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CONFIRMATION BIAS IN THE THERAPY SESSION: THE EFFECTS OF EXPERTISE, EXTERNAL VALIDITY, INSTRUCTION SET, CONFIDENCE AND DIAGNOSTIC ACCURACY

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Memphis

Joel M. Martin

August, 2000

To the Graduate Council

I am submitting herewith a dissertation written by Joel M. Martin entitled "Confirmation Bias in The Therapy Session: The Effects of Expertise, External Validity, Instruction Set, Confidence and Diagnostic Accuracy." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Psychology

James P Whelan, Ph.D
Major Professor

We have read this dissertation and recommend its acceptance

David Houston, Ph.D

Katherine Kitzmann, Ph.D.

Sam Morgan, Ph D

Accepted for the Council

Linda L. Brinkley, Ph.D
Vice Provost for Research
& Dean of the Graduate School

DEDICATION

This dissertation is dedicated to my parents

Mr Dale N. Martin

and

Mrs Cynthia A. Martin

who have supported and encouraged me without tire over these many years

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ABSTRACT

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The present study examined hypothesis-testing strategies within a realistic clinical setting. The joint effects of expertise, disconfirmatory instruction, confidence, and diagnostic accuracy were investigated. Participants (N = 80) either possessed advanced clinical training or did not have such training. Participants were randomly assigned to receive either specific instructions aimed at increasing disconfirmatory information search strategies or received no such instructions. Participants then interviewed a mock therapy client. At three points across the session (prior to meeting, after five minutes of interview, and after 15 minutes of interview), participants provided a diagnostic hypothesis, rated their confidence in the accuracy of that hypothesis, and listed questions they wished to ask in order to clarify their hypothesis. Consistent with previous research, participants used a predominantly neutral strategy when beginning the interview. However, over time, participants shifted their strategies, becoming more confirmatory and less neutral within the first five minutes of interaction. Disconfirmatory strategies, on the other hand, remained approximately constant across the session. Counter to what was expected, participants who received disconfirmatory instructions did not significantly increase their disconfirmatory search strategies, although they did ask fewer confirmatory questions. In addition, expert participants used more disconfirmatory strategies and were also less confident in their diagnosis than naïve individuals. Further, participants who were more confident in their diagnosis used fewer disconfirmatory strategies than those

who were less confident. Finally, participants used more confirmatory and fewer neutral strategies upon arriving at the correct diagnosis.

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I. INTRODUCTION

Confirmation Bias in The Therapy Session: The Effects of Expertise, External Validity, Instruction Set, Confidence and Diagnostic Accuracy

A great deal of research examining human judgment and decision-making strategies has investigated the notion of "confirmation bias" (e.g., Martin, 1998a; Nickerson, 1998, Pfeiffer, Whelan, & Martin, in press, Strohmer & Newman, 1983). This bias refers to the tendency of a decision-maker to attend to, collect, and process information in such a way as to preferentially confirm his or her initial hypothesis (Snyder & Swann, 1978, Snyder & Thomsen, 1988). It has been argued that such a confirmatory hypothesis-testing strategy may affect decision-making in psychotherapy (Haverkamp, 1994; Morrow & Deidan, 1992; Pepinsky & Pepinsky, 1954; Pfeiffer et al., in press; Spengler, Strohmer, Dixon, & Shivy, 1995). Previous research has examined a range of populations and situations, from naive undergraduates making judgments about therapy clients under relatively realistic conditions (e.g., Temerlin & Trousdale, 1969) to trained, expert clinicians making judgments under highly unrealistic conditions (e.g., Strohmer, Boas, & Abadie, 1996). Researchers have attempted to teach clinicians to use less biased decision-making strategies by simply pointing out the errors that a confirmatory strategy may yield (e.g., Haverkamp, 1994) and through less specific tactics urging the clinician to consider alternatives to what he/she may believe about a client (e.g., Kurpius, Benjamin, & Morran, 1985). Researchers have also attempted to gauge the impact of diagnostic accuracy (Garb, 1998; Oskamp, 1965) and confidence in that

accuracy (Dunning, Griffin, Milojkovich, & Ross, 1990; Kruger & Dunning, 1999). However, the joint effects of expertise, external validity, specific instruction in hypothesis-testing, confidence and accuracy, shown individually to be important in mediating confirmation bias, have not been explicitly examined. The current study seeks to examine the interrelation of these factors

The Effects of Expertise and External Validity

One variable that has been suggested to influence the incidence of confirmation bias is the "expertness" of the participants (Shanteau, 1988, 1989). Early studies investigating the role of confirmation bias in the therapy session placed undergraduates in predicaments that resembled clinical situations in that the targets they were to judge were described as psychotherapy clients. These studies found that these naïve participants engaged in confirmatory decision-making when asked to make judgments about supposed therapy clients, just as they had done when the targets were not described as clients (see Faust, 1986; Snyder, 1984). These results were then generalized to expert clinicians. However, some researchers have argued that this generalization is a mistake (Edwards, 1992; Kleinmuntz, 1985, Shanteau & Stewart, 1992). These researchers suggested that, through training and/or experience in information-gathering and client conceptualization, therapists may learn to avoid the biases naïve judges make. These researchers suggested that to understand expert clinical judgment, clinicians themselves must be studied (Wiggins, 1981).

When actual therapists were studied and compared to naïve decision-makers, results were mixed (Camerer & Johnson, 1991; Heppner & Frazier, 1992). Some studies

demonstrated that clinicians avoided biased decision-making (e.g , Murdock, 1988) In contrast, others concluded that as the experience level of the clinician increases, susceptibility to bias also increases (e.g., Hirsch & Stone, 1983). Still others found that clinicians do not differ at all from inexperienced individuals in the judgments they make about clients (e.g., Lee, Richer, & Uhlemann, 1992).

Although a considerable amount of research has examined expert clinicians, a serious limitation of this research involves the rather unrealistic methodologies employed (Martin, 1998b). One of the major threats to the generalizability of the extant research is the limitation of clinician contact with clients. Typically, clinicians have been asked to make judgments about a hypothetical client after reading a brief description of that client (e.g., Strohmer et al., 1996; Strohmer & Shivy, 1994, Experiment 2; Waxman, Rapagna, & Dumont, 1991). In other studies, clinicians made judgments after seeing a brief, videotaped interview with a client (e.g., Haverkamp, 1993; Hirsch & Stone, 1983; Lee, Barak, Uhlemann, & Patsula, 1995; Martin, 1998a; Pfeiffer et al., in press). The common feature in all of these studies is that therapists were asked to make judgments following a fleeting glimpse of the client. These judgments often supported the presence of a confirmation bias among clinicians (e.g., Haverkamp, 1993; Strohmer, Shivy, & Chiodo, 1990) and occasionally suggested an increased degree of bias among clinicians with more experience and/or training (Waxman et al., 1991).

Unfortunately, these methodologies ignored the reciprocal nature of the client-therapist interaction (Martin, 1998b; Strupp, 1995). In the course of psychotherapy, the clinician typically formulates a hypothesis and tests it by asking the client a question

(Miller, 1985; Morrison, 1995; Pepinsky & Pepinsky, 1954). In responding to each question, the client provides evidence to confirm or disconfirm the therapist's hypothesis. Even in the case of neutrally worded questions (e.g., open-ended or "either-or" questions), the therapist can be seen as gathering information to support or contradict the hypotheses (Miller, 1985; Spengler et al., 1995). In any event, it is the client's responses to these questions that provide guidance for the therapist in making a final judgment about the client. In contrast, the methodology used in these studies fails to examine the reciprocal nature of clinical decision-making and forces therapists to make decisions about clients in a vacuum, inasmuch as therapists do not receive feedback to their questions.

A few studies have utilized a methodology that at least allowed for interaction between therapists and clients. Strohmer and Newman (1983) found no evidence of confirmation bias among a group of graduate student clinicians asked to test whether a hypothetical client either possessed or lacked self control. Rather, these researchers found that clinicians preferred to ask neutral, unbiased questions. Similarly, Lee, Richer, and Uhlemann (1992) found no evidence of bias among a mixed group of practicing, masters-level clinicians and clinicians in training. While these researchers did not allow for the possibility of neutral or disconfirmatory questioning strategies, they found no differential use of confirmatory questions depending on whether clinicians were told the client they interviewed was depressed or whether they were told nothing specific about the client's diagnosis. Dallas and Baron (1985) found mixed results regarding the hypothesis-testing strategies of clinicians. Participants in this study were both practicing,

doctoral-level clinicians and clinicians in training who met with hypothetical clients over two extended (45-60 minute) interviews. These researchers found evidence for confirmatory information-gathering strategies among clinicians who were required to choose pre-defined questions from a list of "acceptable" questions but found no evidence of confirmation bias among clinicians who were free to develop their own questions to ask the clients.

While these three studies represent a step toward reproducing the dynamic nature of therapy, the manner of data collection limited their generalizability to real-world therapeutic decision-making. Clinicians in these studies were asked to generate questions prior to meeting with the client, but were not asked to do so after the session. Further, it was generally shown that the questions clinicians asked were predominantly unbiased, but these studies made no attempt to determine whether the types of questions asked changed during the course of the interaction. In other words, it is possible that clinicians began with neutral questions and moved toward more confirmatory ones (or vice versa) depending on the feedback they received from the clients.

Addressing the issue of client feedback to therapist questions, Hayden (1987) asked graduate student clinicians to determine whether a target client was an introvert or an extravert. After reading a brief narrative about a client, clinicians picked a question from a list that was either confirmatory, disconfirmatory or neutral with regard to the initial hypothesis. Unlike previous studies, however, the client in Hayden's study was a computer. After choosing a question, clinicians received feedback from the computerized client. Following this, another three choices of question (confirmatory,

disconfirmatory, or neutral) were supplied and the process was repeated. Hayden found that a great majority of participants chose neutrally-worded questions. However, Hayden also found that clinicians who began by choosing a particular type of question (confirmatory, disconfirmatory, or neutral) tended to choose that type of question throughout the interaction, regardless of the feedback they received from the computerized client.

Hayden's (1987) study attempted to capture the dynamic, developmental aspect of therapeutic decision-making. However, the generalizability of his study is hampered by requiring clinicians to choose pre-defined questions. Additionally, the question options afforded to clinicians in this study (confirmatory, neutral, and disconfirmatory) were presented simultaneously and differed only in their wording, not in their content. It is possible that, when asked to choose between biased and unbiased questions, clinicians know to pick the unbiased ones. Further, Hayden conducted a separate study using naïve individuals instead of clinicians and found generally similar results. However, no comparison of these two groups was presented.

Training Disconfirmatory Hypothesis-Testing

Implicit in the examination of expertise effects in mediating the confirmation bias is the assumption that individuals can learn to employ more effective hypothesis-testing strategies (see Arkes, 1981; Schwartz, 1991; Shanteau & Stewart, 1992). It is assumed that, if clinicians do gather information about clients in a manner different from naïve individuals, the training and/or experience clinicians receive facilitates this difference (Pepinsky & Pepinsky, 1954; Spengler et al., 1995). Spengler, Strohmer, Dixon, and

Shivy (1995) argued for an explicit focus on teaching clinicians to gather information in ways that are less prone to bias, specifically suggesting the increased utilization of disconfirmatory hypothesis-testing strategies.

