Second, anxiety is generally thought to be a correlate of pathology among a wide range of psychodynamic thinkers (including Freud, 1926; Sullivan, 1953; Silverman et al, 1982), in that increases in anxiety are thought to be likely sequelae of the possibility that unacceptable, repressed thoughts may erupt in consciousness ("signal anxiety"). Further, Silverman (Silverman et al, 1982; Silverman, 1983) makes it clear that a reduction in anxiety should follow a nonthreatening gratification of a need for merger (see, for example, p. 15 above).

CHAPTER II: PILOT STUDIES

The research presented here was designed to test the above hypotheses regarding the influences of experimenter behavior, sex-of-subject (hereafter referred to as SOS), and level of tendencies toward experiences of merger and defense against fears of engulfment or loss of boundaries of the self (as measured by the Boundary/Fusion Test). The paradigm is a replication and extension of that used by Garske (1984), who himself was following a procedure outlined by Silverman (Silverman and Grabowski, 1982). In order to test these hypotheses with any degree of confidence that the results would be due to intended manipulations of these variables, several preliminary pilot studies had to be undertaken. These will be presented first, followed by a description of the method of the main experiment to be reported in this paper.

The intents of the pilot studies are as follows: 1) The determination of thresholds of subliminality for the particular tachistoscope and laboratory conditions to be used in following procedures. 2) A replication of the procedure outlined by Garske (1984) to ascertain whether an effect could be obtained under laboratory conditions other than his and with a different subject population. 3) The collection of Boundary/Fusion Test standardization data on the specific subject population to be used. 4) The implementation of a discrimination task to determine whether or not subjects could detect differences between tachistoscopic stimuli under the conditions used in the research to follow. 5) The collection of data on an independent sample to determine if subjects could discriminate reliably between the two experimenter behavior conditions to be used in the replication and extension procedure.

The details of the procedures used in these pilot studies are to be found in the Appendices following the main body of this paper.

PILOT I--THRESHOLD

This pilot study was undertaken in order to determine thresholds at which subjects could discern any changes--words, lines, or even "flickers"--through the tachistoscope at levels of illumination, ambient light, and stimulus duration which were to be used in the following research. Both ascending and descending thresholds were obtained: Subjects were asked to state when they first saw any changes in the tachistoscopic field as stimulus durations were being increased ("ascending threshold"), and also when they could no longer detect any changes in the field as stimulus durations were being decreased ("descending threshold"). This was done in order to obtain thresholds of discrimination for subjects both as they first were exposed to tachistoscopic stimulation (that is, when they were presumably "naive"), as well as when they were more acclimatized to the experimental conditions, and had therefore been able to learn the task (presumably increasing their skill, and therefore also the likelihood that they could discern changes in the tachistoscopic stimulus).

Subjects were 21 volunteers from graduate psychology programs at City College in New York. Thirteen were female, 8 were male, and all had demographic profiles which complied with the restrictions dictated by findings from previous research using the subliminal psychodynamic activation method (see Appendix B for a complete description of the methodology and results of this pilot study). Two Ss were discarded from the results; one because of a technical error on the part of the experimenter, the other because his ascending

threshold was considered a statistical "outlier" since it was more than three standard deviation units above the mean. The thresholds for the remaining 19 Ss were as follows:

	MEAN (in msec)	S.D.
Ascending Threshold	15.68	2.43
Descending Threshold	12.53	3.50

No S was able to report any change in the ascending threshold task below 13 msec. Two Ss had descending thresholds of 7 msec, which is close to the 4 msec duration used in previous research (Silverman et al, 1982); however, this occurred only after a minimum of 23 exposures to the stimulus at various settings. Since in other procedures to be run, Ss would see a maximum of 8 exposures, all at 4 msec, it was felt that the level of sensitization required to be able to discern any lines or words on the stimulus card would not be reached. It was concluded that 4 msec presentations at the illumination levels used were "comfortably below threshold" (Silverman and Geisler, 1985, p. 24).

PILOT II--REPLICATION

The purpose of this pilot study was to ascertain if effects could be obtained under present laboratory and tachistoscope conditions using a procedure outlined by Garske (1984). With modifications, this procedure was also to be employed in the main experiment to be described below (Chapter III).

Following Garske (1984), a pre-post between-groups design was employed, with the State form of the State-Trait Personality Inventory, or STPI (Spielberger, 1979), as the dependent measure, and

message condition (MOMMY AND I ARE ONE or PEOPLE ARE WALKING) as the independent variable. The STPI is a 30-item scale which measures three affects--Anxiety, Curiosity, and Anger--in a self-report format, with ten items referring to each affect (see Appendix D for an example of the STPI form).[1] Difference scores (i.e., response given after the procedure on each test item minus response given before the procedure on the same item) were used in statistical manipulations of data.

Subjects were 51 volunteers from undergraduate courses at City College in New York, 19 male and 32 female, recruited in class or through the use of flyers. They were paid $5.00 for their involvement in the experiment. The demographic restrictions invoked in Pilot I above applied here as well (see Appendix B for specifics of these exclusion criteria).

In essence, the procedure was as follows: Subjects were given a Consent Form (Appendix A) to complete, and were introduced to the tachistoscope and laboratory room. They were then asked to fill out the STPI, were led through an imagery, or "priming", procedure (i.e., induction of set) directed at the content of the experimental message, and then were exposed to either the control or experimental message four times at 4 msec durations. They were next led through the priming procedure once more, given four more exposures to the same message they had seen before, and then asked to complete the STPI a second time. Readers interested in the specifics of the methodology of Pilot II are referred to Appendix C.

Two experimenters participated: One male and one female. Male Ss were run by the female experimenter; female Ss by the male experimenter. Data for these two experimenters were examined

separately in general, except for certain ANOVAs, when all subjects were included.

Results for Pilot II were as follows (see Appendix E for a complete presentation): ANOVAs were run on initial STPI scores for each affect in order to determine if there were significant a priori differences between subject groups (broken down according to Message Condition and SOS). None of these ANOVAs approached significance.

ANOVAs were also run for each affect with difference scores as the dependent variable and Message Condition and SOS as the independent variables. In the case of STPI Anxiety, the interaction of Message Condition and SOS was significant ($F(1,47)=6.613$, $p=.013$). No other main or interactive effects were significant for any of the three affects measured by the STPI.

Finally, one-way ANOVAs were run on each affect with sexes separate; Message Condition was the independent variable, and difference scores were the dependent variable. In this case, no results were significant, although the Anxiety difference score ANOVA among males approached the $p<.05$ level ($F(1,17)=4.273$, $p=.054$).

Although not statistically significant at the $p<.05$ level, the Anxiety difference score ANOVA among males reflects an anxiety decrease in the male experimental message group (i.e., those exposed to MOMMY AND I ARE ONE). This trend is in the direction which would be predicted by Silverman (Silverman et al, 1982), and lends credence, albeit not resoundingly, to the idea that the experimental message does have an ameliorative effect on anxiety among males under certain conditions.

The significant interaction effect in the Message Condition-by-SOS Anxiety ANOVA is intriguing as well. Although SOS is confounded

in the present procedure with sex-of-experimenter, what is clear from an inspection of means (Appendix E) is that the interaction is largely a result of an STPI Anxiety decrease among males in the experimental message group, coupled with a decrease in STPI Anxiety among females in the control message group. This is in line with the criticism recently levelled at Silverman's work by Balay and Shevrin (1988), in which article they pointed out that some effects reported using the subliminal psychodynamic activation method are actually the result of changes in Ss in control conditions, not experimental ones.

This finding also suggests that variables other than the evocation of unconscious fantasies of "oneness" may be at work, either in combination with this evocation, or in place of it. In fact, upon close examination of the prepost shift in mean Anxiety scores, one notices that STPI Anxiety decreases in females in both experimental and control conditions, but that the decrease is greater in the control condition.

One hypothesis is that there is an interaction between stimulus condition and subject/experimenter relationship (or between stimulus condition and the experience of completing the procedure). Specifically, it is possible that the relationship, or the experience of going through the procedure,[2] would lead to an anxiety reduction in all female subjects, but that this reduction is interfered with in the experimental condition by the introduction of a stimulus which would otherwise increase anxiety (perhaps as a result of the evocation of fears of engulfment). In other words, if one accepts the possibility that MOMMY AND I ARE ONE does in fact evoke unconscious symbiotic-like oneness fantasies, it would appear that

the evocation of these fantasies might militate against anxiety reduction in females, and promote anxiety reduction in males. This finding is in keeping with Silverman's hypothesis of a sex difference in response to MOMMY AND I ARE ONE.

Obviously, the ANOVA measuring the interaction between message condition and sex difference is confounded by the fact that all males encountered a female experimenter, while conversely, all females encountered a male one. Consequently, the difference in effects between the sexes cannot be attributed with any certainty to this interaction. It is clear, however, that there is a difference in the two groups' responses to the stimuli, and the two intertwined questions of sex difference and experimenter/subject interaction loom large on the horizon.

PILOT III--BOUNDARY/FUSION TEST STANDARDIZATION DATA

The Boundary/Fusion Test (Miller et al, in press) was standardized for college students on students from Yale University, whose demographic backgrounds are likely to be quite different from those of many students in attendance at The City College of New York, many of whom come from foreign or immigrant backgrounds and lower socioeconomic levels. Since the latter group would be the population from which samples for the current research were drawn, it was thought prudent to collect data on a large sample for psychometric purposes. Data analysis in Pilot III included comparisons among subgroups according to gender, comparisons between City College data and data from Yale University (Miller et al., in press), and comparisons between students who volunteered to participate in further research and those who did not. The complete procedure and results for Pilot III are reported in Appendix G.

Subjects were 238 volunteers from undergraduate introductory psychology classes at The City College of New York. The Boundary/Fusion Test (see Appendix F for an example of the distributed form) was administered to Ss during class time; it was presented as a personality measure in the context of coursework on testing and personality.

Several findings are worth highlighting: First of all, in the sample as a whole, both Boundary and Fusion scores for females were somewhat higher than those for males, although not to the $p<.05$ level of significance (for Boundary scores, $t=1.456$; for Fusion scores, $t=1.412$). This trend could support the hypothesis offered above (p. 21); specifically, that females would be expected to have higher levels of need for merger as well as of defense against this need because of developmental differences in differentiation from their mothers. Obviously, the present results are not strong enough to increase the plausibility of this hypothesis; however, the male/female difference is intriguing and invites further investigation.

Even more intriguing are the differences between the group of subjects who volunteered to participate in further research and those who did not. Two t-tests between groups were significant, and a third approached significance: 1) For Boundary scores between the experimental sample (n=51) and the remainder of the English-speaking subjects (n=58), $t=2.958$ ($p<.01$, 2-tailed (df=107)); 2) For Fusion scores between the experimental sample and the remainder of the English-speaking subjects, $t=1.812$ ($p<.10$); 3) For Boundary scores between the females in the experimental sample (n=31) and the remainder of the female subjects (n=90), $t=2.598$ ($p<.02$, 2-tailed

(df=119)). Put concisely, individuals from English-speaking backgrounds who were willing to go through the tachistoscope procedure after having previously filled out a battery of personality and demographic measures scored significantly lower on Boundary, and nearly significantly higher on Fusion than did those who did not. Further, females who went through the procedure including the tachistoscope scored significantly lower on Boundary than did females who did not. Note that no distinction was made between females from English-speaking backgrounds and others in this statistic. This was done because Boundary and Fusion scores between different linguistic groups were nearly identical. It seemed that the factors of sex difference and willingness to go through the procedure were far more salient.

One possible implication of these findings is that individuals who are willing to be subjects in a procedure such as Pilot II (p. 33) can be characterized as having a lesser need than others to maintain self/other boundary distinctions, and as having a somewhat greater need for (or interest in) experiences of "symbiotic-like oneness", or merger. In fact, this personality profile is in keeping with that of individuals who would be predicted to experience the MOMMY AND I ARE ONE stimulus as ameliorative (p. 20 above), and may be a contributory factor in explaining why mean STPI Anxiety scores decreased in all four groups of Ss in Pilot II.

By implication, it is also possible that those individuals who did not participate further than the battery of tests were characterized by having a greater need to maintain boundaries of self and between self and others, and that they may have a greater need to defend against experiences in which they are vulnerable to feelings

of merger or engulfment. They may also have a lesser need for, or experience of, merger and fusion; however, since Fusion differences do not reach statistical significance beyond the $p<.10$ level, such a hypothesis is even more highly speculative.

Needless to say, the Boundary/Fusion score differences between individuals who are willing to participate and those who are not may have far-reaching implications for subject selection procedures. If this difference between voluntary subjects and the population in general is replicated in future research, caution will need to be exercised in selecting subject groups, or Boundary/Fusion scores will need to be controlled for in other ways. Otherwise, outcomes will be compromised by this factor.

Two other statistics were highly significant: Boundary and Fusion scores for the standardization sample reported by Miller et al (in press) were both considerably lower than those obtained from the sample of 238 students at City College of New York. For Boundary scores, $t=11.194$ ($p<.001$, 2-tailed, df=406); for Fusion scores, $t=8.243$ ($p<.001$, 2-tailed, df=406). One possible explanation for this discrepancy is that individual differences such as those in socioeconomic or cultural background, which themselves may be correlated with differences in developmental experience, may lead to differences in response to the items on the Boundary/Fusion Test. However, since specific data on these variables are lacking in both the current standardization sample and that used by Miller et al (in press), exploration of this explanation must await future research.

Other data offered by Miller et al (in press) suggest that different populations (teachers, psychiatric patients, hemodialysis patients) evidence quite different mean Boundary/Fusion profiles.

Although there is evidence for concurrent and construct validity (Miller et al, in press; Greene and Geller, 1980; Molin, 1980; Hellman et al, 1987), it seems likely that further research to establish standardization for the Boundary/Fusion Test would be in order. Among other variables, it may be fruitful to focus attention on cultural and socioeconomic background.

PILOT IV--DISCRIMINATION TASK

A discrimination task was administered in order to ascertain that Ss were unable to detect any partial cues from the cards shown through the tachistoscope (see Appendix H for a complete presentation of the procedure). The task used here was a forced choice discrimination between two cards, one of which had the message PEOPLE ARE WALKING written on it (with exactly the same configuration as that used in other procedures reported in this paper), the other of which was blank. Ss were asked to state which card they had seen after four presentations of a card at 4 msec. exposure duration. Forty-seven Ss participated, 30 of which were also participants in Pilot II (Appendix C and p. 33 above), and 17 of which were also Ss in the replication to be described below (Chapter III, p. 46ff).

The procedure used here was based on that instituted by Silverman (Silverman et al, 1978), with minor changes. First of all, Silverman et al used two cards with messages on them. The discrimination of a blank card from one with a message on it was thought to be easier to do, and therefore a more stringent measure of the detection of partial cues. Moreover, the use of MOMMY AND I ARE ONE has been thought potentially to create an "overdose" effect--leading to an increase in anxiety--if Ss are exposed to it too many times (see Silverman et al, 1982; Silverman and Geisler, 1985), and

Ss in this discrimination task would be shown each card 28 times. Thus, the use of PEOPLE ARE WALKING and a blank card avoided this unwanted eventuality.

In a second departure from the discrimination procedure suggested by Silverman et al (1978), Ss' motivation was enhanced by the offering of an extra $5.00 to the individual who discriminated the card presented correctly the most times. This was done to ensure that Ss would attend closely, and therefore potentially discriminate more effectively, than they would otherwise.

The results of the discrimination task were as follows:

Group	N	Mean	SD
PILOT II			
Males	12	5.92	1.51
Females	18	5.72	1.18
Total	30	5.80	1.30
REPLICATION			
Males	8	6.13	0.99
Females	9	6.33	1.50
Total	17	6.24	1.25
GRAND TOTAL	47	5.96	1.27

The range of correct guesses was from 3 to 8, with a median and mode of 6. Since a chance score would be 6.0, the above results indicate that Ss were unable to discriminate between a blank card and one with a message on it under the tachistoscopic and laboratory parameters used for the research reported in this paper. It seems safe to assume, then, that partial cues were not being detected.

PILOT V--INDEPENDENT RATERS' VALIDATION OF ATTITUDE QUESTIONNAIRE

This pilot study was undertaken to determine if Ss who were not participants in the replication and extension to be described below (p. 46ff) would consistently discriminate between the two experimenter behavior styles to be used in the replication. Specifically, it was predicted that they would rate the "Supportive" experimenter significantly more positively than they would rate the "Confrontive" one. Ss were 33 volunteers in three undergraduate psychology courses at City College of New York; 9 were male, 24 female. Validation data include only ratings by Ss in the second and third groups (N=24); the first group (N=9) was used to ascertain whether scale items were clear and unambiguous.

The Attitude Questionnaire (Appendix I), a 12-item measure developed by the author of this paper, employs a 7-point choice on each item. It is intended to measure respondents' attitude toward the experimenter on both positive attributes (e.g., "helpful", "supportive") and negative ones (such as "hostile", "angry"). The construction of the scale is described in detail in Appendix J. Item-by-item correlational data on 123 Ss who volunteered for the replication and extension procedure to be presented below (Chapter III) showed that items 9 through 12 did not correlate well with items 1 through 8; subsequently, in statistical analysis of data from independent raters, as well as from Ss who participated in the replication and extension, only items 1 through 8 were used in scoring the Attitude Questionnaire (see Appendix W for the correlational matrix).

During class time, students were asked to listen twice to audiotapes of an experimenter reading in either the Supportive or

Confrontive mode, once at the beginning of class time, and once at the end. The order of behavior styles was counterbalanced for the two groups who participated, so that each S rated both a Supportive and a Confrontive experimenter style. The tape employed was an actual recording of the experimenter reading instructions to a subject in the replication and extension procedure. Immediately after each tape was played, Ss completed the Attitude Questionnaire.

To compare Es (Supportive) with Ec (Confrontive) scores, Wilcoxon matched-pairs signed-ranks tests were used because the samples are correlated; 1-tailed significance tests were used because a specific directional prediction was made (i.e., that Ss would rate Es significantly higher on the Attitude Questionnaire than they would Ec).

MEANS AND WILCOXON MATCHED-PAIRS SIGNED RANKS TESTS

GROUP(N)	Ec MEAN	S.D.	Es MEAN	S.D.	T	1-TAILED SIGF
Ec 1st(10)	29.80	10.75	46.40	4.99	1	$p<.005$
Es 1st(14)	24.79	9.44	39.79	5.79	5	$p<.005$
Total (24)	26.88	10.10	42.54	6.31	8.5	$p<.005$

Clearly, the prediction that Ss would rate Es higher than Ec on the Attitude Questionnaire was borne out. On this basis, the Attitude Questionnaire was deemed a valid instrument to measure Ss' conscious response to E's behavior in the context of the subliminal psychodynamic activation method.

FOOTNOTES--CHAPTER II

1. Note that the above discussions of the literature and of specific hypotheses did not include reference to changes in the affects of curiosity or anger. This was done because although Garske did use the STPI, and therefore obtained results for these affects as well as for anxiety, none of the results related to curiosity or anger were significant. As a consequence, it was not felt that specific hypotheses could be made in regard to these dependent measures. Furthermore, the focus of interest in the current research is on the vicissitudes of anxiety in relation to the subliminal psychodynamic activation method, and measures of curiosity and anger are seen as secondary to this focus. Nevertheless, statistics for these two affects will be reported in the "Results" section to follow (Chapter IV), and further considered in the "Discussion" section (Chapter V).

2. In this light, it was noted that quite a number of subjects expressed fear or trepidation about going through the procedure; many of them were afraid they would receive electric shocks or would have their mind influenced in some dangerous way. They were quite relieved afterwards to discover that no such effects or experiences occurred.

CHAPTER III: REPLICATION AND EXTENSION--METHOD

Subjects--Subjects were 151 volunteers from undergraduate courses at City College of New York, 67 male and 84 female, recruited in class or through the use of flyers. They were paid $5.00 for their involvement in the experiment. All were from backgrounds in which English was their first and dominant language, did not spend the early years of their lives in the Southern United States, and had 20/25 vision or better, or were wearing glasses or contacts to correct their vision (see Silverman et al, 1982, Silverman and Geisler, 1985, for rationales for instituting these restrictions).

Tachistoscope and Stimuli--The tachistoscope was a Gerbrands 300 series three-field tachistoscope (Model T-3B-10); however, it was discovered that the circuitry in one field was faulty, so only two fields were operational. To compensate for this unfortunate occurrence, the sequence of presentations was set so that the blank (fixation) field would illuminate a second time after the stimulus field, as has been done in past research with this method (see for example Silverman and Grabowski, 1982). Presentations were "chained", so that the sequence was blank field/stimulus/interstimulus interval/stimulus/blank field. This resulted in an interstimulus interval of 9.9 seconds (instead of the 10.0 seconds recommended by Silverman and Geisler, 1985), which was not thought to be a significant enough difference to affect experimental outcome. The blank field had a centrally-located focal dot to maximize foveal presentation of stimuli (Silverman and Geisler, 1985).

The experimental stimulus was the phrase MOMMY AND I ARE ONE, and the control stimulus was PEOPLE ARE WALKING, a phrase which has been used in much of the research using the subliminal psychodynamic

activation method (Silverman et al, 1982). Note that although the use of PEOPLE ARE WALKING as the control stimulus follows the tradition of Silverman and his colleagues, the assumption that this is in fact a control (i.e., neutral) stimulus is not necessarily a safe one, since research has not been done which investigates specifically the effect of this stimulus on various subjects under various conditions. In fact, Balay and Shevrin (1988) point out that significant results in several studies using the subliminal psychodynamic activation method are largely a consequence of effects in control groups exposed to PEOPLE ARE WALKING or similar stimuli, rather than as a clear result of exposure to the experimental stimulus. As suggested in Footnote 5, Chapter I, perhaps a card on which an anagram of the phrase MOMMY AND I ARE ONE is printed would serve as a better control stimulus (in fact, such a stimulus was used in Pilot I (Appendix B)). The physical configuration of such a stimulus would be more similar to MOMMY AND I ARE ONE, and it would probably not evoke as complex a level of semantic processing. However, since the research to be described here is a replication, it was thought best to replicate the procedure of the previous studies as closely as possible.

Stimuli were presented in black block letters on a white 4x6-inch card. Letters were 0.5 inches in height, and the message 2.75 inches in overall width. Visual distance was 31.5 inches, creating a horizontal visual angle of less than 5 degrees, which should ensure foveal registration of the entire stimulus, according to Silverman's criterion for foveal presentation (Silverman and Geisler, 1985, p. 22). Although it is not clear, based on the literature from psychophysiology, that full foveal registration will always occur

with a visual angle of five degrees (Graham, 1951; Bartley, 1951), Silverman's convention was followed here.

The tachistoscope was housed in a room with blank, cream-colored walls, with a desk lamp directed toward the wall as the source of ambient light. The ambient illumination was 4.794 ftlambs. Fixation field illumination was 9.567 ftlambs, and the stimulus field 9.745 ftlambs. These illuminations have ratios to each other that should guarantee that "bleaching" (i.e., forward masking (Neisser, 1967)) should not occur (Silverman et al, 1978; Silverman and Geisler, 1985). The blank field did not stay illuminated while the stimulus field was lit; this should also avoid potential bleaching (Silverman and Geisler, 1985).

Procedure--The procedure implemented here is a replication and extension of that used by Garske (1984). Pilot II (Appendix C) was a preliminary replication; the essential difference between this procedure and that of Pilot II is that the behavior of the Experimenter ("E2") was carefully controlled and manipulated. The design used Experimenter Behavior ("Supportive" or "Confrontive") and Message Condition (Experimental--i.e., exposure to MOMMY AND I ARE ONE--or Control--exposure to PEOPLE ARE WALKING) as independent variables, and change in reported levels of affect as the dependent variable. Affect was measured by the Spielberger State-Trait Personality Inventory (Spielberger, 1979), which asks Ss to report on their subjective levels of anxiety, curiosity, and anger (see pp. 49ff below for a more complete description of the scale). In addition, Ss were asked to complete the Attitude Questionnaire (see Pilot V, Appendices I and J) following the tachistoscope procedure in order to measure their conscious attitude toward E2.

A week or more previous to entering the tachistoscope lab, demographic data and scores on the Boundary/Fusion Test (see Pilot III, Appendix G) were collected from prospective Ss. Demographic data included S's name, address, and telephone number; where they were born; what language was spoken to them, and by what name they called their mother, when they were younger than five years of age; and whether or not they wore glasses or corrective lenses. Place of birth, primary language, and name they called their mother were obtained in order to exclude beforehand Ss who did not fit criteria proposed by Silverman et al (1982); namely, that Ss had to have been born into households where English was the primary language spoken and where the name "mommy" was used in early childhood (see also p. 6 above for a discussion of the rationale behind these restrictions).