A limited amount of research has addressed the assumption that disconfirmatory hypothesis-testing strategies can be taught by manipulating the participants' instruction set. Slovic and Fischhoff (1977) suggested that training decision-makers to consider multiple alternatives prior to finalizing a judgment would minimize the bias associated with confirmatory hypothesis-testing. Similarly, Koriat, Lichtenstein, and Fischhoff (1980) found that participants who were instructed to consider reasons for and against asking one of two alternative questions were more confident and less biased in their hypothesis-testing strategies than participants who did not receive such instructions. While the consideration of alternative hypotheses may facilitate the use of disconfirmatory strategies (Arkes, 1991; Johnson & Heppner, 1989; Martin, 1984), neither Slovic and Fischhoff nor Koriat et al. measured whether the participants in their studies were developing disconfirmatory information-gathering strategies.

Lord, Lepper, and Preston (1984) also studied the effects of instructing individuals to consider alternatives to their initial hypothesis-testing strategies. Specifically, participants were instructed to "consider the opposite" (p. 1231). Participants who received this "consider the opposite" instruction set asked more disconfirmatory and fewer confirmatory questions than participants who did not receive the instruction set. While this study demonstrates the utility of instructing decision

makers to consider alternative hypotheses as a debiasing technique, the exact nature of that debiasing remains untested in the clinical setting.

Despite suggestions of techniques to decrease bias in therapy (e.g., Arkes, 1981, 1991; Haverkamp, 1994, Heppner & Frazier, 1992; Miller, 1985), only Kurpius, Benjamin, and Morran (1985) instructed clinicians-in-training to focus on alternatives to the hypotheses they were testing about clients. They found evidence that this training significantly improved clinicians' ability to formulate unbiased hypothesis-testing strategies. However, they did not evaluate the specific hypothesis-testing strategies participants developed. Therefore, the specific relationship between instructions to consider alternative hypotheses during clinical interviews and disconfirmatory information-gathering strategies remains unexamined.

Accuracy of and Confidence in Diagnostic Impressions

Little research has addressed the relationship of the accuracy (or outcome) of clinical judgment to the process of arriving at that judgment (Garb, 1998; Nickerson, 1998). Further, the extant research is generally fairly pessimistic regarding clinicians' ability to accurately diagnose clients (e.g., Arkes, 1981; Faust, 1986; Kruglanski, 1989; Schwartz, 1991). Clinicians have long been argued to be poor diagnosticians (Camerer & Johnson, 1991; Meehl, 1957). However, despite much theoretical speculation (Garb, 1998, Haverkamp, 1994; Morrow & Deidan, 1992; Nisbett & Ross, 1980; Schwartz, 1991), there has been no empirical focus on why clinicians should be poor at a task at which they are specifically trained to do (Morrison, 1995; Pepinsky & Pepinsky, 1954;

Phares, 1992). As a result, we still do not know with any degree of certainty whether confirmatory information search strategies lead to incorrect diagnoses.

As with the issue of diagnostic accuracy, the issue of confidence in diagnostic accuracy has been previously investigated (see Dunning et al., 1990; Garb, 1998). Specifically, the "overconfidence effect" has been extensively examined in the social psychology literature (see Lichtenstein, Fischhoff, & Phillips, 1982, for a comprehensive review). In general, this literature suggests that confidence usually exceeds accuracy (Dunning et al., 1990; Kruger & Dunning, 1999), that difficult tasks (such as clinical decision-making) often engender greater degrees of overconfidence (Lichtenstein & Fischhoff, 1977), and that increased confidence is usually associated with increased overconfidence (Fischhoff, Slovic, & Lichtenstein, 1977) However, examinations of the overconfidence effect have not specifically examined clinical decision-making with regard to diagnosis since Oskamp (1962, 1965) determined that confidence in diagnosis was unrelated to accuracy Oskamp's studies, unfortunately, were based upon the unreliable and subjective diagnostic categories that predated the publication of DSM-III (American Psychiatric Association, 1980). Further, there have been no examinations of confidence in diagnostic accuracy as it develops and changes across the course of a dynamic interaction between therapist and client.

The Current Study

This study compared the hypothesis-testing strategies used by individuals with advanced clinical training and experience to naive individuals who lacked that training and experience. Additionally, participants in this study were instructed to focus on

alternative hypotheses about a client or were given no such instruction. Further, participants' confidence in their diagnostic accuracy, as well as their actual accuracy, were examined. In order to capture the dynamic nature of psychotherapy, participants interacted with an actor portraying a client. The hypothesis-testing strategies used by the participants were gauged at multiple times throughout the session. It was expected that trained participants would ask more disconfirmatory and fewer confirmatory questions than naive participants. It was also expected that participants who received the expanded, disconfirmatory instruction set would pursue more disconfirmatory and fewer confirmatory information search strategies than those who did not receive such instructions. Further, it was expected that, at the first point of assessment, participants would utilize predominantly neutral strategies regardless of their expertise or the instructions they received. This is consistent with previous research on this topic. It was also expected that a main effect for time would emerge – all participants would engage in significantly more neutral hypothesis-testing strategies at the beginning of the interaction, but would gradually adopt more confirmatory and disconfirmatory strategies as the session progressed. Additionally, it was expected that participants who endorsed the "correct" diagnosis would ask significantly more confirmatory and less disconfirmatory questions. Finally, it was expected that participants who were more confident in the accuracy of their diagnostic hypotheses would utilize more confirmatory and fewer disconfirmatory information search strategies.

II. METHOD

Participants

A total of 80 participants completed this study. The Expert group consisted of 40 participants, all of whom were enrolled in the clinical or counseling psychology doctoral programs at The University of Memphis. These participants were in at least their second year of training and were offered no incentives for participation. Participants in this group had accrued a mean of 548.48 hours of self-reported psychotherapy contact (SD = 783.69; MD = 170, Min = 6, Max = 3000).

The Naïve group consisted of 40 undergraduates who were enrolled in psychology classes at The University of Memphis and received course-contingent research credit for their participation. Participants in this group, prior to the semester in which the study was conducted, had accrued a mean of 2.15 credit hours of psychology (SD = 4.55; MD = 0). Of the naive students, 17 (42.5%) were social science majors, 12 (30%) were physical or natural science majors, 3 (7.5%) were humanities majors, and 8 (20%) were undecided. No participant in this group possessed advanced clinical training or experience.

The entire sample consisted of 22 males (27.5%) and 58 females (72.5%) with a mean age of 24.71 (SD = 6.53). The sample was predominantly White (72.5%). Twenty participants (25%) were African American, 1 (1.3%) was Asian American, and 1 (1.3%) classified herself as "other."

Design

This study primarily utilized a 2 (Expertise) x 2 (Instruction Set) x 3 (Time) mixed factorial design, with Expertise and Instruction Set functioning as the between subjects independent variables and Time as the within subjects independent variable. The Expertise variable was comprised of two levels Expert and Naive. Participants in each of these groups were randomly assigned to one of the two Instruction Set conditions. The Instruction Set variable was comprised of two levels Minimal Instructions and Expanded Instructions The Time variable was a within-subjects repeated measure collected at three separate points during the session (prior to meeting the client, five minutes into their interaction, and after 15 total minutes of interaction time).

Materials

Instruction Set manipulation. All participants were told they were going to meet with a mock client presenting for psychotherapy, and were instructed to interview this client for 15 minutes. Participants in the Minimal Instructions condition were told that they were to determine the client's problems (Appendix A) These participants received no further instructions.

Participants in the Expanded Instructions condition were told to gather as much information as possible about the client and to focus not only on what the client's problems were, but also to explore other areas of potential psychological problems (Appendix B). Participants in this condition were encouraged to rule out diagnoses and to examine other problems the client might be facing but not directly mentioning. Specifically, participants in this condition were encouraged to ask themselves, "what

other psychological problems might the client be experiencing?" For example, participants were instructed that if they were considering a diagnosis of post-traumatic stress disorder, they should also bear in mind that they may be incorrect – to determine whether they are correct or not, they should seek information regarding other diagnoses.

Diagnostic information sheets. Each participant received a list of psychological diagnoses and brief descriptions of each diagnosis (Appendix C). This list separately described, in layperson's terms, schizophrenia, multiple personality disorder, major depression, dysthymia, panic disorder, generalized anxiety disorder, post-traumatic stress disorder, social phobia, and adjustment disorder Participants were allowed to keep this sheet with them during the interview

Referral summary Participants received a referral summary for the client (Appendix D). This referral summary supplied therapists with a brief written description of the client they were asked to interview The referral summary contained demographic information, a brief description of the client's daily routine and social interactions, and an overview of the client's symptomatology. There was no mention of initial diagnosis and the symptomatology described was not representative of any single diagnostic category.

Clients. Four advanced female undergraduates of generally similar age and ethnic background were trained to act as clients in this experiment. These students were extensively trained regarding symptoms of a DSM-IV (American Psychiatric Association, 1994) diagnosis of social phobia (as well as other diagnoses) (Appendix E) and participated in a series of mock interviews prior to meeting with participants. The four client actors were evaluated for accuracy of presentation in a four-step procedure.

Following the initial training, the actors were each interviewed and evaluated by three Doctoral level psychologists to determine their initial competence in portraying both a psychotherapy client and a client with social phobia Interviews were untimed and the psychologists were allowed to ask any questions they wished to assist them in evaluating the actors Following the interview, the psychologists rated the actors on two nine point Likert scales ranging from 1 (Not At All) to 9 (A Great Deal) (Appendix F). Initial ratings of competence in portraying a therapy client were uniformly high ($\underline{M}$ = 8.17, $\underline{SD}$ = 83; min = 7, max = 9) and there were no significant differences between actors, $\underline{F}$ (3, 8) = 12, $\underline{p}$ > 5. Similarly, initial ratings of portraying a client with social phobia were high ($\underline{M}$ = 7 75, $\underline{SD}$ = 1 06, min = 6, max = 9) and there were no differences between actors, $\underline{F}$ (3, 8) = .40, $\underline{p}$ > 5.

Following this initial training and rating, mock clients met individually with study participants for interviews The mock clients portrayed primarily symptoms of social phobia both in their presentation and in their responses to therapists' questions. Following the completion of approximately 1/3 of their participant sessions, each actor was interviewed and evaluated by a fourth Doctoral level psychologist These interviews were conducted in the same manner as the interviews described above and were evaluated using the same measures. Again, ratings of competence in portraying a therapy client were high ($\underline{M}$ = 8 50, $\underline{SD}$ = .58; min = 8, max = 9), as were ratings of competence in portraying a client with social phobia ($\underline{M}$ = 8 25, $\underline{SD}$ = .96; min = 7, max = 9).

When each client actor completed approximately 2/3 of her participant sessions, she was interviewed and evaluated by a fifth Doctoral level psychologist. Again, ratings

of competence in portraying a therapy client were high (M = 8.50, SD = .58; min = 8, max = 9), as were ratings of competence in portraying a client with social phobia (M = 8 25, SD = 50; min = 8, max = 9).