Upon entering the outer room of the lab, each S met an Experimenter (E1), who gave him a Consent Form (Appendix A) to read and sign, and again ascertained that S had 20/20 vision or was wearing corrective lenses or glasses. E1 also inquired about Ss language background and birthplace. If S's first and primary language was not English, or S had spent early childhood in the Southern United States, or S had a vision impairment that was not properly compensated for, S was told that he or she would not be able to continue with the procedure. If S met the restrictive criteria, S was then ushered into the room that housed the tachistoscope, and was introduced to another Experimenter (E2). E2 asked S to complete the State form of the Spielberger State-Trait Personality Inventory (STPI).

The STPI is a 30-item scale which measures three affects--Anxiety, Curiosity, and Anger--in a self-report format, with ten

items referring to each affect (see Appendix D for an example of the STPI form). The items for each affect were drawn from other scales developed by Spielberger and his colleagues--namely, the State-Trait Anxiety, Curiosity, and Anger Inventories--and the three subscales are treated separately in construct validity data presented in the STPI manual (Spielberger, 1979). Nevertheless, Anxiety and Anger generally vary in direct relationship to each other, and both vary inversely with Curiosity.

Each item has a four integer response scale, ranging from 1 ("Not at all") to 4 (Very much so"), and Ss are asked to indicate the extent to which they agree or disagree with statements about themselves. On the State form, Ss are asked to rate how they feel "right now".

After S had completed the STPI, instructions were read which comprised a "priming" procedure. This "priming" procedure, used by Garske (1984) and Silverman and Grabowski (1982) among others, is an imagery training exercise meant to induce a cognitive set focussed on early childhood. The rationale for such a procedure is two-fold: 1) Silverman has stated that such priming directed at the content of subliminal messages makes them more effective; and 2) this allows for a "double dose" of the message (with a priming buffer to prevent "overdose"), which again is thought to strengthen its effect (Silverman et al, 1982; Silverman and Geisler, 1985).

The instructions read to S immediately following the first completion of the STPI were as follows (these instructions comprise the priming procedure):

> Now we are going to do an imagery exercise. Please close your eyes and picture the first home in which you remember living.

(E pauses 15 seconds.) Now walk through the house and count the windows. (45 second pause[1]) You should be about half-way through the house by now, and when you are done, open your eyes.

When S's eyes were open, the following orienting instructions for the tachistoscope were read aloud:

This is a machine that will present a message to you at a speed so rapid you will be unable to detect it. You will only see a flicker of light. The message, however, will register unconsciously. Research has shown that when certain messages are received in this fashion they can have an effect on the way you feel. We are studying the effects of such messages on feelings. After the study is over you will be told the message you received. There is no known harm from these procedures. Please take a seat there (E gestures to chair at tachistoscope, and waits for S to take the seat in front of the machine), but please be careful not to bump the machine, because it is very delicate and can be thrown out of balance. When we begin, I will ask you to look into the opening here (E points at viewer of tachistoscope), and cup your hands around you eyes so that the light in the room will not interfere with what you see through the machine. You will see a white card with a black dot in the middle; please focus on the dot. I will say "Ready, set...", then you will see a flicker of light. We'll then repeat the procedure three more times. I'll say "Ready, set..." four times in all, and you will see four flickers of light. Please keep your eyes up to the machine throughout the procedure, and please don't blink while I'm saying "Ready, set..."; you may blink afterwards. Remember to focus on the dot. Any

questions?

If Ss had questions about the mechanics of the procedure itself, these questions were answered, or instructions were repeated. However, if questions were asked about the experiment, its rationale, and so forth, Ss were told that such questions could only be answered after the procedure was completed. Ss were then asked to look into the tachistoscope as instructed, and the procedure continued.

Next, S was given four presentations of either the experimental or the control stimulus, with an interstimulus interval of 9.9 seconds. Stimuli were loaded into the machine previously in such a way that E2 did not know which stimulus was used. This was accomplished by having E1 load the card feeder when possible; otherwise, E2 shuffled the stimulus cards and loaded them into the feeder with eyes closed. The priming procedure was then repeated, followed by four more presentations of the same stimulus. Immediately after this, S was again asked to fill out the STPI; when this was completed, S was ushered back into the outer room where E1 was waiting. The sequence of STPI-Priming-Exposures-Priming-Exposures-STPI constituted the replication of Garske's experiment.

E1 then administered the Attitude Questionnaire (Appendix I), which probed for feelings and thoughts about E2. This Questionnaire, developed by the author of this paper, is a 12-item measure, and employs a 7-point choice on each item, ranging from "Not at all" (1) to "Extremely" (7). Of the 12 items, four ask for S's ranking of the experimenter on positive attributes (such as "Was the experimenter helpful?" and "Was he supportive?"--items 1,2,5, and 8), four ask for rankings on negative attributes ("Was the experimenter angry?", "Was he hostile?", etc.--items 2,3,6, and 7), and four probe S's attitude

about the experiment itself ("Was the procedure interesting?", "Would you like to do it again?", etc.--items 9 through 12).

As a result of item-by-item correlation (Appendix W), it was found that items 9 through 12 did not correlate well with the other 8 items; therefore, data analysis employed scores which were the sum of items 1 through 8 only. The negative items are scored inversely--that is, a response of "7" was scored as a "1", a "6" was a "2", and so forth--so that the total can be considered an overall measure of the extent to which S responded to E2 in a positive way.

The administration of the Attitude Questionnaire was followed by a brief interview to confirm further that S fit the restrictive criteria necessary for participation in the research; a probe regarding thoughts, feelings, and images S may have experienced during the procedure (this material was recorded for use in research to be reported elsewhere); and an eye test with a standard eye chart (to ensure that S most likely had been able to see the stimuli).

Finally, S was asked for an updated address and telephone number, and was told that the behavior of E2 was part of the design of the experiment.[2] In randomly selected cases, this was followed by a discrimination task (administered by E2) to ensure that no partial cues were being detected by Ss (see Appendix H--Pilot IV). Later, when all Ss had completed the procedure, a more complete debriefing was given by mail, along with a payment of $5.00 per S. In addition, a telephone number at which a message could be left for E2 (the author) was also given, in case Ss had need of further information or "debriefing".

Both E1 and E2 were male. Obviously, given the posssible differential influence of sex-of-experimenter on the outcome of this

study, it would have been best to repeat the procedure employing all the other possible combinations of male and female E1s and E2s (i.e., male-female, female-male, and female-female). However, this was prohibited by the large number of Ss that would be required to replicate the current procedure three more times; such research, necessary as it is, will have to be set aside for future investigations.

As was stated above (p. 48), the design of the experiment was a 2x2 matrix, with Message Condition and Experimenter Behavior comprising the two independent variables. The resulting four experimental groups were as follows: 1) Confrontive experimenter, Control message (Cell C1); 2) Confrontive experimenter, Experimental message (Cell C2); 3) Supportive experimenter, Control message (Cell S1); and 4) Supportive experimenter, Experimental message (Cell S2). Ss were assigned to cells on a random basis.

E2 trained himself to behave in a strictly programmed way to appear either Supportive or Confrontive, varying only vocal inflection and body posture to distinguish between the two conditions. The results of this training were tested through the use of audiotapes played for independent raters (Pilot V, Appendix J), who confirmed that the two behavior styles were clearly distinct (between the two Experimenter conditions, a Wilcoxon matched-pairs signed ranks test was significant at the $p<.005$ level (1-tailed; $T=8.5$, $n=24$)).[3]

Experimenter Behavior conditions were varied among Ss by following a randomly generated sequence. The words spoken were nearly always identical; E2 read exactly the words of the "priming" and orienting instructions (pp. 50-52 above) as a script. The only

variations were responses to Ss' clarifying questions, in which case E2 simply reread appropriate sentences of the script.

E2 took up his "role" immediately after the first administration of the STPI (so as not to color S's responses to this initial measure), and continued until S left the room to complete the Attitude Questionnaire (after completion of the STPI the second time). E2 was blind to stimulus condition, and had no information about S's Boundary/Fusion scores.

Boundary/Fusion scores and their influence on results of the experiment were examined in post hoc analysis. Under ideal conditions, subjects would be assigned to experimental cells with careful a priori attention to balancing Boundary/Fusion score profiles; however, the size of the sample in the present experiment, and the difficulty encountered in recruiting willing subjects who fit the restrictive criteria required for this research, made this impossible. Nevertheless, this approach is recommended in future designs using the Boundary/Fusion Test.

FOOTNOTES--CHAPTER III

1. This length of pause varies from that used by Garske (1984); he used one minute instead. See Pilot II (Appendix C) for an explanation of why this duration was change in the present research.

2. Ss who participated in the discrimination task (Pilot IV--Appendix H) were given this "debriefing" before they were administered the discrimination task, so that attitudes toward E2 would have minimal effect on their performance.

3. Obviously, it would have been preferable to use videotapes to test for variances in body posture as well as voice. However, this was prevented in the present circumstances by the lack of access to video equipment.

CHAPTER IV--REPLICATION AND EXTENSION--RESULTS

The results generated by the data of this experiment will be divided into the following sections: 1) Exclusion of Subjects--Difficulties with the subject pool must be a preliminary consideration, since a number of Ss were excluded, and this had an influence on the use, or rejection, of certain approaches to the hypotheses in data analysis. 2) Adjusted Change Scores--The use of adjusted change scores (ACSs) will next be outlined, and the rationale for their use explained. 3) STPI Raw Scores (Anxiety, Curiosity, and Anger)--These data were analyzed to ascertain whether there were significant, and therefore potentially confounding, differences between groups at the beginning of the procedure.

The central results of the experiment will be presented next: 4) Hypothesis I--Experimenter and Message Condition--Data relevant to the question of the separate or interactive influences of experimenter behavior and message condition will be considered in light of the hypotheses stated above (p. 24ff). 5) Hypothesis II--SOS and Boundary/Fusion Scores--The separate and interactive effects of these two variables will be presented in light of the hypotheses presented above (p. 25ff).

Finally, results relevant to secondary aspects of the research will be presented: 6) Conscious Attitudes Toward Experimenter--Results of the administration of the Attitude Questionnaire to Ss who participated in the procedure will be presented. 7) Curiosity and Anger ACS--Data pertaining to the two other affects measured by the STPI will be presented and compared to results from measurements of anxiety.

EXCLUSION OF SUBJECTS

Of 151 Ss who completed the initial battery of measures and demographic data, 20 did not return for the tachistoscope procedure, and 14 were initially excluded from the tachistoscope procedure because of inappropriate language background. Twenty-one were subsequently excluded because of ambiguity about language background, or because it was not clear that they had used the word "mommy" in referring to their mother in childhood. Another 11 had to be excluded after participating in the complete procedure because it was found either that their eyesight as measured by the post hoc standard eye test did not meet the selection criterion, or that they revealed in the post hoc interview that they had not lived with their mother in early childhood. As a result, the number of Ss with data available for analysis was reduced to 85 (40 male, 45 female). Means and standard deviations on all experimental variables are given in Appendix K (for both the final sample and those excluded from further manipulations of data).

Since Ss were recruited over the span of two semesters, in psychology and other classes and by flyers posted throughout the school, this difficulty in finding appropriate subjects may possibly be attributable to the make-up of the student body at The City College of New York (a large percentage of the student population is either foreign-born or of immigrant parents).

Unfortunately, there are consequences in the outcome of the research. The number of Ss in each experimental cell ranged from 10 to 12; it had been hoped that Ns would approach 20. Power analysis performed at the midpoint of data collection had indicated that Ns of

at least 15 in each cell were desirable. The research that was replicated (Garske, 1984) used Ns of this order as well, although power analysis was not possible with Garske's data since no variance data were provided in the published article.

The major consequences of the small Ns were twofold: First, certain manipulations of Boundary/Fusion data could not be employed, since Boundary/Fusion scores were not considered a priori in assigning Ss to experimental cells. It was hoped that groupings of Ss with high and low scores--defined as greater than one z-score deviation from the mean--could be compared regarding their responsiveness to the experimental stimuli, but these groupings produced Ns that were small or even nonexistent in some cells. [The groupings were to be as follows: High Boundary/High Fusion, High Boundary/Low Fusion, Low Boundary/High Fusion, and Low Boundary/Low Fusion.] Median splits of Boundary/Fusion scores produced similar imbalances in groups. Therefore, Boundary/Fusion scores were used only in correlational manipulations.

The second, and more salient, consequence of small Ns was that the responses of one or two Ss could have a more profound influence on the statistical profile of the cell of which they were members. Because of this factor, some effects may have been weakened and others strengthened in an artefactual way. The results to follow must be considered in light of these problems with subject recruitment, and must therefore be regarded as provisional and exploratory.

ADJUSTED CHANGE SCORES

Multiple regressions were performed on the data, using STPI Anxiety, Curiosity, and Anger difference scores as the dependent

variables, and treating the group of Ss as a whole as well as each sex alone in separate analyses. The independent variables were Experimenter and Message conditions, SOS, and "pre" (at the beginning of the tachistoscope procedure) and "post" (at the end of the procedure) STPI scores for the dependent variable in question. These data are reported in Appendix L.

It was found that the combined influence of pre and post STPI scores on each variable accounted for 100% of the variance in difference scores in almost all cases. The only exceptions were with Curiosity difference scores for the whole sample and for males only (multiple r^2=.959 and .920, respectively). Although it is obvious that pre and post scores would be expected to account for a large percentage of the variance in difference scores, the above statistics indicate extremely high concordance, such that a given S's initial level on each affect reported by the STPI will have a predominant influence on the direction and magnitude of potential change in this level.

In general, with the use of prepost change scores on a subjective measure such as the STPI, there is always the concern that "ceiling" or "floor" effects (Kazdin, 1980; Hovland et al, 1949) may occur and confound the results. Such concern seems to be warranted in the present case. Specifically, a shift of a given number of raw score points in an individual who begins at the low end of the scale may have a very different subjective meaning from an identical raw score shift in an individual who begins at the middle or high end of the scale. Pursuant to this possibility, Garske (1984) suggested that equal numerical shifts may reflect different phenomenological experiences among Ss, and therefore should be compensated for

statistically, but he made no such attempt in manipulations of his data.

Although it is yet unclear what such differences mean subjectively to individuals who initially score at different points on the STPI spectrum--and qualitative research is needed to clarify this--it does seem logical to assume that if an individual has an initial STPI score for level of Anxiety (or Curiosity or Anger) which is extremely low, a given shift in this level would reflect a greater phenomenological difference than would the same numerical shift in an individual who has a moderate or high initial score. For example, a numerical shift of one integer in an S with an initial score of 10 is a shift of 10%; in an S with an initial score of 20, this is a move of only 5%. Certainly, it is also true that this hypothetical S with a low initial score has more numerical room to move upward than to move downward; i.e., this S is subject to a "floor" effect. Conversely, a similar problem would reflect a "ceiling" effect in Ss with high initial scores. Consequently, such superficially identical numerical differences should not be treated identically in statistical manipulations of the data.

In fact, it can be seen from the distribution profiles of individual STPI items presented in Appendix M that Ss tended to report lower levels of affect on STPI Anger items (i.e., toward the "Not at all" end of the scale) and higher levels of STPI Curiosity (toward the "Very much so" end). This can be seen in the characteristically low means and positive skews for Anger items, as well as the general tendency for distributions to be leptokurtic. Conversely, Curiosity items trend toward high means and negative skews. It is also reflected more generally in the group means for

these two affects reported in Appendix K. STPI Anxiety item distributions tend to appear more normative, according to kurtosis and skew, although here as well, several items had means toward the low end of the scale, and were relatively more leptokurtic and positively skewed.

The outcomes of the multiple regressions presented above, coupled with evidence from distribution profiles, suggest the existence of potentially confounding "ceiling" and "floor" effects in the data of the current study. Therefore, in the results reported below, raw scores were converted to adjusted change scores (ACSs), which range from -10 to 10, where a negative score reflects a decrease and a positive score reflects an increase in level of the affect measured. ACSs were formulated such that each integer of ACS reflects a 10% prepost difference relative to the lowest potential raw score, or "floor", of the scale (see Hovland et al, 1949, for further discussion and methods of compensation).[1]

Multiple regressions were again performed, identical to those above, except using ACSs as the dependent variable (see Appendix L). Pre and post scores were still powerful predictors of change in STPI scores: Multiple r^2s for these two independent variables alone ranged from .694 to .980. These multiple r^2s are still quite high; however, the fact that they account for less than 100% of the variance in the dependent variables--in some cases, substantially less--indicates that the use of ACSs reduced the influence of pre and post scores, and allowed for the influence of other variables to become apparent.

It was also found that distribution profiles for ACSs were consistently more normative in skew than were profiles of difference

scores (see Appendix N). Further, in most cases, the mean and median were closer to identical with ACS distributions than with those based on difference scores. These findings were taken as a posteriori confirmation of the usefulness of ACSs in correcting for ceiling and floor effects.

STPI RAW SCORES--ANXIETY, CURIOSITY, ANGER

STPI raw score means and standard deviations for all experimental cells are reported in Appendix O for all three variables. Cells are abbreviated as follows: C1=Confrontive Experimenter, Control Message; C2=Confrontive Experimenter, Experimental Message; S1=Supportive Experimenter, Control Message; and S2=Supportive Experimenter, Experimental Message. Means for the whole sample (n=85) are reported along with those for males (n=40) and females (n=45) separately. Standard scores given by Spielberger (1979) are also reported for comparison.

Because of the concern that means on STPI "pre" scores could vary enough between experimental groups (or "Cells") to confound results, 2x2 ANOVAs (Cell-by-Sex) were performed on "pre" scores for each STPI variable to assure that differences among experimental groups would not interfere significantly with further manipulations of data. These are reported in Appendix P. Only one effect reached significance: Among Anxiety pre scores, SOS was a significant main effect (F=5.414, p=.023). Upon inspection of the data in Appendix O, it can be seen that males generally reported lower STPI Anxiety pre score levels than did females; this is in keeping with the trend in Spielberger's (1979) standard scores as well.

HYPOTHESIS I--EXPERIMENTER AND MESSAGE CONDITIONS

Predictions made under this hypothesis (p. 24ff) were as

follows: 1) Experience with a supportive experimenter should lead to reduction in the level of anxiety reported by Ss; 2) Ss presented with the message MOMMY AND I ARE ONE should show evidence for a greater reduction in anxiety than those presented with the control message (PEOPLE ARE WALKING). 3) The combination of a supportive experimenter and the experimental message (Cell S2) should lead to the greatest reduction in anxiety level, and the combination of a confrontive experimenter and the control message (Cell C1) should lead to the least anxiety reduction, or even an increase in this affect. Stated according to the null hypothesis, there should be no significant separate or interactive effects of the behavior of the experimenter and the presentation of the tachistoscopic message.

Results in general regarding the above hypotheses are as follows: 1) In an ANOVA of STPI Anxiety ACSs (Experimenter Condition-by-Message Condition-by-SOS--Appendix R), the two-way interaction of Experimenter and Message Conditions was significant (F=5.044, p=.028). 2) With sexes taken separately, the STPI Anxiety ACS ANOVA among males (Appendix S) showed this same two-way interaction as significant (F=4.389, p=.043). No effects were significant in a similar ANOVA among female Ss (also reported in Appendix S). 3) In planned orthogonal comparisons (Appendix T), the difference between Cells C1 and C2 was significant for the sample as a whole (F=7.362, p<.01) and for females taken separately (F=4.149, p<.05). No other planned comparisons were significant, although the comparison between males in Cells C1 and C2 (F=3.863, n.s.) and in Cells C1 and S1 (F=3.607, n.s.) approached significance at the p<.05 level.

What can be said in regard to the specific hypotheses presented above? First of all, it is not at all clear that experience with the

Supportive experimenter led to a reduction in anxiety, as measured by Anxiety ACS. In fact, since no main effects of Experimenter Condition were significant, it is difficult to be definitive about the direct, separate effects of the behavior of the experimenter at all. Further, no planned orthogonal comparisons which would bear directly on Experimenter Condition--e.g., between Cells C1 and S1, or C2 and S2, where Message Condition does not vary--attained significance at the $p<.05$ level. Only that between males in Cells C1 and S1 approached this criterion, as was indicated above.

Nevertheless, an informal "microanalysis" of Cell means (see Appendix Q for Cell means and SDs) provides some interesting trends in the data. For one, an appreciable decrease in anxiety only occurred in females in the S2 group (i.e., Supportive experimenter, experimental message). The female and male S1 groups showed minimal reduction in anxiety, and the males in the S2 group actually showed an increase in anxiety greater than the reduction in the comparable female group. Also, although mean Anxiety ACS did decrease in females in Cell S2, this decrease was less than that in the Cell C2. In other words, in groups exposed to MOMMY AND I ARE ONE, females who interacted with the Confrontive experimenter experienced a greater mean Anxiety reduction than did those who were faced with the Supportive one. It is apparent, then, that trends in the data do not support the contention that experience with E2 in the Supportive mode will lead to a reduction in anxiety.

Regarding the anxiety-reducing potential of the experimental message, results are again equivocal. In no case was the main effect of Message Condition significant in ANOVAs, either in the sample as a whole or among males or females taken separately. In only one case--

between Cells C1 and C2--a planned orthogonal comparison was significant, as was indicated above (p. 64). This comparison was significant in the sample as a whole (F=7.362, p<.01) and among females (F=4.149, p<.05), and approached the p<.05 for males (F=3.863, n.s.). It can be said, then, that when Ss were faced with a Confrontive experimenter, exposure to MOMMY AND I ARE ONE led to greater anxiety-reduction, or lesser anxiety increase, than did exposure to PEOPLE ARE WALKING.

Again, an informal analysis of group means proved interesting. Among females, MOMMY AND I ARE ONE led to mean reductions in Anxiety ACS regardless of experimenter behavior; PEOPLE ARE WALKING led to a minimal decrease (Cell S1) or an increase (Cell C1) in Anxiety ACS. In the present sample, then, there is a trend among females such that the experimental message has greater anxiety-reducing potential than does the control message. This trend reaches significance between Cells C1 and C2.

For males, the story is a different one: MOMMY AND I ARE ONE led to a small decrease in mean Anxiety ACS when coupled with the Confrontive experimenter style (Cell C2); it led to a larger anxiety increase when combined with the Supportive style (Cell S2). Conversely, when Ss were shown the control message, anxiety increased in the presence of the Confrontive experimenter, as would be expected; on the other hand, mean Anxiety ACS dropped when PEOPLE ARE WALKING was paired with the Supportive experimenter style. At the very least, it can be said that the anxiety-reducing potential of the experimental message is interfered with by other variables, if in fact the message could be assumed to lead to reduction in anxiety under pure, unconfounded conditions.

The third hypothesis proposed above was that Ss in Cell C1 would manifest the largest increase in STPI Anxiety, whereas those in S2 would manifest the largest decrease. In fact, this was clearly not the case among males, females, or the sample as a whole. The significant interaction between Experimenter and Message Conditions in the sample as a whole (F=5.044, p=.028) and among males taken separately (F=4.389, p=.043) seems attributable to the fact that there was a mean increase in Anxiety ACS among males in both Cells S2 and C1. The only evidence for the anxiety-reducing power of membership in Cell S2, and this evidence is indirect, is that the anxiety increase among males in this Cell is smaller than that in Cell C1.

Again, by informal inspection of Cell means, it appears that the influence of MOMMY AND I ARE ONE is to reduce anxiety in the presence of the Confrontive experimenter, and to increase it in the face of the Supportive one among male Ss. From another angle, if one assumes, as has been done in previous research, that the experimental message is anxiety-reducing for males, then the presence of E2 in the Supportive mode interferes with this process in some way.

Among females, the difference between Cells S2 and C1 is in the predicted direction: Ss in Cell C1 showed the largest increase in mean Anxiety ACS, although this increase itself is small. Ss in Cell S2 showed a decrease in mean Anxiety ACS. The unexpected result is that the largest mean decrease is in Cell C2. Females who were presented with the experimental message and interacted with the Confrontive experimenter experienced a larger anxiety decrease than did those who were exposed to the same message but were faced with the Supportive experimenter.

To summarize: With respect to the separate influence of experimenter behavior, the null hypothesis cannot be rejected based on ANOVAs using Experimenter Condition, Message Condition, and SOS as variables (Appendix R), nor can it be rejected based on 2x2 ANOVAs (Experimenter and Message Conditions) within each sex taken separately (Appendix S). Only one planned orthogonal comparison--that between Cells C1 and S1 for males, where in fact the effect of E2 is seen most purely--approached significance (F=3.607, n.s.--Appendix T).

The picture is somewhat different regarding the influence of Message Condition on the subjective experience of anxiety. With sexes combined, and among males and females taken separately, the null hypothesis cannot be rejected on the basis of ANOVAs (Appendices R and S). However, planned orthogonal comparisons (Appendix T) between Cells C1 and C2 are significant for the sample as a whole (F=7.362, p<.01) and for females taken separately (F=4.149, p<.05). The planned comparison between the same two Cells also approaches significance among males (F=3.863, n.s.). It can be maintained, then, that the influence of Message Condition is seen, and in the predicted direction, but only in the presence of the Confrontive experimenter. In both sexes, the C1 condition led to an increase in mean Anxiety ACS, and the C2 condition to a decrease; the difference in intensity is that males in Cell C1 showed the largest mean ACS increase, and females in C2 the largest decrease, among all conditions in the procedure.

With respect to the interaction of Experimenter Style and Message Condition, the null hypothesis may be rejected with greater confidence. With sexes taken together (Appendix R), the interaction

is significant (F=5.044, p=.028). However, it becomes clear once the sexes are separated in data analysis that this interaction is carried by the male Ss (Appendix S). Among males, the interaction is significant (F=4.389, p=.043); among females, it is not (F=1.108, n.s.).

To reiterate: 1) Experience with the Supportive experimenter does not necessarily lead to reduction in anxiety as recorded on the STPI. 2) In females in the present sample, exposure to MOMMY AND I ARE ONE does lead to greater anxiety reduction than does exposure to PEOPLE ARE WALKING, although this difference is not statistically significant across all Cells. There is also a general trend among all Ss for exposure to the experimental message to lead to greater anxiety reduction than does exposure to the control message; it is largely carried by the difference between Cells C1 and C2 (for the sample as a whole as well as for females taken separately). 3) It is by no means the case that the greatest mean difference in Anxiety ACS appears between Cells C1 and S2. In fact, it was found that anxiety increased in <u>both</u> Cells among males, and, although the difference was in the predicted direction among females, the largest anxiety ACS decrease was in a different Cell altogether (Cell C2). 4) It is clear that there is an interactive effect of Experimenter and Message Conditions, and that the weight of this effect is carried by the male Ss.

HYPOTHESIS II--SOS AND BOUNDARY/FUSION SCORES

According to the hypotheses stated above (p. 25): 1) Ss with high scores on both Boundary and Fusion should not report a reduction in anxiety as a result of stimulation with the message MOMMY AND I ARE ONE; in fact, they may even report an anxiety increase. 2) Ss

with low Boundary scores and high Fusion scores should be most likely to experience the message as ameliorative. 3) Females should score higher on both Boundary and Fusion in general than males do, and should also respond differently to the experimental message. It was predicted that there would be evidence for such an interaction between SOS and Boundary/Fusion score profiles.

Results pertinent to these hypotheses must be preceded by a discussion of Boundary/Fusion Test results and the influence of exclusion of subjects and sample size. In point of fact, as was stated above (p. 59), it was discovered that Boundary/Fusion scores were not well-balanced across Cells, partly as a result of problems with initial recruitment, and later exclusion, of Ss (see Appendix U for Cell means). Mann-Whitney U Tests (corrected for ties and expressed as normal deviates) were applied to Cell means, and it was found that mean Boundary/Fusion profiles were significantly different from each other in three cases (see Appendix V for Mann-Whitney U Tests). Specifically, the mean Boundary score for females in Cell C2 was lower than that in S2 (Z=2.08, p=.04, 2-tailed); the mean Boundary score for males in S2 was lower than that for females in the same Cell (Z=2.61; p=.005, 1-tailed); and the mean Fusion score for males in Cell C1 was lower than that for females in the same Cell (Z=2.57, p=.006, 1-tailed). Significance levels in the latter two cases are 1-tailed because a directional prediction was made in these cases; i.e., that females would have higher Boundary and Fusion scores than would males in general.

Although there was only one case--females in Cells C2 and S2--in which an unpredicted significant difference occurred, it was felt that differences in mean Cell Boundary/Fusion profiles were large

enough, and the meaning of these differences unclear enough, that further use of Boundary/Fusion scores in comparisons between Cell means, where Ns ranged between 10 and 12 per Cell, was unwarranted. Therefore, in the presentation of results to follow, only statistics using the sample as a whole, or males or females as whole groups, will be considered.

Because of the lack of balancing of Boundary/Fusion profiles across Cells, little can be said about the effect of certain Boundary/Fusion profiles on response to the experimental stimulus. Regarding the specific predictions made above (p. 69ff), the influence of High Boundary/High Fusion, and Low Boundary/High Fusion, profiles must await future research. However, with respect to the third prediction, that females would score higher on both Boundary and Fusion, results can be considered with greater confidence, since Ns in these two cases are large enough that individual cases are less likely to exert a confounding influence on the group as a whole. Also, balancing of profiles across Cell groups is not an issue in this case.

The mean Boundary/Fusion profiles of males and females in the current study are as follows:

	BOUNDARY	FUSION
	Mean (S.D.)	Mean (S.D.)
Males (40)	67.00 (13.36)	65.65 (11.75)
Females (45)	74.09 (10.70)	71.13 (13.13)

Mann-Whitney U Tests were run for Boundary and Fusion scores between the sexes, with the following results: For Boundary, Z=2.28, p=.01; for Fusion, Z=1.87, p=.03. These tests are one-tailed, since a specific directional prediction had been made.

It is the case, then, that females in the experimental sample scored significantly higher on both Boundary and Fusion, lending support to the possibility that there is an interactive effect of SOS, on the one hand, and differences in the tendency to experience merger phenomena and defend against them on the other.

The case for sex differences in response to the experimental paradigm presented here is demonstrated by the following: In an ANOVA (Experimenter Condition-by-Message Condition-by-SOS) of STPI Anxiety ACS, the main effect of SOS was significant (F=5.578, p=.021). Also, in a similar ANOVA of STPI Anger ACS, the interactive effect of Message Condition and SOS was significant (F=6.346, p=.014). These results are reported in Appendix R.

There are other manifestations of sex differences, although not in ways that are resultant from the experimental manipulation reported here. Specifically, in an ANOVA (Experimenter Condition-by-Message Condition-by-SOS) of level of reported anxiety before exposure to tachistoscopic stimuli (i.e., "pre" scores), the influence of SOS was statistically significant (F=5.405, p=.023); females experienced significantly higher initial levels of anxiety as measured by the STPI (Appendix P). Also, the above-mentioned significant difference between males and females in mean Boundary/Fusion profiles suggests a sex difference in this regard.

Other data suggestive of a sex difference are the following: Response intensity was quite different for males and females in Cells C1 and C2 (see p. 64), such that there is a significant difference between these two Cells when the sample is taken as a whole, which is caused by trends in opposite directions between the sexes. Also, among males, there is a significant interaction between Experimenter

and Message Conditions, and this is not the case among females.

In sum, then, it is clear that there are sex differences in response to the stimuli used in the present experiment, both in response direction and intensity. It is also clear that the effects of Experimenter and Message Conditions differ between males and females. The influences of Boundary/Fusion scores are less apparent, mitigated as they are by the fact that profiles were not balanced across Cells; however, findings suggest an interaction between SOS and Boundary/Fusion scores, such that females generally score higher on both Boundary and Fusion.

CONSCIOUS ATTITUDES TOWARD THE EXPERIMENTER

The Attitude Questionnaire, which Ss completed immediately following their interaction with E2 in either the Confrontive or Supportive mode, can be taken as a measure of their conscious perception and experience of the experimenter. It was presumed that Ss would rate the Supportive experimenter more favorably than they did the Confrontive one, and therefore that the influence of Experimenter Condition as an independent variable should predominate.

In fact, this was found to be the case. An ANOVA (Experimenter Condition-by-Message Condition-by-SOS) was performed, as reported in Appendix X, with the result that the main effect of Experimenter Condition was highly significant (F=15.800, p<.001). No interaction effects or other main effects approached statistical significance.

To compare the effects of Experimenter Condition and Message Condition in males and females separately, two-way ANOVAs were performed (also reported in Appendix X). Again, the main effect of Experimenter Condition was significant, although more highly so in males: For males, F=10.982 (p=.002); for females, F=5.411 (p=.025).

No interaction effects were significant.

In order to examine the specific differences in Attitude Questionnaire scores between Cells, planned orthogonal comparison tests were performed (Cell means and standard deviations are reported in Appendix W, and planned orthogonals in Appendix Y). Consistent with the above, no comparisons between Message Condition groups (regardless of Experimenter Condition) were significant, but those between Experimenter Condition groups (regardless of Message Condition) were highly significant. Specifically, for the sample as a whole, between Experimenter Conditions, F=15.727 (p<.01); for males, F=10.982 (p<.01); and for females, F=5.427 (p<.05).

Further, comparisons between individual Cells for the sample as a whole yielded the following significant findings: Between C1 and S1, F=5.979 (p<.05); between C1 and S2, F=6.061 (p<.05); between C2 and S1, F=10.003 (p<.01); and between C2 and S2, F=10.108 (p<.01). Among males, two findings were significant: Between C2 and S1, F=8.664 (p<=.01); between C2 and S2, F=10.613 (p<.01). Among females, only one comparison, that between Cells C1 and S2, was significant (F=4.087, p<.05).

Upon closer examination of the data, it was noted that males were more extreme in their mean Attitude Questionnaire scores (Appendix W): Males in C2 rated the experimenter lowest (i.e., most negatively) of any group, and males in S2 rated him highest. Moreover, females in C2 rated the experimenter higher than did females in C1, whereas the reverse was true for males. However, no comparison tests between sexes in the same Cell proved statistically significant (Appendix Y).

Obviously, Ss were profoundly affected by the behavior of the

Experimenter. As was expected, the Confrontive style was experienced more negatively than was the Supportive style in general. However, some subtle variations in the data are worth further exploration, such as those in the following contrasts between Attitude Questionnaire scores (Appendix W) and mean Anxiety and Anger ACSs (Appendix Q): 1) Although Attitude Questionnaire scores correlate highly negatively with Anger ACS (r=-.47, p<.001; Appendix Z) among males, there is an exception in that those in Cell S1 actually reported the largest mean Anger ACS increase, while rating the experimenter significantly higher than did those in Cell C2. 2) Although mean Anxiety ACS increased in males in both Cells C1 and S2, mean Anger ACS increased in the former, and decreased in the latter, which is consistent with Attitude Questionnaire means for these two Cells. On the other hand, although mean Anxiety ACS decreased slightly in both Cells C2 and S1, and Anger ACS increased in both, the mean Attitude Questionnaire rating in S1 was higher than in C2 (the difference was not significant, however). 3) Among females, mean Attitude Scale rating does not relate clearly to either mean Anxiety ACS or mean Anger ACS; the influence of Message Condition is more directly seen in both cases. There is a stark contrast, however, in the fact that although females in Cell S1 rated the experimenter somewhat higher than those in Cell C2 (F=2.267, n.s.), mean Anxiety ACS decreased most noticeably in the latter.

These variations may be related to the interaction of the subliminal influence of the tachistoscopic message with the consciously felt influence of E2's behavior on Ss in various Cells. To the point, what is most remarkable is that although Ss clearly perceived the differences in E2's behavior in expectable ways, and

reported their attitudes as predicted by results from the validation sample (Pilot V--Appendix J), the influence of Experimenter Condition on STPI Anxiety is not nearly as clear-cut or orthogonal. In fact, this variable was seen not to be a significant main effect in explaining mean Anxiety ACS differences among Cells (p. 64ff).

Further, it was found that interaction with the Supportive experimenter actually led to an increase in mean Anxiety ACS for males who were also presented with the experimental message (Cell S2), and that although interaction with the Supportive experimenter led to ACS decreases in both experimental and control message groups in females, the largest decrease in Anxiety ACS for females was with the Confrontive experimenter and MOMMY AND I ARE ONE (see Appendix Q). The obvious discrepancies between these results and Ss' conscious perceptions of E2 can be taken as further evidence for an interactive effect between experimenter behavior and tachistoscopic message in the data of the current study. They also call into question the assumption made by Silverman (Silverman and Weinberger, 1985; Silverman et al, 1982) that there should be an ameliorative effect of "interventions offered by helping persons who may be unconsciously perceived...as 'mommy'" (Silverman and Weinberger, 1985, p. 1303; see also p. 15 above). This issue will be addressed further in the "Discussion" section below (Chapter V).

CURIOSITY AND ANGER ACS

The STPI provides data on these two affects in addition to Anxiety. Since results from Pilot II (Appendix C) and the research replicated (Garske, 1984, p. 17ff) were inconclusive for STPI Anger and Curiosity, no hypotheses were generated regarding the effects of these variables in the current procedure. However, although Anxiety

ACS data were the most central to the hypotheses considered in this paper, results pertaining to Curiosity and Anger ACSs were examined as well.

In general, the influence of the procedure on mean Curiosity ACSs appears minimal. In no case was there a significant main or interactive effect in ANOVAs (Appendices R and S). In fact, an inspection of Cell means (Appendix Q) shows that there is little variation, and only the suggestion of two patterns: 1) Among males, mean Curiosity ACS increased in Ss presented with the experimental message (Cells S2 and C2), and decreased when the control message was shown (Cells S1 and C1). Cell S1 showed the largest mean change in Curiosity ACS. 2) Among females, mean Curiosity ACS decreased when Ss interacted with the Supportive experimenter (Cells S1 and S2), and increased with the Confrontive one (Cells C1 and C2). No changes were larger than 0.56, however, which is a shift of only 5.6% relative to the baseline of the scale.

One other finding regarding STPI Curiosity is worth consideration: Correlational data (Appendix Z) point to the fact that those females who began the procedure scoring higher on STPI Anxiety were more likely to report an increase in Curiosity (between initial STPI Anxiety and Curiosity ACS, $r=.25$, $p<.05$). Also, females with higher initial STPI Anxiety levels scored higher on Fusion ($r=.33$, $p<.05$) and lower on Curiosity ($r=-.36$, $p<.01$). Taken together, the increase in Curiosity ACS in Ss with higher initial Anxiety scores may be confounded by the relationship between Fusion and STPI Anxiety, such that there may be a semantic or phenomenological overlap between these two latter variables. The meaning of this finding will be explored further later (Chapter V, pp. 96ff).

The case for influences of the procedure on Anger ACSs is clearer and ultimately more compelling. A three-way ANOVA (Experimenter Condition-by-Message Condition-by-SOS--Appendix R) reveals a significant interactive effect between Message Condition and SOS (F=6.346, p=.014). From an inspection of Cell means (Appendix Q), it can be seen that mean Anger ACS increased in all Cells except S2 among males. For males, Duncan multiple range tests were significant at the $p<.05$ level between the following Cells: C2 and S2; S1 and S2.

Among females, mean Anger ACS decreased in groups presented with the control message, and increased in those shown the message MOMMY AND I ARE ONE, although no Duncan multiple range tests between Cells were significant. In general, trends in the data show that Anger ACS increased in males presented with the control message, whereas the opposite was true in females.

In summary, then, little can be said about the influence of the paradigm on STPI Curiosity other than that increases in female Ss' experience of this affect vary in direct relationship with their initial reported level of STPI Anxiety.

In regard to STPI Anger, there is evidence for an interactive effect of Message Condition and SOS. It was found that there was an increase in this affect in all Cells among males except S2, and that differences were significant between Cell S2 and Cells C1 and S1. Among females, STPI Anger increased in groups exposed to the experimental message and decreased in control groups; however, although Message Condition was more salient than Experimenter Condition, this influence did not reach the $p<.05$ level of significance (F=3.104, p=.086)

Several interesting trends emerge in an examination of the result for the three STPI variables taken together: 1) In males, interactive effects predominate in both Anxiety and Anger ACSs, with the most intriguing contrast being that although Anxiety increased in both Cells C1 and S2, Anger also increased in the former, but decreased in the latter. In fact, Anger ACS only decreased in Cell S2 among males. 2) Among females, there is a fairly clear inverse relationship between Anxiety and Anger in experimental message groups, such that those exposed to MOMMY AND I ARE ONE reported an Anxiety decrease and an Anger increase. This suggests that Message Condition may be the salient variable. 3) Overall, correlational data (Appendix Z) suggest a trend among the three variables such that Anxiety and Anger vary in direct relation to each other, and Curiosity varies inversely with both Anxiety and Anger. This relationship was also suggested in data reported by Garske (1984) and Spielberger (1979). Possible explanations of these effects will be considered below (Chapter V, pp. 102ff).

FOOTNOTES--CHAPTER IV

1. The formula for deriving ACSs is as follows:
   a) If pre>post, ACS=10(post-pre)/(pre-10)
   b) If pre<post, ACS=10(post-pre)/(post-10)
   c) If pre=post, ACS=0

   (Thanks to L.J.Gerstman, Ph.D., for this formulation.)

CHAPTER V--REPLICATION AND EXTENSION--DISCUSSION

The initial section of this discussion will be concerned with the following: 1) Evidence arguing against the possibility that results in these experiments are artefacts of the experimental design; 2) a focus on the strength of significant results as well as trends in the data, with attention to the level of confidence with which different findings can be propounded; 3) a consideration of the results in light of the hypotheses presented in this paper and in previous research; and 4) the implications of present findings for previous empirical findings with the subliminal psychodynamic activation method. These issues will be examined in light of the influences of SOS and Boundary/Fusion scores; the anxiety-reducing potential of MOMMY AND I ARE ONE (the influence of Message Condition); the vicissitudes of STPI Anger and Curiosity; and the influence of Experimenter Behavior.

Subsequent sections of this chapter will include: 5) Consequences of the present research on theoretical models previously proposed to explain the effects of tachistoscopic presentation of the message MOMMY AND I ARE ONE; 6) conceptualizations that may explain the current findings; and 7) implications and recommendations for future research.

EVIDENCE ARGUING AGAINST ARTEFACTS

Several precautions were built into the design of the pilot studies and the main experiment reported here to ensure that results were not confounded by extraneous variables. The following points are pertinent: 1) The threshold procedure (Pilot I) ascertained that 4 msec. exposures were "comfortably below threshold" for the equipment and conditions used in subsequent aspects of the research.

2) The discrimination task (Pilot IV) demonstrated that Ss could not distinguish a message presented at 4 msec from the presentation of a blank card at that speed. (Both precautions 1 and 2 were intended to prevent the perception of partial cues by Ss.) 3) The use of a focal dot ensured, to as great an extent as is practical with a visual angle of approximately five degrees, the foveal registration of stimuli. 4) Double blind conditions guaranteed that the experimenter was not aware of the content of the message presented to any particular S. 5) Control messages were used to determine what was the effect of simply participating in the procedure, and to allow comparisons between the effects of the experimental messages on Ss and the effects of the behavior of the experimenter alone.

Given that the above measures were taken, it is with a high degree of confidence that the data can be considered as resultant from the experimental manipulations, and not from extraneous confounding variables and artefacts of experimental design.

INFLUENCES OF SOS

SOS is clearly a significant factor in the results presented in Chapter IV, and its importance can be seen in several ways: 1) In a 3x2 ANOVA (Experimenter Condition-by-Message Condition-by-SOS), SOS was a significant main effect on Anxiety ACS; the difference being most clearly delineated in Cells C1 and C2. 2) There was a significant interaction in Anxiety ACS between Experimenter Condition and Message Condition among males, but not among females. 3) There was a significant interaction of Message Condition and SOS among mean Anger ACSs.

Certainly, Silverman's contention (Silverman et al, 1982) that males and females respond differently to subliminal psychodynamic

activation is strongly supported by the above, and Garske's (1984) contention that there is no such influence of SOS is called into question. However, the separate and/or interactive effects of level of differentiation (as measured by the Boundary/Fusion Test) are not clarified. Further, the SOS differences in the above findings, including interactions with Message Condition, Anger ACS, and Experimenter Behavior, do not all point in directions suggested or postulated by previous research, or even by the hypotheses stated in this paper (pp. 24ff). The interactions among these factors will be considered next.

SOS and Boundary/Fusion

Some influences of Boundary/Fusion profiles, and possible interactions between this variable and SOS, are intimated in the data of Pilot III and the main study reported in Chapter IV, although it is clear that these results are only on the order of trends for the most part, particularly in light of the problems with subject selection and retention outlined above (p. 58ff). Specifically, in the results of Pilot III, both Boundary and Fusion scores were higher among females than among males, although not significantly so, suggesting the possibility of a sex difference regarding tendencies to maintain rigid temporal, spatial, and interpersonal boundaries on the one hand, and to experience blurring and merging of self/other demarcations on the other.

This sex difference was borne out in results of the replication and extension reported above: Males in the experimental sample had significantly lower mean Boundary and Fusion scores than did females. In sum, results relating to Boundary/Fusion and SOS support Silverman's contention (Silverman et al, 1982) that there may be

differences in both tendencies to experience "merger" and defenses against "engulfment" between males and females. These differences may impinge upon response to subliminal stimulation with the message MOMMY AND I ARE ONE, although definitive answers in this regard will have to await further research with larger subject pools and a priori balancing of Boundary/Fusion Test profiles across experimental cells.

SOS and Message Condition

What is most striking about the sex differences in the present findings is that they are highly complex, sometimes unexpected, and not always consistent with those found in previous research. First of all, females evidenced decreases in mean Anxiety ACS in both experimental Message Condition groups, whereas males did not. In fact, in interaction with the Supportive experimenter, anxiety actually increased in males who were presented with MOMMY AND I ARE ONE. There was a clear and significant interactive effect between Message and Experimenter Conditions among males, but not among females. What was unexpected from the point of view of previous research was that there would be conditions under which the experimental message would not lead to amelioration of anxiety among males.

Even more paradoxical is the fact that, among females, the decrease in mean Anxiety ACS was greater in the group exposed to the Confrontive experimenter (Cell C2) than it was in the group who interacted with the Supportive one (Cell S2). It appears that what may be an ameliorative effect found in the experimental Message Condition groups was counteracted by experience with a Supportive experimenter (or, alternatively, enhanced by experience with a Confrontive one). Possible explanations for these peculiarities in

the current findings will be suggested below (p. 89ff).

SOS, Message Condition, and Anger ACS

Another way in which SOS interacted with other variables in a significant way was in regard to Anger ACS. In point of fact, the interaction of Message Condition and SOS is significant for Anger ACS. Although the finding does not attain significance at the $p<.05$ level (in orthogonal comparisons), and therefore must be regarded as highly speculative, females in the experimental Message Condition groups were found to have experienced an increase in STPI Anger during the procedure, and a corresponding decrease was seen in control groups (see p. 78 above). Previous research found a similar effect (Garske, 1984). Among males, on the other hand, mean Anger ACS decreased in Cell S2; in all other Cells, including both control Message Condition groups, there were increases in this variable.

Summary of Influences of SOS and Message Condition

Four things stand out clearly in the above findings: 1) Overall, the issue of the anxiety-reducing power of MOMMY AND I ARE ONE is by no means a simple one, nor are the sex differences found in this regard. 2) It is apparently the effect of Message Condition in the replication and extension procedure that had a stronger impact on females, while the interaction of Experimenter and Message Conditions was more salient among males. 3) The impacts of SOS and Message Condition on Anger ACS need further explanation and consideration. 4) Sex differences need to be considered in light of the influence of the behavior of the experimenter. This fourth issue will be taken up first; the previous three will have to await consideration in the context of a later discussion of the implications of present results in relation to theoretical models proposed to explain the effects of

subliminal stimulation.

THE INFLUENCE OF THE EXPERIMENTER

Clearly, there are discrepancies between current and past research. In part, these are consequences of the influence of experimenter behavior on the effects of subliminal stimulation. First of all, contrary to expectation, interaction with a Supportive experimenter does not necessarily lead to a reduction in reported anxiety; among males, it was found that the combination of a Supportive experimenter and the experimental message led to an increase in mean Anxiety ACS, although to a lesser degree than did the combination of a Confrontive experimenter and the control message.

Secondly, exposure to a Confrontive experimenter does not categorically cause anxiety to increase; among females, the combination of the Confrontive experimenter and the experimental message led to the largest mean decrease in Anxiety ACS.