For the entire sample of psychologist ratings of actors, a high degree of interrater reliability was obtained. Using the aggregate reliability (R) procedure described in Rosenthal and Rosnow (1991), the psychologists' interrater reliability when evaluating actors' competence in portraying a therapy client was .99. Similarly, interrater reliability when evaluating actors' competence in portraying a client with social phobia was .98.

In addition to these ratings, audiotapes of the participant sessions were evaluated by two advanced undergraduate raters who were extensively trained and were blind to condition and the specific purposes of the experiment (see 'Raters' section for a more detailed description of this process). The purpose of these ratings was to ensure that client actors consistently portrayed a therapy client throughout each interview, to evaluate the degree to which clients described symptoms of social phobia, and to evaluate whether clients portrayed symptoms of other diagnoses. Ratings for client status and for adherence to the symptoms of social phobia were rated on Likert scales, ranging from 1 (not at all) to 7 (completely), and ratings of the four separate DSM-IV diagnostic criteria were later averaged to aid in analysis. Ratings for client endorsement of other diagnoses were rated either "yes" (other symptoms were portrayed) or "no" (other symptoms not portrayed) (Appendix G). These ratings were completed and reviewed over the course of the study, and the raters obtained an aggregate reliability (R) of .99. In all, 76 of the 80 sessions (95%) yielded ratable data. Results suggest that the client actors maintained a

consistently high level of adherence to both the role of psychotherapy client (M = 6.93, SD = .25) and to the symptoms of social phobia (M = 6.91, SD = .26). Further, client actors eschewed endorsement of symptoms of other diagnoses (percent adherence = 100). There were no significant differences among actors for adhering to the role of client (F (3, 75) = .21, p > .5), and adhering to the symptoms of social phobia (F (3, 75) = .51, p > .5).

Measures

Demographic questionnaire. All participants reported their age, gender, ethnicity, and year in school. Additionally, participants in the Expert condition reported the number of client contact hours they had accrued (Appendix H), while Naïve participants reported their academic major, any practical clinical or counseling experience, and number of credit hours in psychology taken (Appendix I).

Diagnosis and information gathering questionnaire. At three different points during the session, all participants were asked to provide a tentative diagnosis (Appendix J) for the client. This diagnosis indicated the hypothesis being tested by participants and was used for later rating participants' hypothesis-testing strategies. After listing each tentative diagnosis, participants rated their confidence in the accuracy of the diagnosis on a 7 point Likert scale (1 = "not at all confident," 7 = "completely confident"). Following this, participants listed five questions they would like to ask the client in order to clarify their diagnosis. Additionally, participants provided a rationale for asking each question. These questions and rationales determined the hypothesis-testing strategies used by participants. Because participants were under no obligation to actually ask the questions

they listed, the effects of social desirability upon cognitive hypothesis-testing strategies were minimized.

Responses to these questions were assessed by independent raters (see 'Raters' section below) as confirmatory, neutral, or disconfirmatory in regard to the participant's identified diagnosis at each point in time (i.e., "target diagnosis"). Questions rated as confirmatory were symptoms of the target diagnosis, according to DSM-IV. Neutral questions were those not related to any particular diagnosis or that were clearly related to more than one diagnosis. Questions rated as disconfirmatory were related to another diagnosis and not to the target diagnosis. Ratings were then summed. In all, this question yielded three dependent variables per administration: total confirmatory questions, total neutral questions, and total disconfirmatory questions.

This questionnaire was administered three times over the course of the session. Therefore, three tentative diagnoses were possible per participant. Questions listed by participants were coded as confirmatory, neutral, or disconfirmatory in light of diagnoses identified at that point and at all previous points. For example, if a participant listed major depression as the tentative diagnosis at the first session, all questions listed by that participant were coded in light of the target diagnosis of major depression. If that participant changed his/her diagnosis to social phobia at the second administration, questions listed at the second administration were still coded in light of major depression, but also in light of social phobia. This coding scheme ensured that the construct of confirmatory bias being measured in this study was consistent with that measured in

previous studies, but also allowed participants to change their hypothesis and to vary their hypothesis testing strategies over the course of the session

Alternative diagnostic considerations form. Participants were asked whether they considered and/or questioned the client about possible "alternative" diagnoses (Appendix K). Additionally, participants were asked to list the alternative diagnoses they considered This information was solicited in order to gauge alternative conceptualizations the participants were considering.

Raters

Two advanced undergraduate students completed the ratings as indicated in the previous two sections. A third advanced undergraduate served as a tie-breaker in rating participant responses to the Diagnosis and Information Gathering questionnaires. All raters were blind to the design of the study and to the condition of each participant.

Raters were provided with a training manual (Appendix L) and attended special training sessions. The manual briefly described the study, the questionnaires, the process of rating the questionnaire, and the rating form (Appendix M) Initially, these observers rated sample questionnaires, discussed the rationale for each rating given, and considered methods to resolve differences. Once acceptable inter-observer reliability was obtained ($\underline{R}$ = .89), two observers rated actual questionnaires completed by participants. Over the entire sample, interrater reliability remained high ($\underline{R}$ = .94). The third observer settled disputes between the other two raters. Ultimately, all participant responses were coded for analysis.

Procedure

Participants were randomly assigned to one of the Instruction Set conditions prior to participating in the study. Once informed consent was obtained (Appendix N), participants completed the Demographic Questionnaire. Participants were then asked to study the Diagnostic Information sheets and any questions about the diagnoses were answered. Participants then read the Instruction set appropriate to their experimental condition. Following this, participants were told that they were about to meet with a mock client presenting for psychotherapy and read a Referral Summary regarding the client. After reading the Referral Summary, participants completed the first Diagnosis and Information Gathering Questionnaire. The experimenter then left the room and the client entered. After five minutes of interaction between participant and client, they were signaled to stop the session (via a timer alarm) and participants completed the second Diagnosis and Information Gathering Questionnaire. Upon completion of this questionnaire, interaction between participants and the client resumed until 10 additional minutes passed. At that time, the session ended and the participants completed the third and final Diagnosis and Information Gathering Questionnaire as well as the Alternative Diagnostic Considerations Form. Upon completion of this questionnaire, the experimenter provided an oral and written debriefing for each participant (Appendix O).

III. RESULTS

Preliminary Analyses

A series of analyses were conducted to determine if randomization across the demographic variables had failed. The participants did not differ according to Instruction Set condition with regard to age (t (78) = .29, p > .5), year in program/school (t (78) = .10, p > .5), race (χ^2 (3) = 6.30, p > .1), or sex (χ^2 (1) = 1.00, p > .25). Participants in the Naïve training condition did not differ according to Instruction Set condition with regard to credit-hours of psychology taken (t (38) = .90, p > .25) or academic major (χ^2 (3) = 2.70, p > .25). Participants in the Expert training condition did not differ according to Instruction Set condition with regard to number of client contact hours (t (38) = .48, p > .5) or degree program (clinical vs. counseling, χ^2 (1) = .78, p > .25). Participants did not differ according to Training condition with regard to race (χ^2 (3) = 3.08, p > .25) or sex (χ^2 (1) = 2.26, p > .1). Participants did differ across Training conditions with regard to age, t (78) = 5.41, p < .01. Follow-up analyses revealed that, as expected, participants in the Expert condition were significantly older (M = 28.1, SD = 5.91) than participants in the Naïve condition (M = 21.33, SD = 5.27). This result is almost certainly an artifact of the Training status of the participants – Expert participants were enrolled in graduate studies, thus making them older than their Naïve counterparts. Further analyses revealed that this variable did not significantly impact any of the observed relationships between the dependent and independent variables in this study. Therefore, age will not be included in further analyses.

Additional analyses were conducted to determine whether client actors were differentially distributed across the Training and Instruction Set conditions. The distribution of client actors did not differ per Training condition (χ^2 (3) =.49, p > .5) or Instruction Set condition (χ^2 (3) = 1 51, p > .5). Therefore, results indicate that the four client actors were randomly distributed across experimental conditions.

Hypothesis Testing Strategies

To investigate the primary hypotheses of this study, three 2 (Training) X 2 (Instruction Set) X 3 (Time) Repeated Measures Analyses of Variance (RMANOVA) were conducted with confirmatory, neutral, and disconfirmatory information gathering strategies at each point in time (rated against the latest diagnosis) functioning as dependent variables. In each analysis, Time functioned as the within-subjects independent variable No significant interactions between the independent variables emerged during any analysis (all p > 05). Significant main effects for Time emerged when considering confirmatory (F (2, 75) = 6.72, p < .01; η^2 = .15) and neutral (F (2, 75) = 5.92, p < 01, η^2 = 14) information gathering strategies, but not for disconfirmatory strategies (F (2, 75) = 67, p > .5; η^2 = 02).

As depicted in Figure 1, participants utilized significantly fewer confirmatory strategies at Time 1 (M = 1 09, SD = 1.13) than at Time 2 (M = 1.60, SD = 1.25), F (1, 76) = 8.57, p < .01, η^2 = .10, or at Time 3 (M = 1.73, SD = 1 19), F (1, 76) = 12.10, p < .01; η^2 = 14. In contrast, no differences were found in the number of confirmatory strategies that participants used at Time 2 and Time 3, F (1, 76) = .52, p > .25; η^2 = .01.

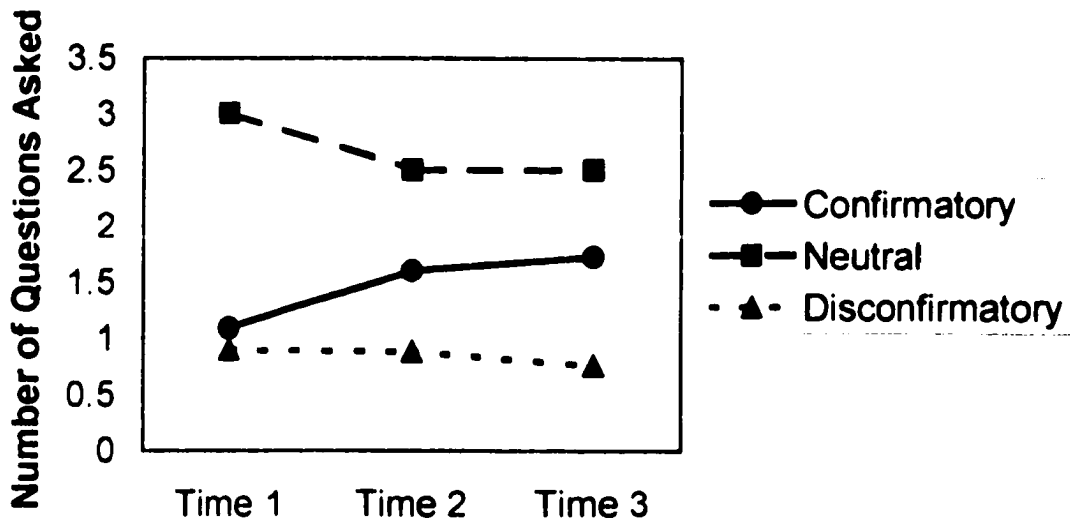

Figure 1. Number of confirmatory, neutral, and disconfirmatory questions asked at each measured time point.