A third way in which the behavior of the experimenter was a manifest factor is related to what was hypothesized to occur in Hypothesis I (p. 24), where it was suggested that the largest increase in mean Anxiety ACS should occur in the presence of the Confrontive experimenter and the control message (Cell C1), while the largest decrease should occur with the Supportive experimenter and the experimental message (Cell S2). In line with this hypothesis, females in Cell C1 reported an Anxiety increase, while a decrease was reported in Cell S2.

However, it is clearly not the case that the contrast between Cells C1 and S2 is the most extreme. In fact, males in both Cells showed mean Anxiety increases, although the fact that the increase

was smaller in Cell S2 than in C1 could still be seen as supporting the hypothesis. Moreover, although it was also found that exposure to MOMMY AND I ARE ONE led to decreases in mean Anxiety ACS in females regardless of Experimenter Condition, as was also predicted in Hypothesis I--and not all previous research indicated that the experimental message would be anxiety-reducing for females at all (Silverman, 1983; Silverman et al, 1982)--what was unexpected is that the decrease was greater in interaction with the experimenter in the Confrontive style (Cell C2).

A fourth finding that bears on the issue of the influence of the experimenter, and which reaches a high level of significance, is the fact that Ss definitively discriminated between the Supportive and Confrontive modes in their ratings of E2's behavior. It is very clear that, on a conscious level, Ss rated the Supportive experimenter far more positively than they did the Confrontive one. What is also clear, however, is that Ss' conscious ratings of the experimenter do not coincide with their affective reactions to him, at least not in a straightforward way.

These findings are not entirely consistent with Silverman's belief that interaction with an experimenter who should promote "increased receptiveness" will reduce anxiety in Ss (Silverman and Weinberger, 1985; see also p. 10ff above). Moreover, the statistically significant interactive effect in males between Experimenter and Message Conditions calls into question Silverman's assertion that "the pathology-reducing effects of...MOMMY AND I ARE ONE...[are] better ascribed to its having activated unconscious fantasies of oneness than to the creation of a symbiotic relationship in the laboratory situation" (Silverman et al, 1982, pp. 93-94; see

also p. 16 above). In fact, the results presented in Appendix S show clearly that the separate effects of experimenter and message variables are far from significant among males; it is only in interaction with each other that salient influences are seen.

In sum, the influence of the experimenter's behavior is complex, and the above-reported findings have ramifications upon both past empirical findings and theoretical constructs used to explain past research. There may also be implications for the effects of various approaches to psychotherapeutic treatment. This last issue will be explored further below (pp. 101ff). First, a consideration of these results in light of hypotheses previously proposed to explain findings in subliminal psychodynamic activation research is called for.

THEORETICAL IMPLICATIONS

Issues in Need of Elucidation

It is quite apparent from the results presented above that both SOS and the behavior of the experimenter have influences on response direction and intensity in subliminal psychodynamic activation using the phrase MOMMY AND I ARE ONE. However, there are several findings reported and discussed above that appear unexpected, confusing, or paradoxical, and need to be placed in a comprehensible context. Among them are the following: 1) Ss in Cell S2 showed evidence for more of an increase in STPI Anxiety, or less of a decrease, than did those in Cell C2. 2) Among females, there were decreases in mean Anxiety ACS in both Cells C2 and S2, and the decrease was larger in the former. 3) Among females, Anxiety and Anger ACSs were in inverse relation to each other in groups exposed to MOMMY AND I ARE ONE, and both were sensitive to Message Condition. Moreover, this inverse

relationship stands in spite of the fact that, overall, Anxiety and Anger ACSs vary directly with each other (Spielberger, 1979; Garske, 1984; see also p. 79 above). 4) Among males, there was an interactive effect between Experimenter and Message Conditions on both Anxiety and Anger ACSs. 5) There are discrepancies between conscious attitudes toward E2 and affective responses to the paradigm.

Evidence for an Overdose?

Silverman maintained that "unconscious oneness fantasies can enhance adaptation if, simultaneously, a sense of self can be preserved" (Silverman et al, 1982, p. 1; see also p. 10 above). Silverman stated further that it was possible for individuals to experience an "overdose" of stimulation of these fantasies, such that an otherwise ameliorative effect would be mitigated (Silverman et al, 1982; Silverman and Geisler, 1985). Pursuant to this hypothesis, it was suggested that females in general, having differentiated to a lesser degree from their mothers, would be more susceptible to negative effects of the evocation of such fantasies of merger. Thus, it would be predicted that MOMMY AND I ARE ONE might very well increase pathology in females. Evidence for this possibility was found in several studies (Cohen, 1977; Florek, 1978; Jackson, 1983). It was suggested above that this sex difference in response to the "oneness" stimulus should apply to nonclinical as well as to schizophrenic populations (p. 22). The specific implication is that MOMMY AND I ARE ONE might lead to an increase in STPI Anxiety among females in the paradigm used in the present research.

Let us look at the evidence in light of this possibility. First of all, the experimental message led to a mean decrease in STPI

Anxiety among females in both experimental message groups (Cells C2 and S2), which, at first glance, would argue against the "overdose" hypothesis. However, the experimental message group which also interacted with the Confrontive experimenter (Cell C2) reported a larger mean decrease in STPI Anxiety than did the group exposed to the Supportive experimenter.

One possible explanation of these results is that females are particularly sensitive to overexposure to the "oneness" stimulus, or, in other words, that Silverman's caveat that a sense of self must be preserved enters into the picture. Specifically, it is possible that, although the message itself appears to reduce anxiety (by comparison of Cells C1 with C2 and S1 with S2), the ameliorative effect is interfered with by the combination of the experimental message and the behavior of the Supportive experimenter. Conversely, it may be that it is the interaction with the Confrontive experimenter that enhances the anxiety-reducing potential of the message. The further implications of these phenomena will be addressed below (pp. 101ff).

There is another finding that may very well support Silverman's "sense of self" hypothesis; namely, in both experimental message groups, females reported an increase in STPI Anger. Although this finding does not reach statistical significance at the $p<.05$ level, and therefore the following must be regarded as speculative, one way of understanding this occurrence is that it is through an increase in anger in response to the stimulation of unconscious merger fantasies that females are able to maintain an intact sense of self. If this hypothesis were to be borne out by further research, it might be considered possible that this increase in anger facilitates, or

serves as a catalyst for, the anxiety-reducing potential of the message MOMMY AND I ARE ONE. This hypothesis makes comprehensible the fact that females in experimental message condition groups showed an inverse relationship in changes in reported anxiety and anger, whereas it was generally the case in the whole sample that these two affects varied in direct relation to each other.

The putative function of anger in maintaining intactness of self may also explain the fact that females in Cell C2 experienced an even larger decrease in mean Anxiety ACS than did those in Cell S2: It can be argued that the experimenter's Confrontive behavior style did not invite or stimulate fantasies of "oneness" or merger with the "good mother of childhood" (see p. 5 above), or provided a safe structure in which to experience these fantasies, and therefore enabled the Ss to avail themselves of the ameliorating potential of the subliminal message without fear of engulfment or threat to their sense of self. This idea will be further expanded upon below, in a discussion of implications for treatment (p. 102).

It should be reiterated, however, that in no case did MOMMY AND I ARE ONE lead to an <u>increase</u> in mean Anxiety ACS among females. It is likely, then, that under properly titrated conditions, this message <u>does</u> have an ameliorative effect for them. However, if the "overdose" hypothesis bears out, it is also apparently the case that this effect is fragile, and proper conditions must be carefully monitored.

Silverman's proposed sensitivity of subliminal presentation of a "oneness" stimulus to a threatened lack of preservation of a sense of self may also explain findings among male Ss in the above research. The finding that most begs for explanation is the fact that males in

Cell S2 reported a mean increase in STPI Anxiety. A possible explanation for this phenomenon parallels that suggested above for females in this same Cell: The interaction of the Supportive experimenter with the experimental message may cause an "overdose" of subliminal stimulation, leading to an interference with the otherwise ameliorative effect of the message alone.

In the case of the male Ss, it also was true that the effect of the Supportive experimenter alone (i.e., with the control message (Cell S1)) was to evoke a small decrease in mean Anxiety ACS; a similar decrease occurred when the experimental message was coupled with the Confrontive experimenter (Cell C2). It may be, however, that the etiologies of these two decreases are different. In the case of Cell C2, it could be maintained that exposure to MOMMY AND I ARE ONE counteracted the otherwise anxiety-provoking effect of the Confrontive experimenter (cf., Cell C1), whereas in Cell S1, the effect seems to be more simply the consequence of interaction with the Supportive experimenter himself. The contrast between Cells S1 and S2 shows starkly the effect of the "oneness" stimulus upon Ss' experience of the Supportive experimenter, and corroborates the "overdose" hypothesis suggested above.

An intriguing hint of another dimension in the effects found in the present study is suggested by the fact that mean Anger ACS increased in all Cells among males <u>except</u> Cell S2. One possible explanation is that the combination of the Supportive experimenter and the experimental message led Ss in this Cell to "drop their guard". In other words, an increase in experienced anger may serve a defensive purpose among male Ss, just as it was suggested to have done for females (p. 90 above). It is a larger inferential leap,

again, but it may be argued that the experience of Ss in Cell S2 counteracted, or penetrated, this defensive posture, and that this may have contributed to the observed increase in mean Anxiety ACS.

In sum, there are several ways in which an "overdose" effect has been offered as explanatory of the findings presented here: 1) Although all experimental message groups among females reported reductions in STPI Anxiety, there may be evidence for an overstimulation in the discovery that the largest mean decrease occurred in Cell C2 (versus S2). 2) A similar argument was proposed to explain the increase in mean Anxiety ACS among males in Cell S2, as well as the Experimenter/Message Condition interaction found among males. 3) It was suggested that increases in mean Anger ACS can be interpreted as related to the need to defend against overstimulation of unconscious fantasies, or as adjuncts to the maintenance of an intact sense of self, under the conditions of subliminal psychodynamic activation represented in the current procedure.

Conscious and Unconscious Experience

Another issue requiring further elucidation relates to the discrepancies between conscious perceptions of E2 (as measured by the Attitude Questionnaire) and affective response to the experimental paradigm. As was shown above (pp. 73ff), Ss were quite consistently able to discriminate between the Confrontive and Supportive experimenter styles; however, it was also clear that there was by no means a linear relationship between these conscious attitudes and mean ACS in various Cells. Before a further investigation of the meaning of these results, a reiteration of the theoretical substrate presented above (pp. 11ff), and advocated by Silverman et al (1982), is necessary.

It was suggested by Silverman (Silverman et al, 1982; Silverman, 1979) that "the activation of...the fantasy of symbiotic-like oneness", involving parallels with Winnicott's provision of a "holding environment" (Winnicott, 1963) and Kohut's "empathic mirroring selfobject" (Kohut, 1971; Kohut, 1977), would occur in psychotherapeutic treatment, and that in fact, this was a positive "nonspecific treatment (placebo) effect" (Silverman et al, 1982, p. 216; see also p. 13 above). Further, "such desireable qualities in a clinician as being accepting of a patient and conveying a sense of understanding and helpfulness can activate these fantasies" (Silverman et al, 1982, p. 196), and this approach to clinical interaction is certainly thought to be therapeutic. There are other personality characteristics that are associated with the occurrence of these effects, such as "interest in and liking of the patient, and investment in the treatment" (Silverman et al, 1982, p. 262). The logical implication of this point of view is that the absence of these attributes, or the presence of their opposites, should be antitherapeutic, or at least would not promote the reduction of various forms of pathology.

The Attitude Questionnaire (Appendix I) has four items on a seven-point Likert-type scale that relate to positive attributes of the experimenter, and four others (scored inversely--i.e., by subtracting the S's response from 8) that relate to negative attributes. The positive items refer to kindness, supportiveness, and helpfulness perceived in E2, as well as interest in getting to know the experimenter; the negative items refer to nastiness, boredom, hostility, and anger as attributes of E2. It can be seen, then, that in order for a subject to rate E2 as Supportive,

attributes such as interest, liking, and kindness would be included; conversely, boredom and hostility, etc., would be excluded. Therefore, it is generally true that the higher the score Ss gave E2, the more it was likely that they perceived him to have the qualities suggested by Silverman to be necessary in a clinician in order to evoke "symbiotic-like oneness fantasies", and thus to have a therapeutic effect in treatment.

If Silverman's hypothesis is correct in this regard, there should be an inverse relationship between Attitude Questionnaire scores and mean Anxiety ACS such that higher mean Attitude Questionnaire scores should occur subsequent to larger mean Anxiety ACS decreases.[2] The results reported above do not corroborate this. In fact, among females, the largest mean Anxiety ACS decrease was in interaction with the Confrontive experimenter (Cell C2), which Cell also had the second lowest mean Attitude Questionnaire score. In other words, those who reported the most anxiety-reduction did so in interaction with someone who they did not perceive as particularly helpful or kind.

Among males, the largest mean Anxiety ACS increase was in Cell C1, which also had a relatively low mean Attitude Scale score, as would have been predicted according to Silverman's way of thinking; however, the lowest mean Attitude Questionnaire score--significantly lower than those in both Supportive experimenter Cells--actually occurred in Cell C2, in which Ss reported the largest, although minimal, decrease in mean Anxiety ACS. Further, the second largest Anxiety ACS increase was in Cell S2, in which Cell the highest mean Attitude Scale score was also found. Here again, those faced with someone who was not particularly appealing reported the largest

reduction in anxiety; moreover, interaction with someone who was rated as more appealing was apparently anxiety-provoking.

Obviously, these differences are at least partially the result of interactions between Experimenter Behavior and Message Condition as independent variables; concerning possible implications for effects in psychotherapy, that is exactly the point that needs to be made. Before this is done, however, further discussions of the implications of defensive style on susceptibility to subliminal psychodynamic activation will be undertaken.

Defensive Style, Boundary/Fusion, and STPI Curiosity

Some previous research has suggested a relationship between defensive style and susceptibility to subliminal stimulation (Litwack et al, 1979; Carroll, 1980; Glennon, 1983). Specifically, it is thought that those with defenses more permeable to unconscious drive derivatives and to the eruption of anxiety would be more profoundly affected; conversely, those "who are relatively well defended against the psychodynamic content that the experimental stimuli activate" would be less responsive (Silverman and Geisler, 1985, p. 17). A direct relationship between Fusion scores and permeability of conscious/unconscious and self/other boundaries was suggested above (pp. 19ff), such that those Ss with higher Fusion scores would be more susceptible to the influences of stimulation with the message MOMMY AND I ARE ONE. Past research also implied that these Ss would evidence higher levels of anxiety in general (cf., Litwack et al, 1979), such that there should be a direct correlation between Fusion and STPI Anxiety. Further, it was hypothesized above that such subjects would respond with increased anxiety if they also had high scores on Boundary, and would respond with anxiety reduction if they

were low on the Boundary continuum (p. 25).

Unfortunately, as was discussed above (p. 58ff), subject selection and drop-out problems made it impossible to balance Boundary/Fusion scores across experimental groups or to have large enough numbers to select out Ss with extreme Boundary/Fusion profiles for statistical manipulations of data. Thus, present data do not allow any definitive statements about the impact of defensive style on susceptibility to subliminal stimulation. However, several trends are worth reconsideration.

First of all, there is a direct correlation between initial STPI Anxiety and Fusion, as seen in Appendix Z (r=.36, p<.001), confirming the findings of past research (Litwack et al, 1979; Carroll, 1980; Glennon, 1983; see also p. 15 above). Secondly, among females, those with higher Fusion and initial Anxiety scores experienced an increase in Curiosity (Curiosity ACS with Fusion, r=.33, p<.05; with initial Anxiety, r=.25, p<.05). Third, among males, those with higher Fusion scores, and whose Anxiety decreased during the procedure, reported higher levels of Curiosity after the procedure (Curiosity "post" score with Fusion, r=.32, p<.05; with Anxiety ACS, r=-.27, p<.05). Garske (1984) reported a similar relationship between STPI Anxiety and Curiosity, and found in addition that groups exposed to MOMMY AND I ARE ONE had even higher Curiosity scores 24 hours after the procedure than they did immediately after it, suggesting a more long-term effect of exposure to MOMMY AND I ARE ONE on this variable.

Although these relationships do not account for large percentages of the variance in any case, they do suggest a confirmation of the relationship between permeability of defenses and susceptibility to the influence of the subliminal message employed in

the current research, such that those Ss who are less well defended against merger fantasies or impulses, and who are more vulnerable to the eruption of anxiety, find the procedure to be ameliorative, and are more likely to experience a reduction in anxiety and an increase in curiosity as a result.

Of course, this statement makes the assumption that an increase in curiosity would be concomitant with a heightening of adaptive functioning. Items on the STPI (Appendix D) that purport to measure Curiosity include the following: "I feel like exploring my environment"; "I feel interested"; "I feel inquisitive"; and "I feel mentally active". It is superficially clear that if one embodies these attributes, one would be more open to more effective adaptive functioning and problem-solving.

In addition, it is also the case that there is a large body of theoretical and empirical literature that associates curiosity, exploratory behavior, creativity, and effective adaptive functioning with freedom from repression and inhibition, and with the ability to tolerate "regression in the service of the ego" (Schachtel, 1959, p. 243). That is, the curious, creative ego "may use the primary process and not be overwhelmed by it" (Kris, 1950, p. 551), and can regulate "its own capacity to regression, voluntarily and temporarily withdrawing cathexis from one area or the other, in order later to regain improved control" (Rapaport, 1951, p. 372). Getzels and Jackson (1962), reporting results of empirical research on the character of creative adolescents, describe their intellectual style as "reminiscent of the young child's joy in exploring the world" and reflecting "the uninhibited spirit of play" (p. 99).

These abilities to regress but remain structurally intact, and

to be uninhibited in exploration of the environment, are also reminiscent of aspects of Silverman's way of conceptualizing the effect of MOMMY AND I ARE ONE. Particularly, one is reminded of his insistence that a sense of self must be preserved (Silverman et al, 1982, p. 1), and to his reference to the need for merger as being in service of the restoration of an intact sense of self (see p. 11ff above). Quoting Rose, Silverman refers to the ability to "merge in order to re-emerge" in the service of adaptation to separateness (Rose, 1972, p. 185); this suggests that merging can be used to aid separation/individuation. It is explicit, then, that if the subliminal message is to be ameliorative, it will be so to the extent that the individual maintains a sense of intactness of self. This is only possible when the unconscious experience of merger occurs within the control of the self (i.e., "in the service of the ego").

What can be hypothesized, in light of the above theoretical perspective and the data from the present research, is that those Ss who are more highly open to fantasies of merger and less well defended against them, and who experience higher levels of anxiety, are more likely to be positively affected by subliminal exposure to MOMMY AND I ARE ONE, and to experience the stimulation as ameliorative as evidenced in anxiety-reduction and increases in curiosity. Of course, since the relationships between these variables, although statistically significant, do not account for large percentages of the variance, this hypothesis must be taken as quite speculative and in need of further investigation. Nevertheless, the relationships among Boundary/Fusion, STPI Anxiety, and STPI Curiosity are provocative of implications for treatment; this will be discussed further below (p. 104).

Summary of Theoretical Implications

The above discussion of theoretical implications of the findings reported herein has centered around three constructs: 1) The concept of overstimulation with subliminal stimuli, leading to what Silverman called an "overdose" of merger fantasies (Silverman et al, 1982); 2) the contrast between conscious and unconscious reactions to the experimenter; and 3) possible influences of defensive style and their impact on affective experience.

Several lines of evidence for an "overdose" effect were offered, such as the increase in mean Anxiety ACS among males in Cell S2; the lesser decreases in mean Anxiety ACS among females in Cell S2 (as compared to Cell C2); and the increase in Anger ACS in females exposed to MOMMY AND I ARE ONE.

The discrepancies between unconscious and conscious experience of the experimenter placed the results of current research in contrast with hypothetical predictions made by Silverman and his colleagues (Silverman et al, 1982; Silverman and Weinberger, 1985). The suggestion was made that the findings may have implications for the development of transference phenomena in a psychotherapeutic relationship, and for the behavior on the part of the therapist that is likely to be most ameliorative for certain patients at certain times in treatment.

Finally, the differential susceptibility of Ss with higher initial Fusion and STPI Anxiety scores, and the general influence of the procedure on Anxiety and Curiosity levels of these Ss, was also highlighted, and will be considered below in relation to implications for psychotherapy and future research.

ALTERNATIVE CONCEPTUALIZATIONS AND IMPLICATIONS FOR PSYCHOTHERAPY

In contrast to the findings of Silverman and others using the subliminal psychodynamic activation method, it has been shown definitively in the current findings that the relationship between exposure to MOMMY AND I ARE ONE and anxiety-reduction is not a simple, linear one. There are conditions under which anxiety is apparently paradoxically increased (such as among males in Cell S2), and under which anxiety-reduction is enhanced by interaction with an individual whose behavior would have been predicted by Silverman to militate against reductions in anxiety (Cell C2 among females). Further, the interrelationship between vicissitudes of anxiety and anger, not found in previous research, has yet to be fully understood in its implications, as has the clearly significant impact of the behavior of the experimenter in a subliminal psychodynamic activation paradigm.

The discussion below will consider the following questions: 1) What is the relationship between anger and maintenance of an intact sense of self? 2) What reflections can be offered regarding the importance of attention to defensive style in research and clinical practice? 3) What are the implications of current findings for the development of transference phenomena and the behavior of the clinician? 4) Assuming that Silverman is in fact correct in maintaining that the subliminal message evokes fantasies of oneness with the "good mother of childhood", which "mommy" is evoked? 5) Are the effects found here and in previous research clearly attributable to the evocation of "oneness" fantasies? 6) To what extent must the factor of individual differences be taken into account in subliminal psychodynamic activation research?

Anger and the Intactness of Self

Several writers, among them Greenson (1974), Searles (1958, 1962, 1963), and Winnicott (1949), indicate that there are circumstances under which a patient, particularly a more fragmented one, cannot tolerate a relationship which is too close, or engulfing, and defends against this possibility with rage and hatred. What is suggested as necessary under these circumstances is for the therapist to acknowledge the experience, his own as well as that of the patient. This is thought necessary to enable the expression of intense negative emotion to help the patient feel more intact and tolerate the expression of more positive affect without fear of fragmentation or engulfment. A case in point is described by Greenson (1974), and his patient's experience is summed up in the following, which occurred after this process of acknowledging and expressing anger. The patient said, "I hate you, I loathe you, and I despise you, but I do like you very much," then "sighed, as if relieved, and said, 'Shall we talk about something else now?'" (Greenson, 1974, p. 508).

A similar phenomenon may have occurred among female Ss in the above research, as is suggested by the inverse relationship between mean Anxiety and Anger ACSs in groups exposed to MOMMY AND I ARE ONE. Certainly it is speculative, but it may be the case that Ss were able to experience anxiety reduction because an increase in anger allowed for the maintenance of an intact sense of self in the face of concomitant stimulation of fantasies which, although ameliorative, also threatened to lead to a possible dissolution of the boundaries of self, and therefore to an anxiety-provoking experience of engulfment.

Greenson also suggests that some patients "may need the analyst's indifference to reassure themselves that their hostile or sexual assaults are not deadly or overwhelming" (Greenson, 1974, p. 515). Recall that the Attitude Questionnaire (Appendix I) included negative items referring to the experimenter's level of boredom and disinterest, as well as hostility and anger. It is possible, then, that the lower mean Anxiety ACSs in Cell C2 in both males and females (relative to Cell C1) can be at least in part attributable to the fact that the experimenter was seen as indifferent (at best), and able to tolerate the anger experienced by the Ss in that Cell. It is also possible that the increase in Anger ACS among females in Cell S2 served a similar purpose of maintaining an intact sense of self in the face of potentially ameliorative fantasies which simultaneously evoked the fear of loss of boundaries of self.

This hypothesis of the interpersonal vicissitudes of anger and anxiety also may have explanatory power regarding the concurrent decrease in mean Anger ACS and increase in mean Anxiety ACS among males in Cell S2. Greenacre (1954) suggested that undue protectiveness and unyielding benevolence in a therapist may indicate a maternal countertransference, and that these attributes can be counterproductive in treatment. A similar effect, transferential in nature, may have occurred among male Ss in Cell S2. Specifically, it is possible that the benign, perhaps even maternal, behavior of E2 was provocative of potentially overwhelming merger fantasies in conjunction with the "oneness" stimulus, and that Ss unconsciously experienced E2 as unable to tolerate their anger without himself being overwhelmed; thus, the reported anger decrease and concomitant anxiety increase.

Defensive Style: Research and Practice

Clearly, implications regarding the influence of defensive style on the impact of subliminal stimulation are colored by the fact that there were difficulties with subject selection that prevented balancing Boundary/Fusion profiles across Cells in the current research. Further, due to the lack of standardization of scores on this measure, it is not entirely with conviction that one can interpret the phenomenological meaning of empirical data. Nevertheless, several findings stand on more solid ground than others. First of all, females scored significantly higher on both Boundary and Fusion than did males. Secondly, the relationships between initial STPI Anxiety scores, Fusion scores, and STPI Curiosity give convergent validity to the idea that Fusion overlaps with STPI Anxiety, and that higher Fusion and initial Anxiety scores will predict an increase in Curiosity through the procedure.

The larger leap is to the assumption that what is in fact measured by the Boundary/Fusion Test is openness to fantasies of, or level of need for, merger, on the one hand, and the tendency to establish temporal/spatial/interpersonal delineations to defend against merger fantasies, on the other. If this is true, however, there may be fertile ground in the finding, from Pilot III (Appendix G), that Ss who volunteered to participate in further research had significantly lower Boundary and nearly significantly higher Fusion scores than those who chose not to participate. What may be gleaned, albeit tenuously, from the above is that these Ss may have been predisposed a priori to experience an ameliorative effect through the procedure. As much as this is an overgeneralization, it does suggest that caution must be taken in subject selection for this kind of

research, and that further investigation is needed in this regard.

Moreover, although these individuals evidence a potential predilection to an ameliorative effect, they may also be more sensitive to "overdose" effects than would those with lower Fusion scores (along with either higher or lower Boundary scores). By extension, then, the beneficial effect of MOMMY AND I ARE ONE on these individuals may well be fragile, and require careful monitoring so that overdoses, and therefore increases in anxiety, do not occur. This last conclusion has significance not only for subject selection in research, but for treatment considerations in psychotherapy.

Transference Phenomena and Clinician Behavior

Silverman suggested that in order for a clinician to activate "oneness" fantasies in treatment, which are presumed to have a therapeutic effect on patients, a certain style of behavior must be maintained. This includes attributes such as being accepting, conveying a sense of understanding and helpfulness, being interested in and liking the patient, and being invested in the treatment (Silverman et al, 1982; see also pp. 12ff above). Certainly, other writers agree in general that this posture is useful (Winnicott, 1963; Greenson, 1967, 1974; Alexander and French, 1946; etc.).

However, it is clear from the findings presented above that there are circumstances under which this approach may need to be moderated, or at least titrated carefully. The evidence of anxiety increases in males exposed to MOMMY AND I ARE ONE and the Supportive experimenter, as well as an apparent trend among females toward a greater decrease in anxiety in interaction with the Confrontive experimenter, indicate that caution must be invoked in assuming that this stimulus is ameliorative in all, or even the preponderance of,

cases.

Greenson suggests that "the liking [of the analyst for the patient] should not be intense" (Greenson, 1974, p. 515), and, as mentioned above, Greenacre warns against overprotectiveness and benevolence. The error in Silverman's way of thinking about this may have been in the assumption that Kohut's (1971, 1977) "empathic mirroring selfobject" and Winnicott's (1963) "holding environment" by necessity "involve the activation of...the fantasy of symbiotic-like oneness" (Silverman et al, 1982, p. 194). In fact, one could argue that to be fully empathic, or to provide a perfectly appropriate "holding environment", one would sometimes have to protect the patient very carefully against fears of engulfment or overwhelming merger, and one would have to take care to provide the proper amount of structure to the situation so that the patient could "merge in order to re-emerge" (Rose, 1972, p. 185) without losing an intact sense of self.

In fact, this follows logically from the above discussions of defensive style and the relationship between Anger and Anxiety ACSs. To extrapolate from the extreme of expressions of rage in treatment, as described by Greenson (1974), Searles (1958, 1962, 1963), and Winnicott (1949), to the more sedentary but nevertheless crucial titration of experiences of symbiotic-like merger, is relatively simple, assuming a continuum notion of pathology and normalcy. What results is the further assertion that there may be times in treatment, or with certain types of patients, when a clinician should behave in a carefully nonintrusive, perhaps even distant, way. This would particularly be true when content or transference manifestations suggest that "oneness" fantasies, or merger

phenomena, were at the fore in a patient whose sense of self is susceptible to overwhelming, frightening, or disorganizing experiences of engulfment. Of course, this posture of careful, "neutral" reserve is concordant with both Kohut's and Winnicott's notions, as well as with those of Freud (1912, 1915b) and others (Greenacre, 1954; Greenson, 1965). Moreover, Silverman himself has suggested that such a cautious approach should be taken (Silverman et al, 1982; Silverman and Weinberger, 1985).

Ironically, it is often at such moments in treatment that the patient will experience the therapist as ungiving, depriving, or aloof, and resistant anger will ensue. It may be, however, that this anger is partly an attempt to maintain boundaries, to defend against the very experience of merger which had been present in treatment a moment ago; the anger may be necessary, at least for the time being, to protect the patient against an overwhelming experience of fusion or loss of a sense of self. It is therefore at moments such as these, when content and relationship both involve merger fantasies, that the clinician would have to be most careful in helping the patient titrate his or her experience so that adaptation could be enhanced.

Moving back from the couch to the laboratory, what can then be proposed is the idea that one of the reasons previous research using the subliminal psychodynamic activation method led often to confusing and conflicting results is that close enough attention was not paid to Silverman's own main thesis; that is, that subliminal stimulation with the message MOMMY AND I ARE ONE will be ameliorative <u>only if a sense of self remains intact</u>. It is abundantly clear from the findings reported here that the effect of the experimenter's behavior

is profound in research using this method, and that for many Ss, it can be inferred that an experience of momentary engulfment may have occurred, leading to what had previously appeared to be paradoxical reactions to the subliminal message.

Which "Mommy" is Evoked?

Silverman has maintained that MOMMY AND I ARE ONE evokes fantasies of merger with the "good mother of infancy" (Silverman et al, 1982, p. 80). Since his thesis is predicated on the developmental theory of Margaret Mahler and her associates (Mahler et al, 1975), one would presume that the mother referred to is that of the symbiotic period, occurring in approximately the second quarter-year of life. The fantasies of "symbiotic-like oneness" would represent a recurrence of the experience of the "dual unity within one common boundary" of which Mahler speaks (Mahler et al, 1975, p. 44), in which the infant and its mother function as a single unit, differentiated from the outside world, but not from each other.

What is difficult to reconcile with this hypothesis in the research reported above is the inverse relationship between STPI Anxiety and Anger. How is one to understand the fact that females experience a decrease in mean Anxiety ACS, concomitant with an increase in mean Anger ACS, after exposure to MOMMY AND I ARE ONE? Also, what sense can be made of a concurrent Anxiety ACS increase and Anger decrease in males in Cell S2? Essentially, where does the anger fit into the picture?

One possibility is that a developmentally later "mommy" is evoked; namely, that of the rapprochement period (in Mahler's theory, occurring at approximately eighteen months of age). It is at that time that the infant is struggling with the opposing forces of

autonomy and dependency (see also Erikson's (1980) second life stage of "autonomy versus shame and doubt"). This struggle often manifests in the toddler's angry refusal of any help and simultaneous insistence that the mother stay in the immediate vicinity. In a sense, to be successful, the mother must provide a "holding environment" that has carefully controlled but flexible boundaries. This in itself is reminiscent of the behavior suggested above (p. 105ff) necessary for a clinician to allow a patient to contact and explore merger experience without fear of engulfment, and lends credence to the possibility that the "mommy" that is evoked is in fact a later one than Silverman proposed.

Another point of view has recently been offered by Tabin and Tabin (1987); they suggest that it is the "mommy" of the early oedipal period (approximately two years of age) that is evoked. As evidence, they point out that DADDY AND I ARE ONE and MY LOVER AND I ARE ONE have been found in some studies to be more beneficial for females than was MOMMY AND I ARE ONE, and suggest that it is an oedipal/sexual fantasy that is evoked in both males and females.

The current research could also support this hypothesis in some ways. For one, the large decrease in mean Anxiety ACS in Cell C2 among females could be seen as resulting from the fact that the Confrontive experimenter was <u>not</u> experienced as a suitable object for oedipal fantasy. The combined experience of a threatening, nonseductive father figure with a stimulus evoking closeness with a protective mother could then be understood as possibly ameliorative. Conversely, the lesser Anxiety decrease in Cell S2 could be seen as a result of the sexualization of the interaction because of the influence of a benevolent father figure who activated oedipal

fantasies, leading to a relative exacerbation of Anxiety.

A second piece of evidence for this hypothesis may be the response of males in Cell S2: The combined experience of a benevolent, "maternal" male figure and the "oneness" stimulus may have evoked fantasies of protection that were made unacceptable by homosexual implications, thus leading to anger-reduction but anxiety exacerbation.

Even Silverman himself was unsure which "mommy" was evoked (Silverman et al, 1982, pp. 136-137). In a posthumously published article, it is stated that "a formulation that incorporates both symbiotic-like fantasies and sanctioned oedipal-sexual fantasies may do the greatest justice to the entire array of data that have emerged from the MOMMY AND I ARE ONE studies" (Silverman and Weinberger, 1988, p. 198). Obviously, no clearcut discrimination between these theories can be made on the basis of the results of the research described above, and such speculation as that presented here only serves to further "muddy the waters". In fact, it can be asserted that it is extremely difficult to conceive of a methodology that could definitively determine what fantasy or schema is evoked. Of course, this begs the overarching question regarding what is actually activated unconsciously by the subliminal presentation of MOMMY AND I ARE ONE.

<u>What Fantasies Are Activated?</u>

There are two basic methodological and phenomenological difficulties inherent in the use of the subliminal psychodynamic activation method to date: 1) How can one determine whether an unconscious fantasy is activated? 2) How can one determine the mechanism of this activation, if in fact it has occurred as

hypothesized?

Both of these issues were sidestepped in the research reported above, and with good reason, since it is not possible to answer either definitively at this point. Regarding the former, it is illogical to state with certainty that an unconscious process has occurred in a specified form, since it is only through derivatives and behavioral effects that one can infer the existence of such processes in the first place. Regardless of the fact that previous research seemed to have narrowed the field of possible fantasies that could have been activated using the message MOMMY AND I ARE ONE (see Silvermman et al, 1982, for a review; see also pp. 3ff above), it is dangerous to assume that, because one finds effects with the message, a certain category of unconscious fantasy has been responsible.

To the point, although the present findings include several significant effects that are not due to affective changes in control groups (a criticism against Silverman levelled by Balay and Shevrin, 1988), it is clear from the section immediately preceding this one that the range of possible fantasies evoked is broad. It is quite likely, in fact, that other hypotheses concerning the fantasies evoked would be just as easily defended with the data reported here.

It has not even been definitively shown, by current or past research, that unconscious fantasy is actually activated by this method at all. What would be required is technology that can tap the unconscious mind directly, including content as well as neurological process, or other paradigms by which inferences can be made with greater confidence. Otherwise, one is left with the somewhat unsatisfying prospect of chipping away at the mysterious, existential barrier between levels of mind, hoping that the final sculpture will

reflect as close to the unconscious truth as is possible.

Regarding the second issue, that of the mechanism of activation, Balay and Shevrin (1988) make the point that "what Silverman seemed to be proposing was that the rationally understood, secondary-process meaning of this abstract idea [i.e., the message MOMMY AND I ARE ONE] can have an activating effect on unconscious wishes relating to life-specific experiences of closeness with mother" (Balay and Shevrin, 1988, p. 171). This points up two aspects of the problem. First of all, it is unclear that the verbal, secondary-process perception of the message will access memories that are early enough to represent directly the "good mother" to which Silverman refers; in fact, even Silverman himself suggests that earlier, preverbal memories may be accessed through later verbal channels (Silverman et al, 1982, following Schur, 1966).

The second point is perhaps more telling. Balay and Shevrin (1988) point out, following Freud's (1915a) concept of "double registration", that the repressed--i.e., dynamically unconscious--aspects of an idea can coexist with conscious ones. Specifically, "what is repressed are the specific, affect-laden memory traces associated with the idea in question" (Balay and Shevrin, 1988, p. 171). A parallel is suggested between this contrast of conscious and unconscious registration and Tulving's (1972) distinction between "semantic" and "episodic" memory. This distinction leads to the next issue to be discussed.

The Impact of Individual Differences

The findings presented above make it clear that several individual differences need to be taken into account in research using the subliminal psychodynamic activation method. Particularly, sex

differences and differences in "level of differentiation" were shown to be influential. It is possible, however, that the influence of individual differences does not stop at so gross a level as the sex of the subject. In fact, Balay and Shevrin (1988), following an issue raised by Haspel and Harris (1982), suggest that it is differences from individual to individual that may be salient, based on the hypothesis that experiences with "mommy" in childhood are encoded episodically rather than semantically in a generic way.

Following this line of reasoning, it is possible that for one individual, the "mommy" accessed is of the symbiotic period; for another, of rapprochement; for still another, oedipal. It is further possible that for some people, fantasies of the "good mother of infancy" are activated, while for others, it is "bad mother" schemas that predominate. Obviously, this would explain paradoxical and conflicting effects of stimulation with the message MOMMY AND I ARE ONE in certain cases.

The point made here, and by Balay and Shevrin (1988) and Haspel and Harris (1982) is that it may be necessary to design "tailor-made" messages that would access the specific memory systems of a given individual. Such messages would come out of an intensive clinical investigation and understanding of the dynamics of each individual's personality. Shevrin, in research yet to be made available, promises to report results of just such an attempt (Shevrin, in press).

Summary

The above discussion of alternative conceptualizations and implications for psychotherapy has focussed on the following: 1) Findings related to Anger and Anxiety ACSs, as well as those related to defensive style, may be understood in the context of Silverman's

requirement that subliminal "oneness" stimulation can be ameliorative to the extent that a sense of self is preserved. 2) These findings have importance in relation to managing certain transference phenomena in treatment, as well as in considering the impact of experimenter behavior in research using the subliminal psychodynamic activation method. 3) Theoretical constructs regarding what schemas are evoked, and how researchers might determine whether in fact such schemas have been evoked, need to be explored further in future empirical studies. 4) Possibilities regarding the specificity of individual differences were considered. What remains to be done is to offer recommendations for future research using the subliminal psychodynamic activation method.

RECOMMENDATIONS FOR FUTURE RESEARCH

Balay and Shevrin (1988) make the point that, in many cases, research done by Silverman and his colleagues was not replicated exactly in their own subsequent studies. Of course, in replicating, some judgments must be made as to whether a variance from the previous procedure, versus the replication of a flaw, is the lesser of two evils. With this in mind, the intent of the current research was to replicate a previous paradigm as exactly as possible, while compensating for unacceptable flaws (such as Garske's (1984) omission of a central focal dot on the fixation field in the tachistoscope). Further, the replication was extended with the introduction of measures well before or soon after the specific procedure. In addition, the focus on the behavior of the experimenter was introduced.

There are actually two groups of recommendations for future research that need to be made. Some are more properly thought of as

reminders of salient aspects of the procedure without which major confounding variables cannot be ruled out; others are further recommendations that arise out of the experience of having implemented the studies reported above.

Ruling Out Uncontrolled Variables

First of all, control for confounding by partial cues is crucial. This was accomplished by the use of two discrimination tasks; one to determine the threshold of subliminality (Pilot I--Appendix B), the other to determine whether Ss could differentiate a blank card from one with printing on it at a 4 msec exposure (Pilot IV--Appendix H). In both cases, the criteria for detection were less rigid than previous researchers had used, and therefore, the thresholds of subliminality were more stringently determined.

Secondly, subliminal registration must be ensured, to as great an extent as is possible. To this end, a central focal dot was used on cards presented tachistoscopically, and the visual angle was small enough so that the likelihood of foveal registration and potential comprehension of the message was high (at least according to Silverman's criteria).

Third, double-blind conditions must be used, so that the experimenter does not know which message was exposed to a given S. Fourth, a control message condition should be employed, so that effects of the message MOMMY AND I ARE ONE can be compared with the effects of simply going through the procedure itself.

Further Explorations

The second group of recommendations for future research is based on issues raised by the research presented above. This group includes: 1) Implications raised by the influence of the experimenter

on the paradigm; 2) issues surrounding the impact of Boundary/Fusion Test data; 3) the use of Adjusted Change Scores; and 4) the possible uncontrolled influence of the "control" message.

The influence of the experimenter's behavior in the current procedure was clear and powerful. This confirms the thinking of Orne (1962; see also p. 13 above) about the immediate impact of laboratory conditions on subjects in research; it also extends Rosenthal's (1966) concept of double-blind empirical conditions. In fact, it is apparent that the impact of the experimenter is by no means neutral, and perhaps has had a confounding effect on much of the past subliminal psychodynamic activation research. Further investigation of this possibility is certainly in order, and studies need to be designed which will directly examine the effect of different experimenter behavior styles on different subgroups of Ss, delineated by such personality variables as developmental level of differentiation, defensive style, and so forth.

Of course, the intent with the use of the Boundary/Fusion Test was to do just that. As was stated above, subject selection problems interfered with the ability to make definitve statements in this regard. Several things need to be done to remedy this: 1) Further standardization and investigations of concurrent and construct validity need to be undertaken in order to determine with greated confidence what exactly is the significance of different profiles in different populations. 2) In future research, Boundary/Fusion profiles must be balanced a priori across experimental cells.

Two discoveries related to the use of the Boundary/Fusion Test were made that are very germane to future research, however. First

of all, results of Pilot III (Appendix G) indicated that population profiles were significantly higher on both Boundary and Fusion than were previous standardization profiles for college students (Miller et al, in press). This suggests that research is needed to ascertain the causes for these discrepancies. One hypothesis--that is, that the differences relate to differences in socioeconomic or cultural background--was offered, but this is by no means conclusive.

A second finding regarding the Boundary/Fusion Test is that Ss who volunteered for participation in further research (i.e., the tachistoscope procedure) scored significantly lower on Boundary ($p<.01$) and had a tendency--although not significant to the $p<.05$ level--to score higher on Fusion ($p<.10$) than did those who did not. The implication here is that there may be a self-selection of Ss who are willing to participate in this kind of research, and that these Ss may have tendencies to respond to subliminal stimulation (and the experimental procedure itself) in ways that are different from the population as a whole. Consequently, further research should be implemented which will examine this "self-selection" variable directly.

The use of Adjusted Change Scores (ACSs) was instituted when it was discovered that there were potentially powerful "ceiling" and "floor" effects (Hovland et al, 1949) resulting from the fact that STPI scores preceding and following the procedure accounted for 100% of the variance in STPI difference scores in almost all cases. It is recommended that a retrospective review of previous subliminal psychodynamic activation research using similar measures is needed in order to reassess the impact of "ceiling" and "floor" effects on results in those studies.

Finally, it was suggested above (as well as by writers such as Porterfield and Golding, 1985, and Balay and Shevrin, 1988) that a message such as PEOPLE ARE WALKING is debatably a neutral one. Clearly, research is needed which directly compares the effect of this stimulus to the presentation of a blank card or to a stimulus that appears structurally similar but is less likely to initiate semantic processing (such as MMYMO NAD I RAE NEO). Unless this is accomplished, and it should be a fairly straightforward undertaking, the impact of experimental messages such as MOMMY AND I ARE ONE cannot be properly assessed.[3]

One final recommendation is also in order. Research designed to focus greater attention on the exact mechanisms of encoding of subliminal "oneness" stimuli, as well as to what extent the differences in the process of encoding are truly individual (i.e., "episodic"), is called for. This would be important in attempting to tease out such questions as which "mommy" is evoked, and how idiosyncratic is the experience of subliminal activation. In this respect, the publication of Shevrin's current research is eagerly awaited (Shevrin, in press).

CONCLUSION

The research reported above was based on a replication of previous studies using Lloyd Silverman's subliminal psychodynamic activation method (Silverman and Grabowski, 1982; Garske, 1984), with the addition of extensions intended to explore the impact of experimenter behavior and individual differences in subjects on the method. Stringent controls were instituted to prevent the interference of confounding variables. It was found that the behavior of the experimenter had profound and sometimes surprising

effects on subject responsiveness, in regard to both reported anxiety and anger in subjects; it was also found that sex-of-subject, and, to a lesser extent, level of differentiation, had salient influence as well.

Hypotheses were suggested to explain the findings in terms of Silverman's statement that ameliorative effects after exposure to MOMMY AND I ARE ONE could only occur if a sense of self is preserved, and that "overdoses" were possible which would cause antithetical effects (Silverman et al, 1982). Implications of this possibility for empirical research as well as issues in psychotherapy were explored. Subsequently, theoretical issues concerning the difficulty in determining definitively what occurs on an unconscious level of cognition were discussed. Finally, recommendations for future lines of investigation were presented.

FOOTNOTES--CHAPTER V

1. The possibility that the procedure itself is not necessarily "neutral" in its effect on anxiety may be an alternative explanation of a finding reported by Balay and Shevrin (1988). They pointed to the potential "nonneutrality" of the control message. See also Chapter I, Footnotes 1 and 5, above.

2. It is the case, of course, that the argument propounded here requires an assumption of continuity of the experience of psychotherapeutic interaction with that of everyday life. Although debatable, this assumption was made in Silverman's work (Silverman et al, 1982; Silverman and Weinberger, 1985), and will be likewise accepted here.

3. As a minor contribution to this line of inquiry, it should be noted that the control stimulus only led to a noticeable change in STPI Anxiety in one group in the research reported here. Specifically, males in Cell C1, who were also exposed to the Confrontive experimenter, reported a mean increase in STPI Anxiety.

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APPENDIX A--CONSENT FORM

PLEASE READ CAREFULLY BEFORE SIGNING

Experimental Procedure

There are many things that affect our experience. Some of these things happen outside our awareness. This study was designed to investigate the effects of certain unconscious perceptions on feelings and thoughts.

If you decide to participate in this study, you will be asked to look into a tachistoscope--a machine that can flash words and phrases so quickly that you will not be able to tell exactly what you have seen. The effects of the words or phrases will be sought in the responses you give on a brief questionnaire and in a short interview. Over twenty years of research have shown that tachistoscopic flashes have no longlasting side effects. In no way will the flashes you see induce you to do anything or act in any certain way. After the experiment is over, you will have an opportunity to find out the results.

I have read the above description of the experimental procedure. I understand that my responses will be kept in the strictest confidence and anonymity. I have the option to withdraw from this experiment at any time without penalty, and I also have the right to request that my responses not be used.

I agree to participate in this experiment, and hereby give my consent to be a subject.

Subject's signature	Experimenter's signature
Date	Date

APPENDIX B--PILOT I--DETERMINATION OF THRESHOLD OF SUBLIMINALITY

METHOD

Subjects--Subjects were 21 volunteers from graduate psychology programs at City College in New York. Thirteen were female, 8 were male, and all used their right hand for writing. All were also from backgrounds in which English was their first and dominant language, did not spend the early years of their lives in the Southern United States, and had 20/25 vision or better, or were wearing glasses or contacts to correct their vision (see Silverman et al, 1982, Silverman and Geisler, 1985, for rationales for these restrictions).
Tachistoscope and Stimuli--The tachistoscope was a Gerbrands 300 series three-field tachistoscope (Model T-3B-10); however, it was discovered that the circuitry in one field was faulty, so only two fields were operational. To compensate for this unfortunate occurrence, the sequence of presentations was set so that the blank (fixation) field would illuminate a second time after the stimulus field, as has been done in past research with this method (see for example Silverman and Grabowski, 1982). In fact, in cases where multiple presentations of the stimulus occurred, presentations were "chained", so that the sequence was blank field/stimulus/interstimulus interval/ stimulus/blank field. This resulted in an interstimulus interval of 5.9 seconds (instead of the 6.0 seconds recommended by Silverman and Geisler, 1985), which was not thought to be a significant enough difference to affect experimental outcome. The blank field had a centrally-located focal dot to maximize foveal presentation of stimuli (Silverman and Geisler, 1985).

The stimulus was the phrase MMYMO NAD I RAE NEO, an anagram of MOMMY AND I ARE ONE, presented in black block letters on a white 4x6-inch card; this nonsense phrase was used since Silverman has suggested that "overdose" of the stimulus can occur, causing an increase in anxiety or dysphoria (Silverman et al, 1982; see also Footnote 5, Chapter I of this paper). Letters were 0.5 inches in height, and the message 2.75 inches in overall width. Visual distance was 31.5 inches, creating a horizontal visual angle of less than 5 degrees, which should ensure foveal registration of the entire stimulus, according to Silverman's criterion for foveal presentation (Silverman and Geisler, 1985, p. 22). Although it is not clear, based on the literature from psychophysiology, that full foveal registration will always occur with a visual angle of five degrees (Graham, 1951; Bartley, 1951), Silverman's convention was followed here.