Note. Confirmatory questions were less at Time 1 than at any other time, $p < .01$; Neutral questions were greater at Time 1 than at any other time, $p < .01$; Disconfirmatory questions did not differ in frequency at any time, $p > .5$

Participants also utilized significantly more neutral strategies at Time 1 ($\underline{M}$ = 3.01, $\underline{SD}$ = 1.40) than at Time 2 ($\underline{M}$ = 2.51, $\underline{SD}$ = 1.31), $\underline{F}$ (1, 76) = 9.78, $p < .01$, $\eta^2 = .11$, or at Time 3 ($\underline{M}$ = 2.51, $\underline{SD}$ = 1.33), $\underline{F}$ (1, 76) = 8.14, $p < .01$; $\eta^2 = .10$. As with confirmatory strategies, participants use of neutral strategies at Time 3 was not significantly different from that of Time 2, $\underline{F}$ (1, 76) = 0, $p = 1.00$; $\eta^2 = .00$.

A significant difference was found across the Training conditions in the way participants attempted to gather information, as shown in Table 1. Follow-up tests of the estimated marginal means for this main effect revealed that experts asked significantly more disconfirmatory questions than naive individuals. However, no differences emerged between experts and naive individuals with regard to confirmatory and neutral information gathering strategies.

A significant difference was also found across the Instruction Set conditions, as shown in Table 2. Follow-up tests of the estimated marginal means for this effect suggest that participants who received the expanded instructions asked significantly fewer confirmatory questions than those who received the standard instructions. However, no differences emerged between Instruction Set conditions with regard to neutral and disconfirmatory information gathering strategies.

Impact of Correct Diagnosis

In order to examine the impact of the particular diagnosis assigned by participants, each diagnosis was compared with the correct diagnosis (i.e., social phobia) at each measurement point. Table 3 displays these results. Interestingly, no participant

Table 1

Estimated marginal means and standard errors for confirmatory, neutral, and disconfirmatory questions asked by participants in the two training conditions

	Training					
	Expert (n=40)		Naive (n=40)		F test of difference [a]	η^2
Questions Asked	M	SE	M	SE		
Confirmatory	1.53	.12	1.42	.12	.42	.01
Neutral	2.47	.16	2.89	.16	3.43	.04
Disconfirmatory	1.01	.11	0.69	.11	4.12*	.05

[a] F values based on 1, 76 df
* $p < .05$

Table 2

Estimated marginal means and standard errors for confirmatory, neutral, and disconfirmatory questions asked by participants in the two instruction conditions

	Instruction Set					
	Expanded (n=40)		Minimal (n=40)		F test of difference [a]	η^2
Questions Asked	M	SE	M	SE		
Confirmatory	1.28	.12	1.66	.12	5.08*	.06
Neutral	2.72	.16	2.64	.16	.11	.00
Disconfirmatory	1.00	.11	0.70	.11	3.70	.05

[a] F values based on 1, 76 df
* $p < .05$

Table 3

Frequencies and percentages of participants endorsing the correct diagnosis at each time

	Correct		Incorrect	
	f	%	f	%
Time 1	0	0.0	80	100.0
Time 2	54	67.5	26	32.5
Time 3	64	80.0	16	20.0

endorsed the correct diagnosis at Time 1; 58 participants (72.5%) endorsed a diagnosis of a depressive disorder, 16 participants (20%) chose adjustment disorder, and 6 (7.5%) endorsed generalized anxiety disorder A Univariate RMANOVA (with Time as the repeated measure) indicated that participants' endorsement of the correct diagnosis steadily increased across time, F (2, 78) = 176.42, $p < .01$; $\eta^2 = .82$. Examination of the within subjects contrasts suggested that participants were correct more often at Time 2 (M = .68, SD = .47) than at Time 1 (M = .00, SD = .00), F (1, 79) = 164.08, $p < .01$; $\eta^2 = .68$. Further, participants were correct more often at Time 3 (M = .80, SD = .40) than at either Time 2 (F (1, 79) = 5.27, $p < .05$; $\eta^2 = .06$) or Time 1 (F (1, 79) = 316.00, $p < .01$; $\eta^2 = .80$)

To examine the impact of endorsing the correct diagnosis, a series of one-way ANOVA were conducted with number of confirmatory, neutral, and disconfirmatory

questions asked at Times 2 and 3 as dependent variables and whether each participant listed the correct diagnosis at Times 2 and 3 as independent variables (because all participants listed an incorrect diagnosis at Time 1, it was necessarily omitted from these analyses). As depicted in Figure 2, results suggested that, at Time 2, participants who listed the correct diagnosis asked significantly more confirmatory questions (M = 1.93, SD = 1.30) than those who listed an incorrect diagnosis (M = .92, SD = .80), F (1, 78) = 13.04, $p < .01$; $\eta^2 = .14$. Further, participants who listed the correct diagnosis asked significantly fewer neutral questions (M = 2.31, SD = 1.29) than those who listed an incorrect diagnosis (M = 2.99, SD = 1.29), F (1, 78) = 3.99, $p < .05$; $\eta^2 = .06$. No significant differences emerged at Time 3.

Confidence in Diagnostic Accuracy

To examine the effects of participants' confidence in their diagnostic accuracy on their information gathering strategies, a series of regression analyses were run with participants' confidence in their identified diagnosis at each concurrent and subsequent measurement point as the independent variables and the numbers of confirmatory, neutral, and disconfirmatory questions asked at each measurement point as the dependent variables. These results are displayed in Table 4. Participants who felt more confident in their first diagnosis asked fewer disconfirmatory questions at Time 1. Similarly, participants who felt more confident in their second diagnosis asked fewer disconfirmatory questions at Time 3. No differences were found among confirmatory or neutral information gathering strategies.

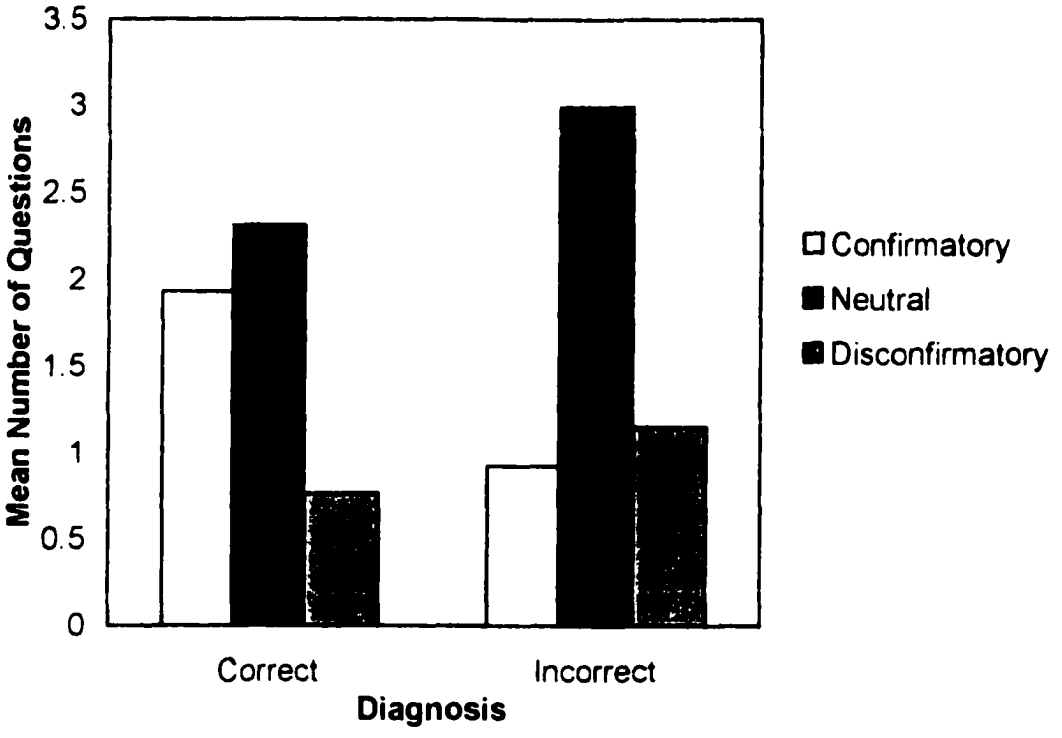

Figure 2. Mean number of confirmatory, neutral, and disconfirmatory questions as a function of diagnostic accuracy at Time 2.

Note. Participants endorsing the correct diagnosis asked significantly more confirmatory questions ($p < .01$) and significantly fewer neutral questions ($p < .05$). There was no significant difference between the number of disconfirmatory questions asked ($p > .05$).

Table 4

Correlations between information gathering strategies and diagnostic confidence at each measurement point

	Confidence in first diagnosis	Confidence in second diagnosis	Confidence in third diagnosis
Time 1			
Confirmatory	130		
Neutral	094		
Disconfirmatory	- 282**		
Time 2			
Confirmatory	- 031	047	
Neutral	020	005	
Disconfirmatory	012	- 066	
Time 3			
Confirmatory	- 036	007	003
Neutral	042	195	- 022
Disconfirmatory	- 012	- 262*	024

Note. All r based on N = 80.
* p < 05. ** p < 01

Additionally, a 2 (Training) X 2 (Instruction Set) X 3 (Time) Repeated Measures Analysis of Variance was performed with diagnostic confidence at each time point as the dependent variables. While no interactions between variables were apparent (all $p > .05$), nor was there a main effect for Instruction Set (F (1, 76) = 1.75, $p > .1$; $\eta^2 = .02$), a double main effect for Time (F (2, 75) = 77.16, $p < .01$, $\eta^2 = .67$) and for Training (F (1, 76) = 35.59, $p < .01$; $\eta^2 = .32$) emerged, as shown in Figure 3.

Examinations of the within-subjects contrasts for the Time effect suggest that participants maintained a statistically similar degree of confidence in their diagnostic accuracy between Time 1 (M = 4.25, SD = 1.32) and Time 2 (M = 4.40, SD = 1.25), F (1, 76) = .85, $p > .25$, $\eta^2 = .01$. However, between Time 2 and Time 3 (M = 5.72, SD = 1.09), participants became significantly more confident in the accuracy of their diagnoses, F (1, 76) = 110.50, $p < .01$; $\eta^2 = .59$; the difference between confidence at Time 1 and Time 3 was also significant, F (1, 76) = 95.02, $p < .01$; $\eta^2 = .56$. Examinations of the estimated marginal means of the between-subjects contrasts for the Training effect suggest that Naïve participants (M = 5.35, SE = .13) were significantly more confident in the accuracy of their diagnoses than were Expert participants (M = 4.25, SE = .13), F (1, 76) = 35.59, $p < .01$, $\eta^2 = .32$.

To further examine the relationship between participants' confidence in their diagnostic accuracy and their actual accuracy, a series of t-tests were performed with confidence functioning as the dependent variable and accuracy as the independent variable at Times 2 and 3. No significant differences emerged at Time 2 (all $p > .25$).