The tachistoscope was housed in a room with blank, cream-colored walls, with a desk lamp directed toward the wall as the source of ambient light. The ambient illumination was 4.794 ftlambs. Fixation field illumination was 9.567 ftlambs, and the stimulus field 9.745 ftlambs. These illuminations have ratios to each other that should guarantee that "bleaching" (i.e., forward masking (Neisser, 1967)) will not occur (Silverman et al, 1978; Silverman and Geisler, 1985). The blank field did not stay illuminated while the stimulus field was lit; this should also avoid potential bleaching (Silverman and Geisler, 1985).
Procedure--The procedure follows one suggested by Silverman and Geisler (1985, p. 24), with two variations: 1) Subjects were asked to

report any change in the visual field upon presentation of the stimulus card; Silverman and Geisler suggest asking for reports of lines seen. Thus, the criterion here is less stringent for reporting a change, and therefore more stringent as a threshold measure. 2) Descending thresholds were determined as well as ascending ones.

Subjects were asked to sign a Consent Form (Appendix A), invited into the tachistoscope room, and given the following instructions:

> This is a tachistoscope. It is a machine that can flash words or phrases at a rate of speed so high that you won't always see what is shown to you. I am trying to determine at what speed people can detect any lines, words, or even vague changes on a card presented through this machine. Please take a seat there (E gestures to seat at the tachistoscope), and be careful not to bump the machine or lean on it, since it is delicate and can be easily thrown out of balance. When we begin, I will ask you to look into the opening, cupping your hands around your eyes to block out as much room light as possible. You will see a card with a black dot in the middle--please focus on the dot. I will say "Ready, set...", then you will see a flicker of light; after about three seconds, I will say "Ready, set..." again, and you will see a second flicker. You will have two such exposures at each speed. I would like you to tell me if you see any lines, words, or any changes at all in the flicker of light. Please keep your eyes up to the opening throughout the procedure so that you remain accustomed to the light level in the machine. Also, remember to focus on the dot, and please do not blink when I say "Ready, set..."; you may blink afterwards. No messages you see will have any effect on you. Any questions?

Stimuli were presented for four msec, and the interstimulus interval was 5.9 seconds. After Ss had seen two presentations at 4 msec, the speed was increased to 7 msec, and thereafter in 3-msec intervals until S claimed to discern lines, words, or any changes at all in the stimulus. At this point, two trials were given at each of the next three higher speeds, in order to ascertain that S had in fact seen a change in the card, as well as to give S an idea of what the stimulus looked like. The ascending threshold was the number in msec at which S had first reported any change on either trial at that speed. The descending threshold was established by working back in 3-msec intervals from the longest stimulus duration (the third speed above the ascending threshold), stopping when S stated that he or she could no longer tell if there were words, lines, or other changes in the presentation on either trial at a given speed. This was then taken as the descending threshold. Tachistoscope settings to be used in following procedures were set to be well below the descending thresholds obtained by the present method.

Conditions in this task were set to be easier than those in the study reported in the main body of this paper. This was done in two ways: 1) Ss were given an anticipatory cognitive set by being told that something was actually to be seen in the "flicker" in the form of lines or words, and were asked specifically to report if they could see anything at all; and 2) they were scored as having reached

threshold even if they could not actually discern words or lines, but merely had a sense that the "flicker" had changed from the previous trial. Again, this was done to ensure that the settings to be used in following studies were safely below threshold. After the thresholds were determined, Ss were shown the card to which they had been exposed.

RESULTS

Two Ss were discarded from the results: One had inadvertently been shown the stimulus at 400 msec on the first trial; the other had an ascending threshold of 28 msec, which was considered an "outlier" since this was more than 3 standard deviation units above the mean. The ascending threshold for the remaining 19 Ss was 15.684 msec, with a standard deviation of 2.428; the descending threshold was 12.526, with a standard deviation of 3.502. No S was able to report any change in the ascending threshold task below 13 msec. Two Ss had descending thresholds of 7 msec, which is close to 4 msec; however, this occurred only after a minimum of 23 exposures to the stimulus at various settings.

APPENDIX C--PILOT II--PRELIMINARY REPLICATION

METHOD

Subjects--Subjects were 51 volunteers from undergraduate courses at City College in New York, 19 male and 32 female, recruited in class or through the use of flyers. They were paid $5.00 for their involvement in the experiment. The restrictions invoked in Pilot I applied here as well (see Appendix B for specific exclusion criteria).
Tachistoscope and Stimuli--The tachistoscope and laboratory conditions were the same as in Pilot I (Appendix B). The experimental stimulus was the phrase MOMMY AND I ARE ONE, presented in black block letters on a white 4x6-inch card; the control stimulus was PEOPLE ARE WALKING, a phrase which has been used in much of the research using the subliminal psychodynamic activation method (Silverman et al, 1982). Note that although the use of PEOPLE ARE WALKING as the control stimulus follows the tradition of Silverman and his colleagues, the assumption that this is in fact a control (i.e., neutral) stimulus is not necessarily a safe one, since research has not been done which investigates specifically the effect of this stimulus on various subjects under various conditions. In fact, Balay and Shevrin (1988) point out that significant results in several studies using the subliminal psychodynamic activation method are largely a consequence of effects in control groups exposed to PEOPLE ARE WALKING or similar stimuli, rather than as a clear result of exposure to the experimental stimulus. As suggested in Footnote 5 above, perhaps a card on which an anagram of the phrase MOMMY AND I ARE ONE is printed would serve as a better control stimulus (in fact, such a stimulus was used in Pilot I (Appendix B)). The physical configuration of such a stimulus would be more similar to MOMMY AND I ARE ONE, and it would probably not evoke as complex a level of semantic processing. However, since the research to be described here is a replication, it was thought best to replicate the procedure of the previous studies as closely as possible.

As in Pilot I, letters were 0.5 inches in height, the message 2.75 inches in overall width, and visual distance 31.5 inches, creating a horizontal visual angle of less than 5 degrees.
Procedure--The procedure was a replication of that used by Garske (1984), with minor modifications: 1) A focal dot was used (see p. 18 of this paper); 2) the amount of time given for "priming" (i.e., induction of cognitive set) was not as long as was given by Garske, since it was found that when Ss were told they should be half-way through, they were already finished for the most part (see "Procedure" below); 3) interstimulus intervals were 9.9 seconds, not 10 seconds, because of problems with the tachistoscope (see Pilot I (Appendix B)); 4) Ss were given an eye test following the procedure, using a standard ophthalmalogical chart, to control for difficulties in seeing the stimuli; 5) Ss were asked immediately after the procedure (before the eye test) if they had any thoughts, feelings, or images during the procedure; and 6) Ss were given a battery of tests either several weeks before their participation in this experiment, or immediately after, depending upon whether or not they had participated previously in psychometric data collection (reported in Pilot III). [Changes 5 and 6 were part of research to be reported else-

where, and should not affect results since they were done either after the procedure or well before it.]

Garske used a pre-post between-groups design with the State form of the State-Trait Personality Inventory, or STPI (Spielberger, 1979) as his dependent measure, and with message condition as his independent variable. The STPI is a 30-item scale which measures three affects--Anxiety, Curiosity, and Anger--in a self-report format, with ten items referring to each affect (see Appendix D for an example of the STPI form). The items for each affect were drawn from other scales developed by Spielberger and his colleagues--namely, the State-Trait Anxiety, Curiosity, and Anger Inventories--and the three subscales are treated separately in construct validity data presented in the STPI manual (Spielberger, 1979). Nevertheless, Anxiety and Anger generally vary in direct relationship to each other, and both vary inversely with Curiosity.

Each item has a four integer response scale, ranging from 1 ("Not at all") to 4 (Very much so"), and Ss are asked to indicate the extent to which they agree or disagree with statements about themselves. On the State form, Ss are asked to rate how they feel "right now".

Garske (1984) used simple Anxiety, Curiosity, and Anger difference scores (i.e., response given after the procedure on each test item minus response given before the procedure on the same item) in statistical manipulations of data. He also followed Silverman and Grabowski (1982) in using "priming" (i.e., imagery training to induce a cognitive set focussed on early childhood) before his presentations of stimuli (see instructions read to S by experimenter below). The rationale for a priming procedure is two-fold: 1) Silverman has stated that such priming directed at the content of subliminal messages makes them more effective; and 2) this allows for a "double dose" of the message (with a priming buffer to prevent "overdose"), which again is thought to strengthen its effect (Silverman et al, 1982; Silverman and Geisler, 1985).

Two experimenters were involved, one male and one female. Male Ss were run by the female experimenter; female Ss by the male experimenter. Data for these two experimenters were examined separately in general, except for certain ANOVAs, when all subjects were included.

Upon being ushered into an outer room by the experimenter (hereafter, "E"), Ss were given the Consent Form (Appendix A) to read and sign. They were also asked if they had 20/20 vision or were wearing corrective lenses or glasses. They were then brought into the inner room which housed the tachistoscope, and were asked to fill out the State form of the STPI (Spielberger, 1979). Next, they were given the "priming" procedure, which was comprised of the following:

> Now we are going to do an imagery exercise. Please close your eyes and picture the first home in which you remember living. (E pauses 15 seconds.) Now walk through the house and count the windows. (1 minute pause.)* You should be about half-way through the house by now, and when you are done, open your eyes.

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*This length of time was used for the first five male Ss. When it was found that Ss were finished well before a minute was over, the pro-

When S's eyes were open, the following instructions were read aloud: This is a machine that will present a message to you at a speed so rapid you will be unable to detect it. You will only see a flicker of light. The message, however, will register unconsciously. Research has shown that when certain messages are received in this fashion they can have an effect on the way you feel. We are studying the effects of such messages on feelings. After the study is over you will be told the message you received. There is no known harm from these procedures. Please take a seat there (E gestures to chair at tachistoscope, and waits for S to take the seat in front of the machine), but please be careful not to bump the machine, because it is very delicate and can be thrown out of balance. When we begin, I will ask you to look into the opening here (E points at viewer of tachistoscope), and cup your hands around you eyes so that the light in the room will not interfere with what you see through the machine. You will see a white card with a black dot in the middle; please focus on the dot. I will say "Ready, set...", then you will see a flicker of light. We'll then repeat the procedure three more times. I'll say "Ready, set..." four times in all, and you will see four flickers of light. Please keep your eyes up to the machine throughout the procedure, and please don't blink while I'm saying "Ready, set..."; you may blink afterwards. Remember to focus on the dot. Any questions?

If Ss had questions about the mechanics of the procedure itself, these questions were answered, or instructions were repeated. However, if questions were asked about the experiment, its rationale, and so forth, Ss were told that such questions could only be answered after the procedure was completed. Ss were then asked to look into the tachistoscope as instructed, and the procedure continued.

Next, Ss were given four 4 msec. presentations of either the experimental or the control stimulus, with interstimulus intervals of 9.9 seconds. In most of Silverman's research, interstimulus intervals were 10.0 seconds, but because of faulty wiring in one field in the tachistoscope in the present study, the sequence of exposures of fixation and stimulus fields had to be adjusted, leading to the 9.9 second interstimulus interval (see Appendix B for a fuller explanation). Stimuli had been loaded into the machine previously in such a way that E was blind in regard to which stimulus was used. The female experimenter was also naive as to the verbal content of the stimuli, although the male experimenter (the author) was not.

Following the initial four exposures of the stimulus, the priming procedure was repeated, followed by four more presentations of

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cedure was modified for all subsequent Ss such that the pause was 45 seconds. The cause for this difference between Ss in the current study and those used by Garske is unclear; however, it was clear that a longer pause would "spoil" the set induction, since Ss' attention to the task faltered after approximately 45 seconds. It was decided that this change in the procedure was the lesser of two evils.

the same stimulus. Immediately after this, S was asked to fill out the STPI for a second time, and was then interviewed about images, thoughts, or feelings that had occurred during the procedure. Finally, an eye test was administered, using a standard ophthalmological chart; Ss who scored with 20/30 vision or poorer were excluded from manipulations of the data. Ss addresses and telephone numbers were then updated and checked for corrections. The sequence of STPI-Priming-Exposures-Priming-Exposures-STPI constituted the replication of Garske's procedure.

APPENDIX D--SELF-ANALYSIS QUESTIONNAIRE
STPI FORM X-1

NAME_____ SEX: M__ F__ AGE_____ DATE_____

DIRECTIONS: A number of statements that people use to describe themselves are given below. Read each statement and then blacken the appropriate space on the answer sheet to indicate how you feel right now. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	1	2	3	4
2. I feel like exploring my environment	1	2	3	4
3. I am furious	1	2	3	4
4. I am tense	1	2	3	4
5. I feel curious	1	2	3	4
6. I feel like banging on the table	1	2	3	4
7. I feel at ease	1	2	3	4
8. I feel interested	1	2	3	4
9. I feel angry	1	2	3	4
10. I am presently worrying over possible misfortunes	1	2	3	4
11. I feel inquisitive	1	2	3	4
12. I feel like yelling at somebody	1	2	3	4
13. I feel nervous	1	2	3	4
14. I am in a questioning mood	1	2	3	4
15. I feel like breaking things	1	2	3	4
16. I am jittery	1	2	3	4
17. I feel stimulated	1	2	3	4
18. I am mad	1	2	3	4
19. I am relaxed	1	2	3	4

APPENDIX D--SELF-ANALYSIS QUESTIONNAIRE--PAGE 2
STPI FORM X-1

20. I feel mentally active	1	2	3	4
21. I feel irritated	1	2	3	4
22. I am worried	1	2	3	4
23. I feel bored	1	2	3	4
24. I feel like hitting someone	1	2	3	4
25. I feel steady	1	2	3	4
26. I feel eager	1	2	3	4
27. I am burned up	1	2	3	4
28. I feel frightened	1	2	3	4
29. I feel disinterested	1	2	3	4
30. I feel like swearing	1	2	3	4

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APPENDIX E--STATISTICS FROM PILOT II

SAMPLE STPI MEANS AND S.D.s

	Anxiety (Mean/SD)		Curiosity (Mean/SD)		Anger (Mean/SD)	
Ss(N)*	Pre	Post	Pre	Post	Pre	Post
Male						
Ex(11)	20.2/3.2	15.6/3.1	28.5/3.5	29.1/6.6	10.7/1.9	10.0/0.0
Cn(8)	18.1/4.0	19.3/7.1	32.3/4.8	31.6/2.6	11.3/1.4	11.4/2.3
Female						
Ex(15)	20.2/6.1	19.1/6.0	30.4/4.9	29.8/6.4	12.5/5.8	12.1/4.9
Cn(17)	21.8/6.9	17.9/5.6	28.9/5.0	28.1/6.3	11.8/5.3	10.7/1.6

*Ex=Experimental Message Group; Cn=Control Message Group

STPI STANDARD SCORES FOR COLLEGE STUDENTS
(State Scores--From Spielberger, 1979)

	Anxiety		Curiosity		Anger	
Ss(N)	Mean	S.D.	Mean	S.D.	Mean	S.D.
Males(95)	17.95	5.52	26.85	5.72	13.42	5.38
Fmles(185)	19.06	6.25	26.17	5.45	14.24	5.75

STPI "PRE" SCORE ANOVAS BY GROUP

ANXIETY			CURIOSITY			ANGER		
F	df	p	F	df	p	F	df	p
0.066	1,49	.798	0.083	1,49	.775	0.005	1,49	.943

DIFFERENCE SCORE MEANS AND S.D.s

	Anxiety (Mean/SD)	Curiosity (Mean/SD)	Anger (Mean/SD)
Ss(N)			
Male			
Ex(11)	-4.73/5.75	0.64/4.80	-0.73/1.85
Cn(8)	1.13/6.56	-0.63/4.07	0.13/2.47
Female			
Ex(15)	-1.13/4.47	-0.60/3.27	-0.40/1.72
Cn(17)	-3.82/6.17	-0.76/5.36	-1.18/3.84

APPENDIX E--PAGE 2

ANXIETY DIFFERENCE SCORE ANOVA BY GRP,SEX

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
GRP	1	2.549	0.079	0.780
SEX	1	1.435	0.044	0.834
2-Way Interaction	1	213.749	6.613	0.013*
Explained	3	72.455	2.241	0.096
Residual	47	32.325		

CURIOSITY DIFFERENCE SCORE ANOVA BY GRP,SEX

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
GRP	1	4.062	0.200	0.657
SEX	1	6.284	0.309	0.581
2-Way Interaction	1	3.523	0.173	0.679
Explained	3	5.026	0.247	0.863
Residual	47	20.321		

ANGER DIFFERENCE SCORE ANOVA BY GRP,SEX

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
GRP	1	0.398	0.053	0.819
SEX	1	2.124	0.281	0.598
2-Way Interaction	1	7.770	1.028	0.316
Explained	3	3.507	0.464	0.709
Residual	47	7.556		

DIFFERENCE ANOVAS BY GROUP

	ANXD			CURD			ANGD		
	F	df	p	F	df	p	F	df	p
Males	4.273	1,17	.054	0.362	1,17	.556	0.742	1,17	.401
Fmles	1.948	1,30	.173	0.011	1,30	.918	0.518	1,30	.477

APPENDIX F--BOUNDARY/FUSION TEST

NAME:_____

PERSONAL CHARACTERISTICS QUESTIONNAIRE

Listed below are a number of statements concerning personal characteristics and traits. Read each item and decide whether you agree or disagree and to what extent. If you strongly agree, circle 7; if you strongly disagree, circle 1; if you feel somewhere in between, circle any one of the numbers between 1 and 7. The midpoint, if you are neutral or undecided, is 4.

	Strongly Agree						Strongly Disagree
1. I allow plenty of time between tasks so I don't have to rush.	7	6	5	4	3	2	1
2. When I'm asked to do something by one of my superiors, I frequently want to do the exact opposite.	7	6	5	4	3	2	1
3. I am easily saddened by seeing one of my friends sad.	7	6	5	4	3	2	1
4. When I go on trips I always pack early.	7	6	5	4	3	2	1
5. I sometimes forget important promises I've made to people.	7	6	5	4	3	2	1
6. I plan my work so that I do an equal amount every day.	7	6	5	4	3	2	1
7. I like to belong to an intimate group.	7	6	5	4	3	2	1
8. I frequently find myself unconsciously acting like or mimicking my superiors.	7	6	5	4	3	2	1
9. When you can't get justice by legal means, you should resort to nonlegal means.	7	6	5	4	3	2	1
10. I make it a point to arrive at appointments a few minutes early.	7	6	5	4	3	2	1
11. Often, it is difficult for me to make decisions.	7	6	5	4	3	2	1
12. I feel comfortable when a strong person is in the room.	7	6	5	4	3	2	1

APPENDIX F--BOUNDARY/FUSION TEST--PAGE 2

	Strongly Agree						Strongly Disagree
13. I like getting high with my friends.	7	6	5	4	3	2	1
14. I talk a lot at group meetings.	7	6	5	4	3	2	1
15. I am very neat in my personal appearance.	7	6	5	4	3	2	1
16. Operations to change the sex of an individual when he or she wishes should be legalized.	7	6	5	4	3	2	1
17. It irks me that there are people who have power over me.	7	6	5	4	3	2	1
18. There is a clear distinction between rational and irrational thinking.	7	6	5	4	3	2	1
19. I very often feel that I have no choice.	7	6	5	4	3	2	1
20. Whenever I am near someone with a cold, I always catch it.	7	6	5	4	3	2	1
21. I dislike it when people don't heed my advice.	7	6	5	4	3	2	1
22. On the whole I am successful at keeping my desk or work area tidy.	7	6	5	4	3	2	1
23. The thought has occurred to me that the various parts of my body don't fit together well.	7	6	5	4	3	2	1
24. I set rules that I always live by.	7	6	5	4	3	2	1
25. Sometimes I feel very big and other times I feel very small.	7	6	5	4	3	2	1
26. I feel frightened when I'm in a large, empty building.	7	6	5	4	3	2	1
27. I refuse to compete in struggles for power.	7	6	5	4	3	2	1
28. It's unheard of for me to schedule two activities for the same time.	7	6	5	4	3	2	1
29. I feel unable to communicate to others the things I feel strongest about.	7	6	5	4	3	2	1

APPENDIX F--BOUNDARY/FUSION TEST--PAGE 3

	Strongly Agree						Strongly Disagree
30. I often think I can read people's minds.	7	6	5	4	3	2	1
31. I sometimes feel as though my world is falling apart.	7	6	5	4	3	2	1
32. I am very upset when I have to say goodbye to a good friend.	7	6	5	4	3	2	1
33. I feel especially good when someone spontaneously gives me something I've secretly wanted.	7	6	5	4	3	2	1
34. I like to try to influence people.	7	6	5	4	3	2	1
35. Generally, I do <u>not</u> think men should do women's tasks at home (like sewing, cooking, housekeeping).	7	6	5	4	3	2	1
36. Frequently I can't get bad thoughts out of my mind.	7	6	5	4	3	2	1
37. I sometimes feel that I have been in exactly the same situation twice; i.e., I have <u>deja vu</u> experiences.	7	6	5	4	3	2	1
38. I would feel like I'd be losing an important part of myself if I lost a very close friend.	7	6	5	4	3	2	1
39. I have difficulty breaking off a relationship that is making me unhappy.	7	6	5	4	3	2	1
40. My happiest moments have occurred when I've felt so close to someone that we could communicate without a word.	7	6	5	4	3	2	1
41. In groups I try to be the leader.	7	6	5	4	3	2	1

APPENDIX G--PILOT III--BOUNDARY/FUSION TEST STANDARDIZATION DATA

METHOD

Subjects--Subjects were 238 volunteers from undergraduate introductory psychology classes at The City College of New York.
Instrument--The Boundary/Fusion Test (Miller et al, in press; see Appendix F for a example of the form) is a factor-analytically derived scale; the original factor loadings were obtained using a sample of 1000 undergraduates from four colleges in the northeastern United States. Norms for college undergraduates were later established with a sample of 170 students at Yale University. There are a total of 41 items, including 16 with loadings of $r>.35$ on the Boundary factor ("measuring the need to reinforce a wide range of temporal, spatial, and psychosocial boundaries" (Greene, 1983, p. 10)), and 16 with loadings of $r>.35$ on the Fusion factor ("reflecting the preference for symbioticlike ties" (Greene, 1983, p. 10)). Construct validity data are reported in the manual for the Boundary/Fusion Test (Miller et al, in press) and elsewhere (Greene and Geller, 1980; Molin, 1980; Hellman et al, 1987).
Procedure--The Boundary/Fusion Test was administered to Ss at City College during class time; it was presented as a personality measure in the context of coursework on testing and personality. Subjects were asked to fill out the form on a voluntary basis. Since this population would be drawn upon for participation in other research,* Ss were also asked to fill out a page of identifying data as well (including name, address, telephone number, age, college credits obtained, place of birth, language background, and the name used to address their mother when they were under five years old). Subjects were also told that they would be given their scores at a later date, and that someone would be available to discuss the meaning of the scores with them. Scores were later posted outside the course instructor's office, along with a telephone number at which a message could be left if an individual was interested in further information.

RESULTS

[Note: Discrepancies in sample sizes in reporting the data are a result of the fact that not all subjects filled out the forms completely.]

WHOLE SAMPLE (n=238)

	MEAN	S.D.	MEDIAN	KURTOSIS	SKEW
BOUNDARY	74.78	10.43	74.68	-0.279	-0.099
FUSION	66.71	12.86	66.00	-0.142	-0.163

On the basis of the above distribution profiles, it was felt that the distributions could be treated as normal without violation of standards of statistical application. All t-tests are 2-tailed.

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*This population was used as the subject pool for Pilot II. Data on other measures were collected as well, which will be used in research to be reported elsewhere.