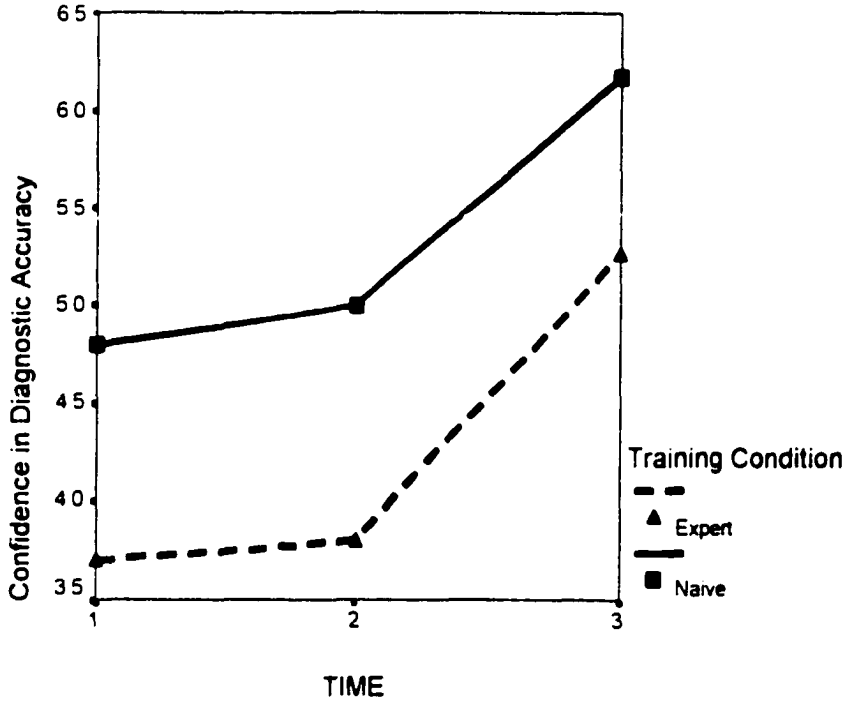

Figure 3 Confidence in diagnostic accuracy at each measured time point by training condition

Note. Naive participants were more confident in the accuracy of their diagnosis than Expert participants at each time point, $p < .01$; All participants were more confident at Time 3 than at any other time, $p < .01$.

However, at Time 3, an inverse relationship was found – participants who endorsed an incorrect diagnosis were significantly more confident in that diagnosis (M = 6.19, SD = .75) than those who endorsed the correct diagnosis (M = 5.60, SD = 1.13), t (34.39) = 2.49, p = .01; r^2 = .05.

IV. DISCUSSION

The major results of this study suggested that participants initially utilized a predominantly neutral strategy, but became significantly more confirmatory and less neutral within the first five minutes of the session. As expected, trained clinicians used significantly more disconfirmatory strategies than naive individuals. Furthermore, although participants showed a predilection for using confirmatory as opposed to disconfirmatory strategies, the instructional intervention was effective at reducing confirmatory tendencies. However, regardless of training status or instruction set, when participants identified the correct diagnosis, they used more confirmatory and fewer neutral strategies than participants who did not endorse the correct diagnosis. This increased use of confirmatory strategies cannot be attributed to the participants' confidence in their diagnosis; it was found that participants who were accurate in their diagnosis were actually less confident in that diagnosis than participants who were inaccurate. Additionally, experts were generally less confident in their diagnostic accuracy than were naive individuals.

Hypothesis Testing Strategies over Time

It was expected that participants would engage in more neutral strategies at the beginning of the session and gradually adopt more confirmatory and disconfirmatory strategies as the session progressed. This hypothesis was partially supported. Participants began using a predominantly neutral strategy and, within the first five minutes of interaction, became significantly more confirmatory and less neutral in their

information gathering strategies through the end of the session. Interestingly, however, the number of disconfirmatory strategies remained relatively constant over the course of the session.

It seems that, when confronted with a rather nebulous picture of a new client's problems, individuals in the clinician role generally adopt a "neutral-heavy" information gathering strategy, focusing on broad, maximally unbiased questions. Using information gathered in this way, individuals in the clinician role then enrich their questioning strategies with more specific, confirmatory approaches, possibly designed to elicit highly precise answers to highly precise questions and to "shore up" and expand upon the information already gathered. While participants still utilized a predominantly neutral strategy, the ratio of neutral questions to confirmatory questions decreased from approximately 3:1 to slightly more than 1.5:1 within five minutes of meeting the client. The predominance of the neutral strategy is consistent with previous research (e.g., Dallas & Baron, 1985; Martin, 1998a, 1998b; Pfeiffer et al., in press; Strohmer & Chiodo, 1984; Trope & Bassok, 1982). This study, however, revealed that time, a variable that was not examined in previous research (Martin, 1998b), is a critical factor. Over time, people became less neutral and more confirmatory, even though their options remained equally open.

A risk inherent in the strategy of moving from neutral to more confirmatory is that auxiliary information may elude the questioner (Platt, 1964; Popper, 1962; Spengler et al., 1995). In the present study, participants used disconfirmatory strategies at a far lower rate than either confirmatory or neutral strategies (on average, participants used less than

one disconfirmatory question per five questions; at the second (five minute) assessment point, the ratio of neutral to disconfirmatory questions was approximately 2.75:1, while the ratio of confirmatory to disconfirmatory questions was approximately 1.75:1). More importantly, participants maintained approximately the same rate of using disconfirmatory strategies across the 15-minute session. Thus, because the aforementioned neutral-confirmatory information search procedure was used, it could be argued that participants got only a portion of the picture by not assessing the possibility of comorbid conditions.

In the context of psychotherapy, perhaps the most obvious example of a disconfirmatory strategy is the rule-out diagnosis. It is frequently recommended that the clinician seek to rule out diagnoses other than the one he or she believes is the primary problem (see Morrison, 1995; Morrow & Deidan, 1992; Spengler et al., 1995). In fact, to aid in this process, a number of structured interviews have been developed (e.g., DiNardo & Barlow, 1988; First, Gibbon, Spitzer, & Williams, 1996; Weiss, 1993). These were developed under the premise that, in many cases, if the clinician does not specifically look for certain bits of diagnostic information, he or she may not find them (Morrison, 1995; Spitzer, Williams, Gibbon, & First, 1992).

Despite this logical and theoretical importance, but strikingly consistent with nearly all previous research on confirmation bias (e.g., Haverkamp, 1993; Hayden, 1987; Martin, 1998a; Pfeiffer et al., in press; Strohmer & Newman, 1983), participants in this study generally eschewed disconfirmatory hypothesis-testing strategies. While a neutral strategy usually is not considered as flawed as a confirmatory one (see Spengler et al.,

1995), there is no evidence from either the present study or previous research to suggest that a disconfirmatory strategy was preferred. Even researchers who advocate for a neutral test strategy concede that there are many situations, especially in clinical psychology, where a disconfirmatory strategy is most diagnostic (Klayman & Ha, 1987; Lewicka, 1998).

A possible explanation for this quandary may lie in the nature of the therapeutic interaction. One of the primary goals of psychotherapy is for the clinician to convey the sense that he or she understands the client's situation (Morrison, 1995; Phares, 1992; Rogers, 1961, 1974). When utilizing a disconfirmatory strategy, the clinician must, by necessity, consider questions that are counter to the experience of the client. By verbalizing disconfirmatory questions in the counseling session, the therapist runs the risk of being seen as unempathic and of damaging or destroying the therapeutic relationship (Hayden, 1987; Martin, 1998b).

However, it is unlikely that the present results are due to concerns about damaging the therapeutic relationship, inasmuch as participants were explicitly informed that the questions they listed on the questionnaires did not have to be directly asked. In fact, it was stressed that they did not need to be concerned about maintaining the relationship in their written responses. Thus, participants were under no obligation to verbalize their written responses. Therefore, a more plausible explanation for the observed phenomenon is that disconfirmatory strategies may simply be counterintuitive for people to use (Anderson & Sesechler, 1986, Kahneman, Slovic, & Tversky, 1982; Lord et al., 1984; Meehl, 1954; Nickerson, 1998; Popper, 1962). These authors have

argued that by asking people to be more disconfirmatory, we are asking them to engage in a style of thinking and behavior that is unnatural for them. Therefore, the development and implementation of "support tools" such as structured interviews (e.g., DiNardo & Barlow, 1988, First et al., 1996; Weiss, 1993) and models for counseling that emphasized the importance of disconfirmatory approaches (Morrison, 1995; Pepinsky & Pepinsky, 1954; Spengler et al., 1995) was necessary.

Effects of Expertise and Instruction Set

It was expected that the "expertness" of the participants and the instruction set under which participants completed the experiment would impact hypothesis-testing strategies. It was hypothesized that participants with clinical training would utilize significantly fewer confirmatory and more disconfirmatory strategies than untrained participants. Additionally, it was expected that participants who received disconfirmatory instructions would pursue fewer confirmatory and more disconfirmatory information search procedures. These hypotheses were partially supported.

It was found that clinically trained participants used significantly more disconfirmatory strategies than their untrained counterparts. This finding may be a reflection of the expert subjects' increased knowledge of and training in clinical matters, which may have better equipped them to rule out other specific diagnoses. In other words, expert subjects may have the benefit of knowing which alternative hypotheses are the most "diagnostic" to test (McDonald, 1990; Trope & Bassok, 1982). For example, as a result of training, expert subjects may be more able to ask questions such as, "Have you ever had a period of extremely elevated mood?" or "Have you ever experienced a sudden,

unexpected rush of anxiety or panic?" These specific hypotheses, symptoms of bipolar disorder and panic disorder respectively, are crucial pieces of information when considering a diagnostic hypothesis of social phobia (or any DSM-IV diagnosis, for that matter). However, because non-expert subjects lack this knowledge, they may be more apt to ask questions such as, "What was it like for you growing up?" The lack of specificity in the latter question is less diagnostic than the former questions; an alternative hypothesis is not directly available for testing. Thus, expert participants' increased use of disconfirmatory strategies may reflect a more highly developed information base.

Implicit in this interpretation is the notion that trained clinicians use their training in the process of constructing hypothesis-testing strategies. Therefore, evidence is supplied that clinical training affects the way in which people make decisions in a clinical arena. This finding is in direct contrast to the more pessimistic view of experts (Camerer & Johnson, 1991; Kahneman, 1991; Oskamp, 1965). Rather, this research lends support to the notion that trained clinicians are different from untrained novices (Friedrich, 1993; Klayman & Ha, 1987; Shanteau & Stewart, 1992; Strohmer & Newman, 1983).

Related to the issue of clinical training is the examination of specific techniques that may be a part of that training. In the context of the present study, this examination took the form of specific training for some participants in disconfirmatory hypothesis-testing strategies. It was found that participants who received the expanded, disconfirmatory instruction set used confirmatory strategies significantly less often than did participants who did not receive such instruction. This curious finding makes more

sense when it is noted that, in addition to manifesting a decrease in the number of confirmatory questions asked, participants who received the expanded instructions displayed a trend toward asking more disconfirmatory questions, although this trend did not reach significance ($p = .06$).

The most plausible explanation for this finding is based on the observation that participants as a whole tended to avoid disconfirmatory strategies. As mentioned previously in this discussion, it is possible that, when instructed to increase their disconfirmatory approaches, individuals functioning in the clinician role were being asked to engage in a style of thinking and behavior that was counterintuitive for them (Anderson & Sesechler, 1986; Kahneman et al., 1982; Lord et al., 1984; Meehl, 1954; Nickerson, 1998; Popper, 1962). They then compensated for this seemingly strange and unfamiliar instruction by greatly decreasing their use of confirmatory strategies, perhaps tacitly assuming that being less confirmatory is functionally equivalent to being more disconfirmatory. In fact, from a logical and theoretical standpoint, this assumption is erroneous (Ackrill, 1987, Platt, 1964; Popper, 1962; Tversky & Kahneman, 1974). Disconfirmatory strategies serve to assure the questioner that alternative hypotheses are not operational, while confirmatory strategies can only assure the questioner that his or her preferred hypothesis is operational.

An alternative explanation for these results is that the instruction set manipulation may not have been salient enough. In this study, participants in the expanded instruction set condition received a written description of how to ask diagnostic questions. While this description included examples of the types of questions to ask, research from the

educational field (e.g., Benjamin, 1991; Henderson, 1995; McKeachie, 1994; Myers & Jones, 1993; Perlman, McCann, & McFadden, 1999) suggests that more active (or interactive) teaching procedures are more effective. It may be that the instruction intervention, as it was carried out, was simply not impactful enough to effect a larger degree of difference than what emerged.

It is also important to note that no interaction between clinical training and disconfirmatory instruction materialized. The theoretical benefits of engaging in at least some disconfirmatory strategies in diagnosis have not been debated (Faust, 1986; Meehl, 1954; Morrison, 1995; Platt, 1964; Spitzer et al., 1992) and these benefits were assumed to be taught to clinicians in training (Haverkamp, 1994; Morrison, 1995; Morrow & Deidan, 1992; Pepinsky & Pepinsky, 1954; Spengler et al., 1995). However, given the present results, even expert participants benefited by receiving the expanded, disconfirmatory instructions. Therefore, it seems that, even having received similar information in the course of their training, clinicians may profit from occasional reminders to "consider the opposite" (if, indeed, it is profitable to ask these questions).

Accuracy and Confidence

It was expected that, when participants were testing the diagnostic hypothesis that the clients were portraying (i.e., the correct diagnosis), they would use significantly more confirmatory and less disconfirmatory strategies. This hypothesis was partially supported. While participants used significantly more confirmatory strategies when they were testing the correct diagnosis, they decreased the amount of neutral information-gathering strategies they used instead of decreasing the amount of disconfirmatory

strategies. Once again, disconfirmatory strategies were found to be nearly constant across the course of the study.

Taken in concert with the finding that individuals in the clinician role tended to move from a neutral to more confirmatory information search, it is interesting to note that an astounding leap in accuracy occurred between the first assessment point (prior to meeting the client) and the second (five minutes into the session). During this time, participants in this study were engaging in predominantly neutral information-gathering strategies. Similarly, accuracy increased from 0% correct at the first assessment point to 67.5% correct at the second. Thus, neutral strategies would seem to be an effective mechanism by which to gain information about a client and develop accurate hypotheses about his or her problems, perhaps functioning as a more passive, wait-and-listen, hypothesis testing strategy.

However, participants who arrived at the correct diagnostic hypothesis at the second assessment point then engaged in a significantly more confirmatory and less neutral information search following the second assessment point. Thus, it appears that individuals in the clinician role may develop their initial "map" of the client's problems through predominantly neutral means. Once arriving at the correct hypothesis, however, they then move to a more heavily confirmatory information-gathering strategy, perhaps as an attempt to "shore up" their hypothesis. By moving to a higher ratio of confirmatory strategies, however, it is possible that people are artificially bolstering the information they receive by asking more confirmatory questions (Garb, 1998; Klayman & Ha, 1987; Murdock, 1988; Popper, 1962; Snyder, 1984; Spengler et al., 1995) and, in effect,

soliciting only the information for which they are searching. However, this process seemed to occur in the relative absence of disconfirmatory, rule-out strategies. Interestingly, individuals functioning as clinicians did not seem to need this disconfirming search, inasmuch as they, in large part, arrived at the correct diagnosis anyway.

A possible explanation for this latter finding is that, in the present study, clients presented with no comorbid conditions. Rather, they were trained to present a relatively "pure" and monolithic picture of social phobia. However, in the reality of clinical practice, it is not common that a client presents with symptoms that fit a single diagnosis (Persons, 1986). It is possible that, with a more "murky" symptom picture, clinicians may be less likely to preferentially test any single hypothesis. With a less clear-cut diagnostic picture and thus a more ambiguous task, participants may be more apt to test alternative hypotheses. Therefore, it is possible that, had the client-actors portrayed primarily social phobia but also added a mild and less obvious case of some other diagnosis (e.g., depression), the participants would have been less well-served by the general lack of reliance upon disconfirmatory search strategies.

Of particular interest in this discussion of diagnostic accuracy is the related discussion of confidence in that accuracy. It was expected that participants would become more confirmatory and less disconfirmatory as their confidence in the accuracy of their diagnosis increased. This hypothesis was partially supported. Participants who were more confident in their diagnosis at certain assessment points were less disconfirmatory than those who were less confident at certain assessment points.

However, participants used roughly equal numbers of confirmatory (and neutral) strategies regardless of their confidence. Therefore, on certain occasions, increased self-assurance was associated with decreased use of disconfirmatory information search strategies

In addition to these findings, it was discovered that participants' confidence changed across time, but this change did not mirror the changes in actual diagnostic accuracy. There was virtually no change in confidence ratings between the first and second assessment points. Interestingly, this is the time period when the most noticeable jump in actual accuracy was seen. However, between the second and third assessment points, a large jump in confidence was apparent, coupled with a less drastic increase in accuracy. It appears that individuals functioning in the clinician role used significantly more confirmatory strategies following the second assessment point, but their confidence in their diagnostic hypothesis did not increase until after those strategies were used. In other words, while participants largely established the correct diagnosis by the second assessment point, they required more confirmatory information to be confident that they had done so. Interestingly, those who became the most confident were the most likely to eschew information search strategies that hold the highest potential of breaking that confidence (i.e., disconfirmatory strategies).

This latter conclusion is further supported by the finding that individuals who decided upon an incorrect diagnosis were significantly more confident in their incorrect diagnosis than those who listed the correct diagnosis. This may be an indication that, since those more confident individuals also tended to use fewer disconfirmatory

strategies, disconfirmatory strategies may be a very subtle "hidden factor" that separates an accurate diagnosis from a misdiagnosis. If increased confidence is associated both with decreased use of disconfirmatory information search strategies and with decreased diagnostic accuracy, it is possible that an increased use of disconfirmatory strategies may be, at some level, associated with increased diagnostic accuracy.

Finally, it was also noted that participants who possessed advanced clinical training were uniformly less confident in their diagnostic accuracy than those who did not possess such training. This result is consistent with research regarding competence and the overconfidence effect (e.g., Dunning et al., 1990, Kruger & Dunning, 1999), which states that individuals who do not possess the skills and/or knowledge required to make an informed decision also do not possess the skills and knowledge to recognize their lack of competence. Therefore, the present results suggest that advanced clinical training provides the cognitive tools necessary to recognize that information about clients is perpetually incomplete and that estimations of the accuracy of any diagnosis are tenuous at best.

Future Research

There are several directions for future research that would extend and clarify the results of this study. One important avenue to pursue involves the extension of the present methodology into clinical situations which are less clear-cut (Martin, 1998a; Pfeiffer et al., in press). It would be interesting to determine whether the present pattern of decision-making strategies remain when the client presents a more equivocal symptom picture. This would allow the results to be more readily generalizable to real-world

clinical settings, where clients often do not present symptom pictures which correspond to one clear diagnosis (Persons, 1986).

An equally important future study would involve including clinicians who have completed their degree programs. A conceptual difficulty in the current study is the use of advanced graduate students as experts. Previous researchers (e.g., Edwards, 1992; Shanteau & Stewart, 1992) have suggested that "experts" should be fully trained and credentialed and have significant experience in their field. While the expert subjects used in this study were clearly more expert than the untrained naive subjects, they were still in training at the time of the study. As such, they may differ in some systematic way from more stringently defined "experts." It would be interesting to see if clinicians who have obtained their doctoral degrees and have been practicing for a number of years engage in fewer (or greater) confirmatory hypothesis-testing strategies. Further, it would be equally, if not more, interesting to determine whether the results obtained in the present study regarding the shifting ratios of confirmatory and neutral questions maintained, whether more expert participants would adopt more disconfirmatory strategies, and whether the extant relationship between accuracy and confidence would continue. Additionally, the inclusion of this group would allow a better opportunity to examine Hirsch and Stone's (1983) intriguing findings that amount of experience is actually positively associated with confirmatory hypothesis-testing strategies.

Future research should also focus on increasing the salience and impactfulness of the instruction set manipulation. The present study utilized this manipulation as a "crash course" in clinical interviewing. It would be interesting to see whether a more active

training session would increase the use of disconfirmatory strategies during the interview, as well as decrease individuals' tendency to avoid disconfirmatory strategies as they become more confident in their diagnoses. Further, training could focus on becoming more meta-cognitively aware (Kruger & Dunning, 1999) and on teaching individuals to employ disconfirmatory strategies when they are feeling particularly confident in their diagnostic hypothesis. Ultimately, this question could be related to psychotherapy process and outcome – if individuals are capable of learning and employing this skill, does it produce more pleasing (for the client) or effective psychotherapy (Martin, 1998a; Pfeiffer et al., in press)?

Finally, the present study made great strides toward examining hypothesis-testing strategies within a dynamic interaction between therapist and client. However, the three-point assessment technique that was utilized still leaves significant room for improvement. One of the advantages of Hayden's (1987) study was that it truly examined, on a question-by-question level, the process inherent in information search strategies. Unfortunately, Hayden's methodology significantly compromised the external validity of his study by providing the clinicians with the only questions allowable at each assessment point. It would be interesting to examine the questions actually asked by clinicians during the course of an interview, thus more adequately capturing the dynamic, developmental interaction that is psychotherapy. Further, it would be interesting to see whether the questions clinicians actually ask align with the questions they wish they knew the answers to, as was measured by the present study.

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APPENDICES

A Minimal Instruction Set

In a few minutes you will meet with an actor portraying a client who is seeking psychotherapy. I would like you to play the part of the therapist. Your job is to find out the psychological problems this person is experiencing. In other words, please try to diagnose this client. During the course of the session, you will be asked to list some questions you have about the client and the reasons you would like to know the answers to these questions. These questions should be ones that help you clarify your picture of the client and help you better determine what is wrong with her.