APPENDIX G--PILOT III--PAGE 2

BY SEX-OF-SUBJECT (n=219)

	MALES (N=98)		FEMALES (N=121)		
	MEAN	S.D.	MEAN	S.D.	t(sigf)
BOUNDARY	72.83	10.01	75.82	10.97	1.456 (ns)
FUSION	64.89	10.68	69.16	14.28	1.412 (ns)

BY LANGUAGE BACKGROUND (n=221)

	ENGLISH (n=109)		SPANISH (n=59)		OTHER (n=53)	
	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
BOUNDARY	74.33	11.22	74.12	9.83	75.09	10.33
FUSION	67.26	14.03	67.54	12.33	66.34	11.74

SUBJECTS IN PILOT II (n=51)

	WHOLE SAMPLE		MALES (n=19)		FEMALES (n=31)		t(sigf)
	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	(Male/Fml)
BOUNDARY	70.86	11.20	70.00	9.93	71.39	12.01	0.423 (ns)
FUSION	69.92	11.65	66.68	10.64	71.90	11.86	1.569 (ns)

NONPARTICIPANTS IN PILOT II--ENGLISH-SPEAKING BACKGROUND (n=58)

	BOUNDARY		FUSION	
	MEAN	S.D.	MEAN	S.D.
WHOLE SAMPLE	77.27	11.37	65.01	16.08

NONPARTICIPANTS IN PILOT II--BY SEX-OF-SUBJECT (n=169)

	MALES (n=79)		FEMALES (n=90)		
	MEAN	S.D.	MEAN	S.D.	t(sigf)
BOUNDARY	73.51	10.03	77.35	10.66	1.502 (ns)
FUSION	64.46	10.76	68.22	15.08	0.903 (ns)

STANDARD SCORES FOR UNDERGRADUATES (n=170)
(From Miller et al (in press)

BOUNDARY		FUSION	
MEAN	S.D.	MEAN	S.D.
62.40	11.43	57.12	9.33

APPENDIX G--PILOT III--PAGE 3

ADDITIONAL T-TESTS BETWEEN GROUPS

EXPERIMENTAL SAMPLE AND OTHERS FROM ENGLISH-SPEAKING BACKGROUNDS (n=109)

	t	p	df
BOUNDARY	2.958	<.01	107
FUSION	1.812	<.10	107

EXPERIMENTAL SAMPLE AND OTHERS (BY SEX-OF-SUBJECT)

	t	p	df
BOUNDARY			
Males (n=98)	1.365	n.s.	96
Females (n=121)	2.598	<.02	119
FUSION			
Males (n=98)	0.809	n.s.	96
Females (n=121)	1.232	n.s.	119

WHOLE SAMPLE AND SAMPLE FROM MILLER ET AL

	t	p	df
BOUNDARY	11.194	<.001	406
FUSION	8.243	<.001	406

BETWEEN LANGUAGE BACKGROUNDS

	t	p	df
BOUNDARY			
Engl/Span	0.070	n.s.	166
Engl/Other	0.289	n.s.	160
Span/Other	0.243	n.s.	100
FUSION			
Engl/Span	0.059	n.s.	166
Engl/Other	0.189	n.s.	160
Span/Other	0.210	n.s.	100

APPENDIX H--PILOT IV--DISCRIMINATION TASK

METHOD

Subjects--Ss were 47 individuals, 30 selected from the population of 51 who participated in Pilot II, 17 who volunteered for the replication and extension experiment described in this paper (pp. 46ff). Twenty were male, 27 were female. Three of the 17 Ss from the replication had also participated in that procedure; 14 had not (they had been rejected from the above sample because of problems with language background or because they had not lived with their mother in early childhood). All were subject to the other restrictions outlined in Pilot I (Appendix B). Ss were paid $5.00 for their participation.

Tachistoscope and Stimuli--The tachistoscope and laboratory conditions were identical with those outlined in Appendix B; the stimulus configurations were the same as well. Two cards were used in the procedure, and their contents were as follows: Card A had the message PEOPLE ARE WALKING on it, and Card B was blank. Two copies of each card were used. The discrimination of a blank card from one with a message on it was thought to be easier to do (and therefore more stringent for the detection of partial cues) than the discrimination of two cards both of which have messages on them, as was done in a discrimination task implemented by Silverman et al (1978). Also, the use of PEOPLE ARE WALKING and a blank card avoided the possibility of an "overdose" of MOMMY AND I ARE ONE, since each S received a total of 28 exposures of each card (see Silverman et al, 1982, and Silverman and Geisler, 1985, for discussions of the potential for "overdoses" of the "oneness" stimulus). Motivation to discriminate between the two cards was also enhanced by the offering of an extra payment of $5.00 to the S who made the highest number of correct discriminations.

Procedure--After completing the eye test following the procedure replicating Garske's experiment (see Appendix B), S was asked to return to the room housing the tachistoscope. If S had participated in the replication procedure, which included the behavior of the experimenter as a variable, S was told of this before being asked to participate in the discrimination task. If S was naive to the tachistoscope and procedure, as were 14 Ss who had volunteered for the replication but did not meet the restrictive subject selection criteria, orienting instructions (Pilot II--Appendix C) were read aloud. The following instructions were then read aloud to all Ss:

> There are two cards in the tachistoscope, each with a different message on it. I will call one "Message A" and the other "Message B". I am going to flash each of these messages at a very rapid rate of speed so that you probably won't see much more than a flash of light or perhaps some coloring. Your task will be to try to tell the two messages apart. First, let me show you Message A at this rapid speed. Please look into the tachistoscope; I will show Message A to you four times, as I did before. Please remember to focus on the dot, and try not to blink after I say "Ready, set..." [Four presentations of Message A; i.e., PEOPLE ARE WALKING.] Now, I will show you Message B. [Cards were changed automatically, and then Message B--the blank card--was shown four times.] Now I am going to give you 12

series of four flashes, and after each series, I want you to tell me if you think it was Message A or Message B that was shown. [E then shuffled all four cards and loaded them into the tachistoscope without looking at them.] If you think you know which message it was before you see all four flashes, wait for all four flashes anyway to make sure you really know. The four flashes in any series will always be of the same message. Try as hard as you can in this task, because the person who does best will win a $5.00 prize.

S was then asked to look into the tachistoscope again, cupping his hands around his eyes to block out ambient illumination. Twelve series of four exposures were then shown to S; 6 series of Card A and 6 of Card B. (The four cards used were shuffled and reloaded a total of three times.) The exposures and interstimulus intervals were the same as described in the procedure for Pilot II above (Appendix C). S's score was the number of correct choices out of a possible maximum correct of 12.

RESULTS

Group	N	Mean	SD
PILOT II			
Males	12	5.92	1.51
Females	18	5.72	1.18
Total	30	5.80	1.30
REPLICATION			
Males	8	6.13	0.99
Females	9	6.33	1.50
Total	17	6.24	1.25
GRAND TOTAL	47	5.96	1.27

The range of correct guesses was from 3 to 8, with a median and mode of 6. Since a chance score would be 6.0, the above results indicate that Ss were unable to discriminate between a blank card and one with a message on it under the tachistoscopic and laboratory parameters used for the research reported in this paper. It seems safe to assume, then, that partial cues were not being detected.

APPENDIX I--ATTITUDE QUESTIONNAIRE

Please answer the following by circling ONE NUMBER between 1 and 7. 1 means "not at all", 7 means "extremely"; the other numbers fall in between, as you can see below. Please answer to the best of your ability based on how you feel RIGHT NOW.

		not at all	a lit-tle	some-what	fair-ly much	quite a bit	very much	ex-treme-ly
1)	Was the experimenter who operated the tachistoscope kind?	1	2	3	4	5	6	7
2)	Was the experimenter supportive?	1	2	3	4	5	6	7
3)	Was the experimenter bored?	1	2	3	4	5	6	7
4)	Was the experimenter nasty?	1	2	3	4	5	6	7
5)	Was the experimenter helpful?	1	2	3	4	5	6	7
6)	Was the experimenter angry?	1	2	3	4	5	6	7
7)	Was the experimenter hostile?	1	2	3	4	5	6	7
8)	Was the experimenter someone you'd like to get to know?	1	2	3	4	5	6	7
9)	Was the experiment interesting?	1	2	3	4	5	6	7
10)	Was the procedure helpful in making you feel more com-fortable or relaxed?	1	2	3	4	5	6	7
11)	Do you want to know more about the experiment?	1	2	3	4	5	6	7
12)	Would you like to do the procedure again?	1	2	3	4	5	6	7

APPENDIX J--PILOT V--INDEPENDENT RATERS' VALIDATION

METHOD

Subjects--Ss were 33 volunteers in three undergraduate psychology courses at City College of New York; 9 were male, 24 female.
Instrument--The Attitude Questionnaire (Appendix I), a 12-item measure developed by the author of this paper, employs a 7-point choice on each item, ranging from "Not at all" (1) to "Extremely" (7). Of the 12 items on the Attitude Questionnaire, four ask for S's ranking of the experimenter on positive attributes (such as "Was the experimenter helpful?" and "Was he supportive?"), four ask for rankings on negative attributes ("Was the experimenter angry?", "Was he hostile?", etc.), and four probe S's attitude about the experiment itself ("Was the procedure interesting?", "Would you like to do it again?", etc.). The negative items were scored inversely--that is, a response of "7" was scored as a "1", a "6" was a "2", and so forth--so that the total could be considered an overall measure of the extent to which S responded to E in a positive way.

For independent validation, the Attitude Questionnaire was administered to Ss in three groups. The first group of 9 Ss (8 female, 1 male) was given the Questionnaire so that unanticipated difficulties with the instrument could be worked out. This was done to ascertain whether in fact the items of the scale were clearly stated and unambiguous. Data from the second and third groups, of 10 and 14 Ss respectively, were used to generate group means and standard deviations for comparison of the two experimenter behavior styles to be implemented in the replication and extension procedure.

After completion of data collection for the replication and extension procedure (Chapter III), item-by-item correlations were obtained for all Ss who completed the Attitude Questionnaire (N=123), in order to determine if in fact all items correlated highly with each other, as was the intent in designing the scale. It was found that the positive items (1,2,5, and 8) formed a cluster of high correlations with each other (r's ranged from .48 to .77), as did the negative items (3,4,6, and 7--r's ranged from .46 to .61); however, items 9 through 12 did not correlate well with items 1 through 8 in general (r's ranged from -.04 to .44; see Appendix W for the correlational matrix). On inspection, these were the items that referred to the experiment itself, and not to the experimenter whose voice had been heard. Consequently, in data analysis from the sample of independent raters, as well as from Ss who participated in the replication and extension, only items 1 through 8 were used in obtaining scores for the Attitude Questionnaire.
Procedure--At the beginning of the class hour, the experimenter ("E") was introduced by the course instructor; students had been informed previously that the day's activity would have some bearing on their study of experimental design in psychology. E informed Ss that they would have an opportunity to find out about the questionnaire after it was administered, but that answering questions before their participation would color the results in a biased way. He then played an audiotape, made during an actual session with a subject, of the instructions read aloud to Ss participating in the replication and extension procedure, asking Ss to listen closely. This tape was approx-

imately one minute in length, and was of E2 in either the Confrontive or the Supportive role (see Chapter III, p. 54). Ss in one class were presented with the Confrontive role first (n=10); in the other, the tape of the Supportive experimenter was played first (n=14). This counterbalancing was designed to control for order effects.

When the tape was over, copies of the Attitude Questionnaire were passed out, and Ss were asked to complete all items without talking to each other. The course instructor then continued with the material for that day's class. At the end of the hour, E2 played a second tape, identical to the first except that the voice was in the role that Ss had not yet been exposed to; again, Ss were asked to fill out the Attitude Questionnaire in silence. Afterward, or in a subsequent class period, E2 discussed the reason for asking Ss to participate as they did, as well as the nature of the research he was conducting.

RESULTS

(Es=Supportive; Ec=Confrontive)

Individual scores for the two samples are as follows (scores are sums of items 1 through 8):

Es FIRST	
Es	Ec
38	41
47	26
41	23
53	13
35	19
33	33
45	16
32	13
37	40
35	19
40	25
37	35
42	27
42	17

Ec FIRST	
Es	Ec
52	35
49	42
47	16
43	43
50	32
44	28
41	18
40	42
55	15
43	29

To compare Es scores with Ec scores, Wilcoxon matched-pairs signed-ranks tests were used because the samples are correlated; 1-tailed significance tests were used because a specific directional prediction was made (i.e., that Ss would rate Es significantly higher on the Attitude Questionnaire than they would Ec).

MEANS AND WILCOXON MATCHED-PAIRS SIGNED RANKS TESTS

GROUP(N)	Ec MEAN	S.D.	Es MEAN	S.D.	T	1-TAILED SIGF
Ec 1st(10)	29.80	10.75	46.40	4.99	1	$p<.005$
Es 1st(14)	24.79	9.44	39.79	5.79	5	$p<.005$
Total (24)	26.88	10.10	42.54	6.31	8.5	$p<.005$

Clearly, the prediction that Ss would rate Es higher than Ec on the Attitude Questionnaire was borne out.

Because of the difference in means between the Es 1st and Ec 1st groups, Mann-Whitney U tests (corrected for tied ranks and expressed as normal deviates) were performed on these two groups. The results were as follows: For Ec scores, z=1.172 (ns); for Es scores, z=2.552 (p<.05, 2-tailed). By inspection of the data, it appears that there is in fact an order effect, in that Ss who listened first to a tape of the Supportive experimenter generally rated both experimenters (and particularly Es) in a more positive way than did Ss who listened first to a tape of the Confrontive experimenter; therefore, the counterbalancing of groups was a prudent precaution.

In sum, independent raters did detect a difference between the two experimenters in the expected direction, and this difference reached statistical significance. On this basis, the Attitude Questionnaire was deemed a valid instrument to measure Ss' conscious response to E's behavior in the context of the subliminal psychodynamic activation method.

APPENDIX K--MEANS/SDS--ALL VARIABLES--SAMPLE AND EXCLUDED Ss

		EXCLUDED(N=66)			SAMPLE(N=85)	
VAR	RANGE	MEAN	SD	ALT N	MEAN	SD
BOUNDARY	16-112	74.07	13.21		70.75	12.47
FUSION	16-112	66.75	12.92		68.55	12.73
AGE	17-	21.80	4.35		21.94	5.58
CREDITS	0-	31.96	37.17		40.45	37.89
SEX	1-2	1.56	0.50		1.53	0.50
HANDEDNESS	1-2	1.95	0.23		1.88	0.32
ANXPR	10-40	19.47	6.65	(43)	18.14	4.67
CURPR	10-40	30.63	4.29	"	30.66	5.25
ANGPR	10-40	11.53	5.05	"	11.31	2.81
ANXPO	10-40	17.59	5.61	"	18.12	5.11
CURPO	10-40	28.50	4.98	"	30.01	5.28
ANGPO	10-40	11.72	4.92	"	12.19	4.22
ATTIT	8-56	40.29	7.97	(38)	40.32	8.37

MEANS/SDS--MALES ONLY

		EXCLUDED(N=27)			SAMPLE(N=40)	
VAR	RANGE	MEAN	SD	ALT N	MEAN	SD
BOUNDARY	16-112	69.88	11.94		67.00	13.36
FUSION	16-112	65.33	10.36		65.65	11.75
AGE	17-	20.71	2.07		22.63	7.15
CREDITS	0-	27.46	25.71		38.43	36.81
HANDEDNESS	1-2	1.92	0.28		1.88	0.34
ANXPR	10-40	17.46	4.20	(16)	16.93	4.71
CURPR	10-40	29.69	3.64	"	30.95	4.91
ANGPR	10-40	12.31	7.43	"	11.08	2.78
ANXPO	10-40	17.15	5.55	"	17.83	4.80
CURPO	10-40	29.00	5.28	"	30.25	5.30
ANGPO	10-40	12.31	6.37	"	11.78	2.78
ANXACS	-10-10				1.40	5.30
CURACS	-10-10				-0.22	2.12
ANGACS	-10-10				2.05	5.28
ATTIT	8-56	41.00	8.01	(16)	40.35	8.80

MEANS/SDS--FEMALES ONLY

		EXCLUDED(N=39)			SAMPLE(N=45)	
VAR	RANGE	MEAN	SD	ALT N	MEAN	SD
BOUNDARY	16-112	77.32	13.40		74.09	10.70
FUSION	16-112	67.84	14.69		71.13	13.13
AGE	17-	22.65	5.40		21.33	3.64
CREDITS	0-	35.45	44.18		42.24	39.15
HANDEDNESS	1-2	1.97	0.18		1.89	0.32
ANXPR	10-40	20.84	7.71	(27)	19.22	4.41
CURPR	10-40	31.26	4.67	"	30.40	5.26
ANGPR	10-40	11.00	2.52	"	11.51	2.86
ANXPO	10-40	17.89	5.78	"	18.38	5.42
CURPO	10-40	28.16	4.89	"	29.80	5.32
ANGPO	10-40	11.32	3.77	"	12.56	5.18
ANXACS	-10-10				-1.09	4.71
CURACS	-10-10				-0.20	2.01
ANGACS	-10-10				0.53	5.53
ATTIT	8-56	39.71	8.09	(22)	40.29	8.03

APPENDIX L--MULTIPLE REGRESSIONS

DEP. VAR.--ANXD INDEP VARS.--EXPT,GRP,SEX,ANXPR,ANXPO*

SUMMARY TABLE--WHOLE SAMPLE (N=85)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANXPO	0.597	0.357	0.357	0.597	1.005	0.968
ANXPR	1.000	1.000	0.643	-0.477	-1.004	-0.884

CONSTANT=-0.653

SUMMARY TABLE--MALES ONLY (N=40)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANXPO	0.610	0.372	0.372	0.610	1.000	0.841
ANXPR	1.000	1.000	0.628	-0.590	-1.000	-0.826

CONSTANT=-0.320

SUMMARY TABLE--FEMALES ONLY (N=45)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANXPO	0.634	0.402	0.402	0.634	1.009	1.131
ANXPR	1.000	0.999	0.597	-0.307	-1.008	-0.919

CONSTANT=-0.346

DEP. VAR.--CURD INDEP VARS.--EXPT,GRP,SEX,CURPR,CURPO

SUMMARY TABLE--WHOLE SAMPLE (N=85)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
CURPO	0.432	0.186	0.186	0.432	0.984	1.125
CURPR	0.980	0.959	0.773	-0.422	-0.981	-1.116
EXPT	0.980	0.961	0.002	-0.123	-0.322	-0.035

CONSTANT=0.381

SUMMARY TABLE--MALES ONLY (N=40)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
CURPO	0.506	0.256	0.256	0.506	0.980	1.081
CURPR	0.959	0.920	0.664	-0.380	-0.959	-0.983
EXPT	0.962	0.925	0.005	-0.058	-0.689	-0.073

CONSTANT=0.354

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*See Glossary for definition of abbreviations used here.

APPENDIX L--MULTIPLE REGRESSIONS--PAGE 2

SUMMARY TABLE--CURD--FEMALES ONLY (N=45)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
CURPR	0.461	0.212	0.212	-0.461	-1.000	-1.238
CURPO	1.000	1.000	0.788	0.364	1.000	1.180

CONSTANT=0.782

DEP. VAR.--ANGD INDEP VARS.--EXPT,GRP,SEX,ANGPR,ANGPO

SUMMARY TABLE--WHOLE SAMPLE (N=85)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANGPO	0.751	0.564	0.564	0.751	1.000	1.184
ANGPR	1.000	1.000	0.436	-0.140	-1.000	-0.790

CONSTANT=0.000

SUMMARY TABLE--MALES ONLY (N=40)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANGPO	0.432	0.187	0.187	0.432	1.000	1.158
ANGPR	1.000	1.000	0.813	-0.431	-1.000	-0.158

CONSTANT=-0.444

SUMMARY TABLE--FEMALES ONLY (N=45)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANGPO	0.834	0.695	0.695	0.834	1.000	1.186
ANGPR	1.000	1.000	0.305	-0.016	-1.000	-0.655

CONSTANT=-0.127

APPENDIX L--MULTIPLE REGRESSIONS--PAGE 3

DEP. VAR.--ANXACS INDEP VARS.--EXPT,GRP,SEX,ANXPR,ANXPO

SUMMARY TABLE--WHOLE SAMPLE (N=85)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANXPR	0.486	0.236	0.236	-0.486	-0.875	-0.798
ANXPO	0.874	0.764	0.528	0.455	0.796	0.795
SEX	0.878	0.771	0.007	-0.243	-0.914	-0.090

CONSTANT=2.918

SUMMARY TABLE--MALES ONLY (N=40)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANXPR	0.665	0.443	0.443	0.665	-0.947	-0.843
ANXPO	0.902	0.813	0.370	0.398	0.700	0.634

CONSTANT=4.962

SUMMARY TABLE--FEMALES ONLY (N=45)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANXPO	0.566	0.320	0.320	0.566	0.836	0.960
ANXPR	0.850	0.722	0.402	-0.227	-0.762	-0.712
GRP	0.869	0.756	0.034	-0.272	-1.732	-0.186

CONSTANT=0.780

DEP. VAR.--CURACS INDEP VARS.--EXPT,GRP,SEX,CURPR,CURPO

SUMMARY TABLE--WHOLE SAMPLE (N=85)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
CURPR	0.460	0.212	0.212	-0.460	-0.442	-1.131
CURPO	0.971	0.943	0.731	0.385	0.423	1.088

CONSTANT=1.103

SUMMARY TABLE--MALES ONLY (N=40)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
CURPR	0.497	0.247	0.247	-0.497	-0.466	-1.078
CURPO	0.980	0.960	0.713	0.410	0.412	1.028

CONSTANT=2.285

APPENDIX L--MULTIPLE REGRESSIONS--PAGE 4

SUMMARY TABLE--CURACS--FEMALES ONLY (N=45)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
CURPR	0.434	0.188	0.188	-0.434	-0.421	-1.169
CURPO	0.967	0.936	0.748	0.364	0.424	1.121

CONSTANT=-0.875

DEP. VAR.--ANGACS INDEP VARS.--EXPT,GRP,SEX,ANGPR,ANGPO

SUMMARY TABLE--WHOLE SAMPLE (N=85)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANGPO	0.401	0.161	0.161	0.401	1.029	0.798
ANGPR	0.711	0.506	0.345	-0.271	-1.346	-0.696
SEX	0.729	0.531	0.025	-0.140	-1.732	-0.160

CONSTANT=6.571

SUMMARY TABLE--MALES ONLY (N=40)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANGPO	0.379	0.144	0.144	0.379	1.867	0.983
ANGPR	0.848	0.719	0.575	-0.353	-1.823	-0.959
EXPT	0.852	0.727	0.008	-0.175	-0.923	-0.089

CONSTANT=1.635

SUMMARY TABLE--FEMALES ONLY (N=45)

VAR	MultR	Rsq	RsqChange	SimpleR	B	Beta
ANGPO	0.461	0.212	0.212	0.461	0.813	0.761
ANGPR	0.694	0.482	0.270	-0.190	-1.155	-0.596
GRP	0.707	0.500	0.018	0.265	1.491	0.136

CONSTANT=1.397

APPENDIX M--DISTRIBUTION PROFILES OF STPI ITEMS

ANXIETY

ITEM	MEAN	S.D.	MEDIAN	KURTOSIS	SKEW
1	2.07	0.80	2.07	-1.09	0.02
4	1.68	0.64	1.69	0.83	0.68
7	2.29	0.88	2.32	-0.82	0.02
10	1.62	0.90	1.33	0.80	1.33
13	1.86	0.76	1.83	-0.02	0.58
16	1.46	0.65	1.32	1.94	1.38
19	2.20	0.78	2.21	-0.79	-0.07
22	1.45	0.68	1.29	3.23	1.70
25	2.22	0.84	2.19	-0.56	0.18
28	1.20	0.43	1.12	3.10	1.97

CURIOSITY

ITEM	MEAN	S.D.	MEDIAN	KURTOSIS	SKEW
2	2.62	1.11	2.75	-1.29	-0.21
5	3.45	0.75	3.63	1.30	-1.30
8	3.46	0.73	3.63	1.58	-1.34
11	3.00	0.93	3.10	-0.60	-0.55
14	2.69	0.96	2.80	-0.80	-0.33
17	2.15	0.89	2.13	-0.86	0.20
20	3.00	0.89	3.07	-0.50	-0.53
23	3.73	0.68	3.89	8.15	-2.87
26	2.77	0.95	2.79	-0.92	-0.20
29	3.80	0.53	3.92	5.88	-2.63

ANGER

ITEM	MEAN	S.D.	MEDIAN	KURTOSIS	SKEW
3	1.09	0.33	1.05	15.08	3.78
6	1.11	0.46	1.03	23.81	4.80
9	1.15	0.55	1.05	17.90	4.14
12	1.14	0.47	1.06	19.12	4.08
15	1.06	0.32	1.02	31.63	5.64
18	1.13	0.40	1.06	10.85	3.29
21	1.17	0.43	1.08	7.00	2.70
24	1.12	0.42	1.05	13.36	3.72
27	1.20	0.48	1.10	5.37	2.44
30	1.14	0.49	1.05	17.33	4.02