You may list any questions you are thinking of. It is important to remember that you do not need to actually ask these questions; they are only to help us understand what questions you are entertaining in your head. Further, you do not need to worry about the therapeutic relationship when you list questions. Just write down questions you think would help you understand the client's problems better.

If you wish to ask the client the questions you wrote down (or more polite versions of them), please do so. If you think your concerns will be answered by pursuing a different line of questioning, you may do that as well. When you actually ask the client questions, remember to maintain the therapeutic relationship; in other words, try not to offend or alienate the client. If you do that, it is possible that your questions will never be answered and your diagnosis will be based on incomplete information.

Before you actually meet with the client, there is some referral information to tell you a little about her on the next page. When you do meet with the client, a good starting place is to ask her why she is considering therapy. Remember, **your goal throughout this interview is to determine what psychological problems the client is experiencing**. The questions you list on the form should be ones that will help you understand this client and her problems.

B. Expanded Instruction Set

In a few minutes you will meet with an actor portraying a client who is seeking psychotherapy. I would like you to play the part of the therapist. Your job is to find out the psychological problems this person is experiencing. In other words, please try to diagnose this client. During the course of the session, you will be asked to list some questions you have about the client and the reasons you would like to know the answers to these questions. These questions should be ones that help you clarify your picture of the client and help you better determine what is wrong with her.

You may list any questions you are thinking of. It is important to remember that you do not need to actually ask these questions; they are only to help us understand what questions you are entertaining in your head. Further, you do not need to worry about the therapeutic relationship when you list questions. Just write down questions you think would help you understand the client's problems better.

When thinking of questions that would help you understand the client and her problems better, it is not only important to ask questions about the diagnosis you are considering, but also to ask questions about other diagnoses. The reason for this is if a client is asked questions about a specific set of problems, she may respond only to those questions. Therefore, if you do not ask about other types of problems, you may not discover that the client is having difficulties in other areas. For example, if you believe your client is suffering from post-traumatic stress disorder, remind yourself that you may be incorrect. If you ask only questions about post-traumatic stress disorder, you may find lots of evidence that the correct diagnosis for your client is post-traumatic stress disorder. However, if you also ask questions about other sets of problems, like depression or generalized anxiety disorder, you may find evidence that supports those diagnoses as well. In fact, you may decide that those sets of problems are more important than your original diagnosis. By constantly reminding yourself, "what other problems might this client be experiencing?", you are likely to get a more complete picture of the client and therefore make a more accurate diagnosis.

If you wish to ask the client the questions you wrote down (or more polite versions of them), please do so. If you think your concerns will be answered by pursuing a different line of questioning, you may do that as well. When you actually ask the client questions, remember to maintain the therapeutic relationship; in other words, try not to offend or alienate the client. If you do that, it is possible that your questions will never be answered and your diagnosis will be based on incomplete information.

Before you actually meet with the client, there is some referral information to tell you a little about her on the next page. When you do meet with the client, a good starting place is to ask her why she is considering therapy. Remember, **your goal throughout**

this interview is to determine what psychological problems the client is experiencing. The questions you list on the form should be ones that will help you understand this client and her problems.

C Diagnostic Information Sheet

Schizophrenia - People with this disorder have odd, disturbed thinking patterns. They say they can hear voices that are not real or see things that are not real. However, people suffering from schizophrenia believe these voices or images *are* real. They also believe their disturbed thinking patterns are completely logical, even in the face of contrary evidence. These problems are extremely severe and create difficulties in the person's work, school or social life

Multiple Personality Disorder - People with this disorder have a number of separate identities (personalities) Each different identity is not aware that the others exist. It can be said that these people have many different people "living" inside them. This is an extremely rare disorder, and many psychologists and psychiatrists doubt it exists at all.

Major Depression - People with this disorder experience periods of a very sad mood and a loss of interest in people and things in their lives Depressed people also tend to lose pleasure in many activities These people also have appetite and weight disturbances and have trouble sleeping They have difficulty concentrating on tasks and may have thoughts of death or suicide. These problems are severe enough to cause the person difficulties in their work, school, and social life. Depressed people will say their problems have been bothering them for at least 2 weeks

Dysthymia - This disorder is very similar to Major Depression, except that it is not as severe Also, the dysthymic person will report feeling "sad," "unhappy," "blue," or "down-in-the-dumps" for a very long time, usually for a number of years.

Generalized Anxiety Disorder - People with this disorder experience a general and constant sense of worry about life. These people find it very difficult to control this worry Also, this worry is not connected to a specific place or thing, like heights or snakes. People with this disorder can be restless, irritable, unable to concentrate, and have difficulty sleeping. People with generalized anxiety disorder will say they have been bothered by these problems for a long time, usually more than six months.

Post-Traumatic Stress Disorder - People with this disorder experienced a very disturbing event in the past The event usually involves death or serious injury They mentally re-live this event and are haunted by it. When these people re-live the event, they feel intense fear and horror. Even though they do not want to think about the event, they are unable to stop. These problems are severe and create difficulties in the person's work, school or social life.

Panic Disorder - People with this disorder experience unexpected attacks of anxiety and fear called "panic attacks." The hallmark of this disorder is that these attacks occur "out of the blue," without warning. The person often fears dying, having a heart attack, "going crazy," or "losing his/her mind." The attacks involve a number of physical

symptoms such as heart palpitations, sweating, dizziness, and stomach distress. Often, the person fears having more panic attacks and avoids situations where they occurred at one time or another.

Social Phobia - People with this disorder are very frightened by social situations. They can fear any place where they are the focus of attention or where they may be embarrassed. Because of this fear, people with social phobia tend to avoid these situations at all costs. They are usually shy and uncomfortable in social situations. The fear they experience creates difficulties in their work, school and social lives. People with social phobia often realize their fear is excessive or foolish, but their fear of social situations is strong enough to keep them from engaging in social interaction if possible.

Adjustment Disorder - People with this disorder have difficulties settling into a new situation. This situation may be physical (like moving to a new neighborhood), occupational (getting a new job) or social (becoming single after the break-up of a romantic relationship) People suffering from an adjustment disorder will say they have been bothered by these problems for a long time, usually more than a few months. However, this class of problems only applies if you cannot explain the problems with a different disorder, like major depression or generalized anxiety. In other words, this is a diagnosis of last resort.

D. Referral Summary

The client is a Caucasian female who is a full time student at a large, urban university while working part time. She is not married and maintains close contact with her parents. About 6 weeks prior to seeking therapy, the client and her boyfriend ended their relationship. She reports not dating since that time.

The client's daily activities include going to class from 8 a.m. to approximately noon daily and then working from about 12:30 p.m. to 4:30 p.m. She reports studying during the evening hours, but also indicates that her productivity in both school and work has decreased over the last several weeks. She has also recently noticed decreasing social involvement with periods of limited social contact, particularly on weekends.

After several weeks of noticeably decreased academic and work productivity and social interest, she sought a physical examination approximately 3 weeks ago. She reported that he has been experiencing several symptoms nearly every day for the last month or more. She reported feeling generally down and irritable, feeling "on edge and jittery," having mild back pain, being less interested in her work and family, having trouble sleeping, and being especially concerned about evaluations. She denies having experienced these symptoms to this extent at any other time in her life. She denies any history of psychological treatment and reported a negative family history of psychological problems. Results of the physical examination reveal no clear physical reasons for her symptoms.

E Client Training Procedures

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OVERVIEW

The project for which you are being trained is an examination of therapists' thought processes in clinical situations The participants in this study are of widely varying levels of expertise, from naive undergraduates to doctoral students going on internship Each of these participants will meet with an actor portraying a psychotherapy client for a brief interview Yes, this is where you come in. This manual, along with the copious extra readings will familiarize you with the psychological phenomenon (diagnosis) known as *social phobia* (if you haven't figured it out yet, you will be portraying a social phobic client during your interactions with the participant therapists). You will also learn about a number of other psychiatric diagnoses so you know what problems you *don't* have You will receive extensive training in how to act like a psychotherapy client, but you will also have a significant amount of leeway regarding the specific way in which you present yourself. The benefits to you are manifold: letters of recommendation for graduate school/jobs, course credit, and a great opportunity to put some truly interesting and different research experience on your applications / vitae / resumes Above all, however, I want you to have fun with this. While this project will require a lot of work on your part, it should be a fun and interesting experience and provide you with a great story to tell your grandkids. In return, I expect you to be dedicated to the success of the project, to do a credible job in your interactions with the

participants, to show up on time and prepared for all appointments, and to attend and participate in all weekly meetings.

THE DETAILS

During your interactions, the participants will be trying to figure out what exactly is wrong with you (well, not *you*, but the client you'll be playing). In order to do this, they'll be asking you a bunch of questions. Some will be good questions, some will not. Some will challenge your ability to stay in role, some will not. Some will make you want to laugh, some will make you want to cry. The important thing to remember is that YOU MUST ALWAYS STAY IN ROLE!!! If they ask you a question about your childhood, answer it the way your character would. If they persist in asking you questions about depression, answer them the way your character would. So we're all clear, your character has Social Phobia (see handouts for list of symptoms and exclusion criteria). **HOWEVER, YOU ARE SEEKING PSYCHOTHERAPY: YOU KNOW SOMETHING'S WRONG BUT YOU DON'T KNOW WHAT IT IS.** This is extremely important. For this reason, you have to know so much about the disorder (and other disorders) that you can do the behaviors naturally yet still act like you don't quite know what's going on. Further, you'll have to be able to handle the obvious questions and the obscure questions with equal aplomb. The only way to do this is extensive and significant rehearsal.

TRAINING

During the first few weeks of the project, extensive time will be spent training. This will involve reading a great deal of material about social phobia and other psychological disorders. More importantly, it will involve a great deal of practice. You will meet with (and observe others meeting with) me and other mock therapists in order to hone your skills. Because of the intensity of this exercise, we will be meeting as a group at least twice a week during the initial training period. You will also be asked to practice amongst yourselves. For this reason, a phone list is included in this packet. Finally, near the end of the training period, you will be asked to meet with 3 separate psychologists who will rate your performance. Don't be alarmed; if they rate you poorly, it just means that we need to practice more and try it again later.

POST-TRAINING

Following the initial training period, you will begin meeting with actual therapist participants. After each of you have completed approximately 7 interviews, you'll be asked to meet with another psychologist who will again rate your performance. Same procedure after your 14th participant. Additionally, all your sessions will be audiotaped and rated by independent listeners. All of this is to ensure that you stay in role and do not drift from the defined criteria. Note that this is no slight on any of you personally; people

in general are imperfect and tend to go off-course after a while unless periodic checks and recalibrations are made.

IN-SESSION PROCEDURE

Each therapist participant will begin by meeting with me (or another Graduate student) and filling out a bunch of paperwork. Included in this is a brief description of you and your troubles. After completing this, you will actually meet with them. The first part of your interaction will last about 5 minutes. At this point the session will be stopped and the participant will fill out more paperwork. After this, you and the participant will interact for about 10 more minutes. Then you are done and free to move on to the next participant (if applicable).