APPENDIX N--DISTRIBUTION PROFILES OF STPI VARIABLES

DIFFERENCE SCORES AND ACS

VAR	MEAN	S.D.	MEDIAN	SKEW
ANXIETY				
WHOLE SAMP (N=85)				
DIFF	-0.035	5.306	0.182	-0.261
ACS	0.081	5.121	0.008	-0.126
MALES (N=40)				
DIFF	0.900	5.710	1.167	-0.678
ACS	1.395	5.298	1.711	-0.347
FEMALES (N=45)				
DIFF	-0.867	4.832	-0.667	0.097
ACS	-1.088	4.714	-1.250	-0.087
CURIOSITY				
WHOLE SAMP (N=85)				
DIFF	-0.659	4.618	0.042	-1.053
ACS	-0.209	2.052	0.001	-0.531
MALES (N=40)				
DIFF	-0.725	4.798	0.000	-0.979
ACS	-0.222	2.124	0.002	-0.667
FEMALES (N=45)				
DIFF	-0.600	4.505	0.083	-1.165
ACS	-0.197	2.010	0.001	-0.406
ANGER				
WHOLE SAMP (N=85)				
DIFF	0.882	3.560	0.094	2.668
ACS	1.245	5.436	0.026	0.096
MALES (N=40)				
DIFF	0.700	2.399	0.152	0.737
ACS	2.048	5.278	0.117	0.332
FEMALES (N=45)				
DIFF	1.044	4.364	0.040	2.637
ACS	0.532	5.534	0.011	-0.040

APPENDIX O--STPI MEANS AND S.D.s

WHOLE SAMPLE

Cell(n)	ANXPRE	ANXPOST	CURPRE	CURPOST	ANGPRE	ANGPOST
C1(21)	17.1/4.9	18.6/4.2	30.6/4.6	30.1/4.9	11.3/2.9	12.0/4.1
C2(20)	19.1/4.2	17.6/6.1	29.5/6.4	29.6/5.4	11.0/2.9	12.0/3.3
S1(22)	17.4/4.5	17.0/3.9	31.6/4.4	31.0/5.5	10.7/1.8	11.7/2.9
S2(22)	19.0/5.0	19.3/5.9	30.8/5.6	30.3/5.6	12.2/3.4	13.1/6.0

MALES

Cell(n)	ANXPRE	ANXPOST	CURPRE	CURPOST	ANGPRE	ANGPOST
ALL(40)	16.9/4.7	17.8/4.8	31.0/4.9	30.3/5.3	11.1/2.8	11.8/2.8
C1(10)	15.0/3.1	18.6/4.2	29.8/4.5	28.5/4.6	10.0/0.0	11.1/2.0
C2(10)	18.4/3.5	18.6/6.5	30.1/2.2	29.9/2.0	11.5/4.1	12.3/3.9
S1(10)	16.8/6.1	16.1/5.0	31.8/4.5	29.4/5.8	10.7/1.9	12.6/3.1
S2(10)	17.5/5.6	18.0/3.3	32.1/2.8	33.2/3.4	12.1/3.2	11.1/1.6

FEMALES

Cell(n)	ANXPRE	ANXPOST	CURPRE	CURPOST	ANGPRE	ANGPOST
ALL(45)	19.2/4.4	18.4/5.4	30.4/5.6	29.8/5.3	11.5/2.9	12.6/5.2
C1(11)	19.1/5.6	18.6/4.3	31.3/4.7	31.6/4.9	12.5/3.7	12.7/5.3
C2(10)	19.8/4.9	16.5/5.9	28.9/5.8	29.2/4.4	10.5/0.9	11.6/2.9
S1(12)	17.8/2.8	17.8/2.9	31.5/4.6	30.6/5.4	10.8/1.7	10.9/2.6
S2(12)	20.3/4.3	20.4/7.5	29.8/7.2	27.9/6.1	12.3/3.7	14.8/7.7

STPI STANDARD SCORES FOR COLLEGE STUDENTS
(State Scores--From Spielberger, 1979)

	Anxiety		Curiosity		Anger	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Males(95)	17.95	5.52	26.85	5.72	13.42	5.38
Fmles(185)	19.06	6.25	26.17	5.45	14.24	5.75

APPENDIX P--STPI "PRE" SCORE ANOVAS BY EXPT,GRP,SEX

ANXPRE

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
EXPT	1	0.005	0.000	0.988
GRP	1	70.178	3.338	0.072
SEX	1	113.635	5.405	0.023*
2-Way Interactions				
EXPT/GRP	1	0.736	0.035	0.852
EXPT/SEX	1	4.092	0.195	0.660
GRP/SEX	1	0.917	0.044	0.835
3-Way Interaction	1	25.643	1.220	0.273
Explained	7	30.483	1.450	0.198
Residual	77	21.025		

CURPRE

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	31.035	1.077	0.303
GRP	1	19.057	0.661	0.419
SEX	1	7.636	0.265	0.608
2-Way Interactions				
EXPT/GRP	1	0.573	0.020	0.888
EXPT/SEX	1	11.335	0.393	0.532
GRP/SEX	1	29.223	1.014	0.317
3-Way Interaction	1	0.512	0.018	0.894
Explained	7	13.968	0.485	0.843
Residual	77	28.822		

ANGPRE

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	1.736	0.222	0.639
GRP	1	8.175	1.047	0.309
SEX	1	3.974	0.509	0.478
2-Way Interactions				
EXPT/GRP	1	16.722	2.142	0.147
EXPT/SEX	1	2.222	0.285	0.595
GRP/SEX	1	13.878	1.777	0.186
3-Way Interaction	1	16.678	2.136	0.148
Explained	7	8.974	1.149	0.342
Residual	77	7.808		

APPENDIX Q--CELL ACS SCORE MEANS, S.D.s

WHOLE SAMPLE

	ANXIETY		CURIOSITY		ANGER	
CELL(N)	MEAN	SD	MEAN	SD	MEAN	SD
C1(21)	2.20	4.39	-0.18	1.62	0.93	4.74
C2(20)	-2.03	5.65	0.23	2.22	2.52	4.26
S1(22)	-0.17	4.63	-0.73	2.22	1.31	6.97
S2(22)	0.22	5.23	-0.11	2.12	0.32	5.41

MALES ONLY

	ANXIETY		CURIOSITY		ANGER	
CELL(N)	MEAN	SD	MEAN	SD	MEAN	SD
C1(10)	4.14	3.76	-0.49	1.86	3.00	4.83
C2(10)	-0.39	5.78	0.17	2.02	2.92	4.89
S1(10)	-0.24	5.61	-1.01	2.88	3.89	4.79
S2(10)	2.06	5.22	0.44	1.52	-1.63	5.47

FEMALES ONLY

	ANXIETY		CURIOSITY		ANGER	
CELL(N)	MEAN	SD	MEAN	SD	MEAN	SD
C1(11)	0.44	4.32	0.11	1.41	-0.95	3.96
C2(10)	-3.67	5.29	0.28	2.51	2.11	3.76
S1(12)	-0.11	3.90	-0.51	1.59	-0.83	7.93
S2(12)	-1.32	4.93	-0.56	2.48	1.94	5.02

APPENDIX R--ACS ANOVAS BY EXPT,GRP,SEX

ANXIETY

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	0.002	0.000	0.993
GRP	1	74.100	3.118	0.081
SEX	1	132.555	5.578	0.021*
2-Way Interactions				
EXPT/GRP	1	119.863	5.044	0.028*
EXPT/SEX	1	18.721	0.788	0.378
GRP/SEX	1	13.581	0.571	0.452
3-Way Interaction	1	20.329	0.855	0.358
EXPLAINED	7	53.301	2.243	0.039*
RESIDUAL	77	23.765		

CURIOSITY

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	4.262	0.980	0.325
GRP	1	5.702	1.311	0.256
SEX	1	0.045	0.010	0.919
2-Way Interactions				
EXPT/GRP	1	0.329	0.076	0.784
EXPT/SEX	1	1.872	0.431	0.514
GRP/SEX	1	5.448	1.253	0.267
3-Way Interaction	1	1.297	0.298	0.587
EXPLAINED	7	2.687	0.618	0.740
RESIDUAL	77	4.349		

ANGER

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	15.041	0.538	0.466
GRP	1	1.133	0.041	0.841
SEX	1	46.640	1.668	0.200
2-Way Interactions				
EXPT/GRP	1	39.181	1.401	0.240
EXPT/SEX	1	16.482	0.589	0.445
GRP/SEX	1	177.452	6.346	0.014*
3-Way Interaction	1	35.060	1.254	0.266
EXPLAINED	7	47.055	1.683	0.126
RESIDUAL	77	27.964		

APPENDIX S--ACS ANOVAS BY EXPT, GRP--MALES ONLY

ANXIETY

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	9.275	0.349	0.558
GRP	1	12.446	0.468	0.498
2-Way Interaction	1	116.596	4.389	0.043*
EXPLAINED	3	46.105	1.736	0.177
RESIDUAL	36	26.566		

CURIOSITY

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	0.159	0.035	0.852
GRP	1	11.119	2.454	0.126
2-Way Interaction	1	1.492	0.329	0.570
EXPLAINED	1	4.257	0.939	0.432
RESIDUAL	36	4.531		

ANGER

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	33.402	1.335	0.256
GRP	1	78.254	3.127	0.085
2-Way Interaction	1	74.009	2.958	0.094
EXPLAINED	3	61.888	2.473	0.077
RESIDUAL	36	25.022		

APPENDIX S--PAGE 2

ACS ANOVAS BY EXPT,GRP--FEMALES ONLY

ANXIETY

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	8.267	0.388	0.537
GRP	1	73.493	3.450	0.070
2-Way Interaction	1	23.597	1.108	0.299
EXPLAINED	3	34.744	1.631	0.197
RESIDUAL	41	21.305		

CURIOSITY

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	5.881	1.404	0.243
GRP	1	0.026	0.006	0.938
2-Way Interaction	1	0.134	0.032	0.859
EXPLAINED	3	2.008	0.480	0.698
RESIDUAL	41	4.188		

ANGER

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	0.008	0.000	0.987
GRP	1	94.820	3.104	0.086
2-Way Interaction	1	0.231	0.008	0.931
EXPLAINED	3	31.691	1.037	0.386
RESIDUAL	41	30.547		

APPENDIX T--COMPARISONS BETWEEN CELL MEANS

PLANNED ORTHOGONAL COMPARISON TESTS

ANXIETY ACS--F(df)

CELL	WHOLE SAMPLE(1,81)	MALES ONLY(1,36)	FEMALES ONLY(1,41)
C1/C2	7.362**(p<.01)	3.863	4.149*(p<.05)
C1/S1	2.429	3.607	0.361
C1/S2	1.698	0.813	0.834
C2/S1	1.452	0.004	3.230
C2/S2	2.124	1.131	1.412
S1/S2	0.067	0.995	0.408

COMPARISONS BETWEEN MALES AND FEMALES--SAME CELL

F(1,77)

CELL	ANXIETY ACS
C1	2.878
C2	2.156
S1	0.003
S2	2.502

DUNCAN MULTIPLE RANGE TESTS

CURIOSITY ACS

NO DUNCAN MULTIPLE RANGE TESTS WERE SIGNIFICANT FOR ANY COMPARISONS BETWEEN GROUPS WITH THIS VARIABLE.

ANGER ACS

AMONG MALES, DUNCAN MULTIPLE RANGE TESTS WERE SIGNIFICANT AT THE p<.05 LEVEL BETWEEN THE FOLLOWING CELLS:

C2 AND S2 S1 AND S2

NO DUNCAN MULTIPLE RANGE TESTS WERE SIGNIFICANT FOR ANY COMPARISONS BETWEEN GROUPS WITH THIS VARIABLE AMONG FEMALES OR WITH THE SAMPLE TAKEN AS A WHOLE.

APPENDIX U--CELL BOUNDARY/FUSION SCORE MEANS

WHOLE SAMPLE

CELL(N)	BOUNDARY MEAN	BOUNDARY SD	FUSION MEAN	FUSION SD
ALL(85)	70.75	12.47	68.55	12.73
C1(21)	71.71	12.77	68.90	14.99
C2(20)	67.80	12.18	69.65	12.57
S1(22)	71.95	13.13	65.36	13.20
S2(22)	71.32	12.21	70.41	10.06

EXCLUDED Ss (n=66)

CELL(N)	BOUNDARY MEAN	BOUNDARY SD	FUSION MEAN	FUSION SD
	74.07	13.21	66.75	12.92

MALES ONLY

CELL(N)	BOUNDARY MEAN	BOUNDARY SD	FUSION MEAN	FUSION SD
C1(10)	69.40	14.21	60.70	12.37
C2(10)	68.20	14.54	67.90	11.47
S1(10)	66.90	13.74	64.00	13.17
S2(10)	63.50	12.25	70.00	9.12

FEMALES ONLY

CELL(N)	BOUNDARY MEAN	BOUNDARY SD	FUSION MEAN	FUSION SD
C1(11)	73.82	11.58	76.36	13.52
C2(10)	67.40	10.08	71.40	13.97
S1(12)	76.17	11.49	66.50	13.70
S2(12)	77.83	7.74	70.75	11.17

APPENDIX V--CELL BOUNDARY/FUSION MANN-WHITNEY U TESTS
(Corrected for ties and expressed as normal deviates)

BOUNDARY
(p's are two-tailed)

	WHOLE SAMPLE		MALES ONLY		FEMALES ONLY	
CELLS	Z	p	Z	p	Z	p
C1/C2	0.94	0.35	0.00	1.00	1.41	0.16
C1/S1	0.19	0.85	0.15	0.88	0.43	0.67
C1/S2	0.30	0.76	0.72	0.47	0.89	0.37
C2/S1	1.06	0.29	0.34	0.73	1.75	0.08*
C2/S2	0.81	0.42	0.83	0.40	2.08	0.04
S1/S2	0.07	0.94	0.68	0.50	0.52	0.60

FUSION
(p's are two-tailed)

	WHOLE SAMPLE		MALES ONLY		FEMALES ONLY	
CELLS	Z	p	Z	p	Z	p
C1/C2	0.13	0.90	0.98	0.33	0.78	0.44
C1/S1	0.86	0.39	0.76	0.45	1.79	0.07
C1/S2	0.18	0.86	1.74	0.08	0.99	0.32
C2/S1	1.26	0.21	0.61	0.55	1.16	0.25
C2/S2	0.00	1.00	0.34	0.73	0.20	0.84
S1/S2	1.35	0.18	0.64	0.52	1.16	0.25

BOUNDARY/FUSION MANN-WHITNEY U TESTS BETWEEN SEXES
(p's are one-tailed)
BY CELL

	BOUNDARY		FUSION	
CELL	Z	p	Z	p
C1	0.49	0.31	2.57	0.006**
C2	0.19	0.43	0.64	0.26
S1	1.35	0.09	0.07	0.47
S2	2.61	0.005**	0.10	0.46

WHOLE SAMPLE

BOUNDARY		FUSION	
Z	p	Z	p
2.28	0.01**	1.87	0.03*

BOUNDARY/FUSION MANN-WHITNEY U TESTS BETWEEN EXPERIMENTAL SAMPLE AND EXCLUDED SUBJECTS
(p's are one-tailed)

	BOUNDARY		FUSION	
	Z	p	Z	p
Males	0.54	0.29	0.37	0.35
Fmles	1.32	0.09	0.91	0.18

APPENDIX W--ATTITUDE SCALE

MEANS, S.D.s

	WHOLE SAMPLE		MALES ONLY		FEMALES ONLY	
CELL	MEAN	SD	MEAN	SD	MEAN	SD
C1	37.71	10.67	38.90	10.37	36.64	11.33
C2	35.90	7.57	33.60	8.04	38.20	6.68
S1	43.55	4.95	43.90	6.05	43.25	4.07
S2	43.59	6.93	45.00	6.02	42.42	7.67

ITEM-BY-ITEM CORRELATIONS (N=123)

ITEM	1	2	3	4	5	6	7	8	9	10	11	12
1	----	.71+	.45+	.46+	.70+	.37+	.32+	.48+	.33+	.28**	.19*	.26**
2		----	.30+	.31+	.77+	.31+	.25**	.49+	.38+	.21*	.06	.30+
3			----	.46+	.37+	.47+	.50+	.41+	.30+	.11	.10	.08
4				----	.37+	.49+	.56+	.29**	.22**	.20*	.14	.11
5					----	.33+	.29**	.51+	.44+	.25**	.13	.27**
6						----	.61+	.25**	.07	.03	-.04	-.00
7							----	.24**	.10	.05	.11	.05
8								----	.41+	.23**	.11	.27**
9									----	.43+	.18*	.43+
10										----	-.07	.35+
11											----	.21**
12												----

*=p<.05 **=p<.01 +=p<.001

APPENDIX X--ATTITUDE QUESTIONNAIRE ANOVAS BY EXPT,GRP,SEX

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	968.400	15.800	0.000***
GRP	1	15.518	0.253	0.616
SEX	1	1.852	0.030	0.862
2-Way Interactions				
EXPT/GRP	1	16.318	0.266	0.607
EXPT/SEX	1	39.416	0.643	0.425
GRP/SEX	1	28.556	0.466	0.497
3-Way Interaction	1	102.151	1.667	0.201
EXPLAINED	7	166.988	2.724	0.014*
RESIDUAL	77	61.291		

ATTITUDE ANOVAS BY EXPT,GRP

MALES

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	672.400	10.982	0.002**
GRP	1	44.100	0.720	0.402
2-Way Interaction	1	102.400	1.672	0.204
EXPLAINED	3	272.967	4.458	0.009**
RESIDUAL	36	61.228		

FEMALES

SOURCE OF VARIATION	DF	MEAN SQ	F	SIGF OF F
Main Effects				
EXPT	1	331.946	5.411	0.025*
GRP	1	0.906	0.015	0.904
2-Way Interaction	1	16.068	0.262	0.612
EXPLAINED	3	116.644	1.901	0.144
RESIDUAL	41	61.349		

APPENDIX Y--ATTITUDE QUESTIONNAIRE

PLANNED ORTHOGONAL COMPARISON TESTS

BETWEEN CELLS

CELLS	WHOLE SAMPLE (df 1,77)	MALES ONLY (df 1,36)	FEMALES ONLY (df 1,41)
C1/C2	F=0.548	2.294	0.208
C1/S1	5.979*	2.042	0.618
C1/S2	6.061*	3.039	4.087*
C2/S1	10.003**	8.664**	2.267
C2/S2	10.108**	10.613**	1.583
S1/S2	0.000	0.099	3.125

BETWEEN SEXES (df 1,77)

CELL	F
C1	0.438
C2	1.726
S1	0.038
S2	0.594

BETWEEN GRPS,EXPTS

VARS	WHOLE SAMPLE (df 1,77)	MALES ONLY (df 1,36)	FEMALES ONLY (df 1,41)
GRP	F=0.205	0.720	0.031
EXPT	15.727**	10.982**	5.427*

*=p<.05 **=p<.01

APPENDIX Z--PEARSON CORRELATIONS (N=85)

VAR	BNDY	FUSN	ATTIT	ANXPR	CURPR	ANGPR	ANXPO	CURPO	ANGPO
BNDY	----	-.05	.17	-.13	.09	-.03	.00	.01	-.05
FUSN		----	-.03	.36+	.06	.04	.24*	.22*	.18
ATTIT			----	-.10	.06	.11	-.19*	.15	-.11
ANXPR				----	-.19*	.31**	.42+	-.09	.34+
CURPR					----	-.11	-.24*	.62+	-.05
ANGPR						----	.25*	.01	.55+
ANXPO							----	-.20*	.54+
CURPO								----	-.09
ANGPO									----

MALES (N=40)

VAR	BNDY	FUSN	ATTIT	ANXPR	CURPR	ANGPR	ANXPO	CURPO	ANGPO
BNDY	----	-.15	.21	-.32*	.12	-.13	-.24	.05	-.05
FUSN		----	-.10	.31*	.24	-.04	.19	.32*	.01
ATTIT			----	-.08	.17	.18	-.41**	.33*	-.10
ANXPR				----	.04	.32*	.28*	.04	.08
CURPR					----	-.05	-.24	.57+	.12
ANGPR						----	.08	.10	.63+
ANXPO							----	-.31*	.35*
CURPO								----	-.15
ANGPO									----

FEMALES (N=45)

VAR	BNDY	FUSN	ATTIT	ANXPR	CURPR	ANGPR	ANXPO	CURPO	ANGPO
BNDY	----	-.09	.14	-.09	.10	.02	.20	.00	-.10
FUSN		----	.04	.33*	-.05	.08	.26*	.17	.23
ATTIT			----	-.12	-.03	.06	-.01	-.02	-.13
ANXPR				----	-.36**	.29*	.54+	-.21	.48+
CURPR					----	-.14	-.23	.66+	-.12
ANGPR						----	.37**	-.07	.54+
ANXPO							----	-.10	.64+
CURPO								----	-.06
ANGPO									----

		ANXACS			CURACS			ANGACS	
VAR	ALL	MALE	FMLE	ALL	MALE	FMLE	ALL	MALE	FMLE
BNDY	.06	.10	.18	-.12	-.13	-.13	-.09	.01	-.10
FUSN	-.08	-.18	.11	.20*	.06	.33*	-.02	-.02	.04
ANXPR	-.49+	-.67+	-.23	.13	.01	.25*	-.08	-.17	.07
CURPR	-.08	-.23	.01	-.46+	-.50+	-.43+	-.07	.06	.07
ANGPR	-.04	-.19	.15	.11	.14	.09	-.27**	-.35*	-.19
ANXPO	.46+	.40**	.57+	.08	-.06	.20	.25*	.31*	.23
CURPO	-.11	-.27*	.02	.39+	.41**	.36**	-.22*	-.32*	-.15
ANGPO	.12	.13	.17	-.01	-.29*	.12	.40+	.38**	.46+
ATTIT	-.13	-.15	-.12	.07	.11	.03	-.30**	-.47+	-.15
ANXACS	----	----	----	-.02	-.03	-.00	.19*	.27*	.06
CURACS				----	----	----	-.31**	-.37**	-.25*
ANGACS							----	----	----

*=p<.05 **=p<.01 +=p<.001

APPENDIX AA--GLOSSARY OF TERMS

ACS	Adjusted Change Score--STPI Difference score with compensation for ceiling and floor effects.
ANXACS	STPI Anxiety Adjusted Change Score.
ANXD	STPI Anxiety Difference Score--Computed by subtracting ANXPRE from ANXPO.
ANXPRE, ANXPR	STPI Anxiety score recorded before Ss underwent a procedure.
ANXPO	STPI Anxiety score recorded after Ss underwent a procedure.
ANGACS	STPI Anger Adjusted Change Score.
ANGD	STPI Anger Difference Score--Computed by subtracting ANGPRE from ANGPO.
ANGPRE, ANGPR	STPI Anger score recorded before Ss underwent a procedure.
ANGPO	STPI Anger score recorded after Ss underwent a procedure.
ATTIT	Attitude Questionnaire score--Total of items 1 through 8.
BLANK FIELD	Also called Fixation Field--Blank card in tachistoscope with central focal dot.
BOUNDARY	Variable on Boundary/Fusion Test which measures tendency to maintain more or less rigid temporal/spatial/interpersonal demarcations.
CURACS	STPI Curiosity Adjusted Change Score.
CURD	STPI Curiosity Difference Score--Computed by subtracting CURPRE from CURPO.
CURPRE, CURPR	STPI Curiosity score recorded before Ss underwent a procedure.
CURPO	STPI Curiosity score recorded after Ss underwent a procedure.
CELL	Group of Ss determined by Experimenter and Message Condition: CELL C1=Confrontive Experimenter, Control Message CELL C2=Confrontive Experimenter, Experimental Message CELL S1=Supportive Experimenter, Control Message CELL S2=Supportive Experimenter, Experimental Message
E	Experimenter: E1=Experimenter who first met S, and gave S preliminary and postprocedure forms and "debriefing". E2=Experimenter who directed Ss through tachistoscope procedure, and behaved in either Confrontive or Supportive style.
EXPT	Experimenter Condition: Supportive or Confrontive.
FUSION	Variable on Boundary/Fusion Test which measures tendency to experience greater or lesser degrees of blurring of self/other and conscious/unconscious distinctions.
GRP	Message Condition: Experimental or Control Stimulus.
MSEC	Milliseconds; i.e., thousandths of a second.
PRIMING	Procedure intended to induce a cognitive set focussed on early childhood.
S	Subject.
SOS	Sex-of-Subject
STIMULUS FIELD	Card in tachistoscope with stimulus--either experimental or control--written on it.
STPI	State-Trait Personality Inventory.

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