CONFIDENTIALITY

It is very important for you to maintain the confidentiality of the participants in this study. In order for the participants to ask questions candidly, they must be assured that their questions will remain private in the context of the study. Please do not disclose any information about any participant to anyone not directly involved in this study ever, under any circumstances.

Similarly, in order for this project to work, you must not discuss any information about the details of the study to anyone not directly involved in it. The participants must remain naive to the particulars of who you really are and what you are really doing; if they knew, there would be no point in doing the study this way. Please do not disclose any details about this study to anyone not directly involved in this study until after it is complete.

F Psychologists' Rating Sheet

1 To what extent does the person you just interviewed satisfy the diagnostic requirements of Social Phobia?

1	2	3	4	5	6	7	8	9
not at all				some-what				a great deal

2 To what extent does the person you just interviewed accurately portray a therapy client?

1	2	3	4	5	6	7	8	9
not at all				some-what				a great deal

G Session Rating Form

Directions: Record all ratings for one session on this form.
Did the client stay "in role" (maintained facade of a plausible psychotherapy client)?

1	2	3	4	5	6	7
Not at all			Moderate			Completely

Specific Comments

How well did the client portray the following symptoms?

A marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing:

1	2	3	4	5	6	7
Not at all			Moderate			Completely

Specific Comments

Exposure to the feared social situation almost invariably provokes anxiety, which may take the form of a situationally bound panic attack:

1	2	3	4	5	6	7
Not at all			Moderate			Completely

Specific Comments

The feared social or performance situations are avoided or are endured with intense anxiety or distress:

1	2	3	4	5	6	7
Not at all			Moderate			Completely

Specific Comments:

The avoidance, anxious anticipation, or distress in the feared social or performance situation(s) interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia

1	2	3	4	5	6	7
Not at all			Moderate			Completely

Specific Comments

Did the client display symptoms of any disorder other than social phobia that cannot also be explained by social phobia?

Yes No

If yes, please list the symptoms and the extent to which she manifested each symptom (1-7 scale)

H. Expert Demographic Questionnaire

Please answer the following questions:

1. Age _____

2. Gender: ☐ Male ☐ Female

3. Degree Program: ☐ Clinical ☐ Counseling ☐ Other: _____

4. Year in your program ☐ First ☐ Fourth
   ☐ Second ☐ Fifth
   ☐ Third ☐ Sixth or more

5. Race ☐ Caucasian ☐ African-American
   ☐ Asian ☐ American Indian
   ☐ Other
   _____

6. Approximate number of client contact hours _____

I. Naive Demographic Questionnaire

Please answer the following questions:

1. Age _____

2. Gender ☐ Male ☐ Female

3. Race ☐ Caucasian ☐ African-American
☐ Asian ☐ American Indian
☐ Other
_____

4. Major _____

5. Year in school ☐ First ☐ Fourth
☐ Second ☐ Fifth
☐ Third ☐ Sixth or more

6. Have you ever worked in a psychiatric hospital, psychology clinic, or any similar establishment?

☐ Yes ☐ No If "Yes," please describe your duties _____

7. Have you ever taken a (graduate) class in advanced psychopathology? ☐ Yes
☐ No

8. Have you ever taken a (graduate) class in clinical case conceptualization? ☐ Yes
☐ No

9. Approximately how many hours of psychology classes have you taken in the past?

_____

J Diagnosis and Information Gathering Questionnaire

1 Considering your client, what is the PRIMARY problem that you believe is important as a focus in therapy?

For the purposes of this project, please list this problem as a specific DSM diagnosis:

_____

How confident are you that this diagnosis is accurate?

1	2	3	4	5	6	7
Not at all			Moderate			Completely

2 Now, consider additional information that you, as your client's therapist, would like to gather during this intake session. List 5 questions that you believe are important to know the answers to in order to better understand her Also list your reasons why you would like to know the answer to each question. Please rank order your questions in order of importance, such that one (1) indicates the most important and five (5) indicates the least important Remember that you do not need to actually ask the client these questions (though you can if you like) Therefore, you do not need to worry about preserving the therapeutic relationship in the questions you write down. They are simply to understand what information you think would be important to gather in order to understand your client more completely.

Rank Order

____ Question: _____
Reason: _____
_____

____ Question: _____
Reason: _____
_____

____ Question: _____
Reason: _____
_____

____ Question _____
Reason _____
_____

____ Question _____
Reason _____
_____

K. Alternative Diagnostic Consideration Form

7. Did you consider a number of diagnoses that were alternative to your preferred diagnostic hypothesis during the course of this interview?

Yes ☐ No ☐

8. If you answered yes, please list the different alternative diagnoses you considered during the session.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

L Rater Training Manual

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OVERVIEW

The project for which you are being trained is investigating the ways in which therapists make decisions about their clients. The participants in the study were of widely varying levels of expertise, from naive undergraduates to doctoral students going on internship. The participants engaged in an interview with a mock client. At three separate points during this interview, participants filled out a questionnaire wherein they listed questions they were wondering about the client and the reasons they were thinking about those questions. Your mission (should you choose to accept it) is two-fold: 1) review the decisions subjects made about the client and assign a rating to each decision; 2) listen to and rate audiotapes of the sessions to ensure that the mock clients stayed in role. These missions will be reviewed separately below.

MISSION 1: REVIEW AND RATE DECISIONS MADE ABOUT THE CLIENT

DIAGNOSIS AND INFORMATION GATHERING QUESTIONNAIRE

This questionnaire asked the participants to make several decisions about the client with whom they met. A brief description of each question follows:

Question 1 - the participants were asked to identify the one problem that they thought should be addressed in therapy. Additionally, participants were asked to rate, on a scale of 1-7, how confident they were the diagnosis provided was accurate.

Question 2 - participants were then asked to list 5 questions that they wanted to ask the client in order to better understand her, and why they thought each question would be important to ask.

RATING SCALES

For the answers to even-numbered Questions 2-6, you will rate whether the participant's responses are consistent, inconsistent, or neutral with regard to the target diagnosis (found in Question 1) Use the following numbers to assign ratings:

1 = consistent with target diagnosis

0 = neutral to target diagnosis

-1 = inconsistent with target diagnosis

More information on these ratings is provided in the Rating Procedures below.

RATING PROCEDURE

As mentioned above, your job is to rate the answers that the participants provide in the Diagnosis and Information Gathering Questionnaire You are to rate one questionnaire at a time and place your answers on the Rating Form. Please follow these steps:

STEP 1. Preliminary Information - On every rating form be sure to enter the subject number of the participant whose information you are rating, your Rater ID number (STEPHEN = 1, ALLEN = 2), and the date you're doing the rating in the applicable spaces.
STEP 2. Confidence – Following the diagnosis provided, please enter the number circled indicating the participant's confidence in his/her diagnosis.
STEP 3. Question 2 - Read each of the questions noted in Question 2 of the Diagnosis and Information Gathering Questionnaire and the reasons the participant wished to ask that question. Each question should receive its own rating as described below. List each rating on the Rating Form in the order that the subject ranked the cues.
Consistent Rating: If a question is consistent with the target diagnosis it will ask about symptoms or events related to that diagnosis. For example, if the target diagnosis is Attention Deficit Disorder, a consistent question might be, "do you have trouble paying attention in class?" or "how long have you been having trouble concentrating?" (*HINT – in general, if when you answer 'yes' to a question and it supports the target diagnosis, it should usually receive a consistent rating*)
Inconsistent Rating: To receive an inconsistent rating, a question should be more closely related to a diagnosis other than the target diagnosis. For example, if the target diagnosis is Attention Deficit Disorder, an inconsistent question might be, "how long have you been feeling down?" or "do you have panic attacks?" (*HINT - Opposite of above, if when you answer 'yes' to a question it supports another diagnosis, then it should receive an inconsistent rating.*)
Neutral Rating: A question could receive a neutral rating in two different ways: 1) A question that is irrelevant to any particular diagnosis, such as "How long have you lived in Memphis?" or 2) A question that considers more than 1 diagnosis, such as "Do you consider yourself more likely to get depressed or angry?"

IF YOU ARE UNCERTAIN: If you are unsure whether a given question is consistent, inconsistent or neutral with regard to the target diagnosis, read the reasons the subject supplied. If you are still uncertain, refer to the DSM-IV description of the diagnosis. If you are still uncertain, make your best guess and note your question so we can discuss it later.

STEP 4. Repeat - Each participant completed the Diagnosis and Information Gathering Questionnaire 3 times. Repeat the procedures above for the remaining 2 Questionnaires. For each of the subsequent administrations, **YOU MUST MAKE MULTIPLE RATINGS BASED ON THE MULTIPLE DIAGNOSES PROVIDED**. The way to do this is simple:

Go through each Diagnosis and Information Gathering Questionnaire and make your ratings based on only the diagnosis provided in Question 1. Enter your ratings in the spaces marked "... for diagnosis in Question 1". For example, if the diagnosis in Question 1 is depression, rate all subsequent responses on Questions 4 and 6 in light of depression.

When you have finished this, go backward. Now consider the diagnosis listed in Question 3 and make your ratings based on that diagnosis. Enter these ratings in the spaces marked "... for diagnosis in Question 3". For example, if the diagnosis in Question 3 is generalized anxiety disorder, rate all subsequent responses on Questions 4 and 6 in light of generalized anxiety disorder. If the diagnosis in Question 3 is the same as that in Question 1, simply copy the ratings you made for that diagnosis.

When you have finished this, go backward again. Now consider the diagnosis listed in Question 5 and make your ratings based on that diagnosis. Enter these ratings in the spaces marked "... for diagnosis in Question 5". For example, if the diagnosis in Question 5 is social phobia, rate all subsequent responses on Question 6 in light of social phobia. If the diagnosis in Question 5 is the same as either (or both) Question 1 or Question 3, simply copy the ratings you made for that diagnosis.

STEP 5. Question 7 - Simply copy the answer the participant checked onto the Rating Form.

STEP 6. Question 8 - On the Rating Form for Question 8, you will supply two numbers: 1) the total number of responses listed, and 2) the number of identifiable DSM diagnoses. The number of DSM diagnoses should always be less than or equal to the number of responses.

CONSISTENCY RULES FOR EVEN-NUMBERED QUESTIONS 2-6

If the subject asks about:

Drug, Alcohol, Medication usage *only*, rate:

Everything = -1

Drug, Alcohol, Medication usage along with Another Diagnosis, rate:

Everything = 0

Panic attacks out of the blue, rate:

Depression = -1	Social Phobia = -1	General Anxiety = -1	Panic Disorder = 1	Adjustment D/O = -1

Panic attacks only in social or other specific situations, rate:

Depression = -1	Social Phobia = 1	General Anxiety = 1	Panic Disorder = 1	Adjustment D/O = -1

Failures, rate:

Depression = 1	Social Phobia = -1	General Anxiety = -1	Panic Disorder = -1	Adjustment D/O = -1

Relationship with family/friends, rate:

Everything = 0

unless the reason directly supports another diagnosis, then rate as consistent with that diagnosis and inconsistent with all others OR if related to *avoiding*, etc. - see below:

Breakup with boyfriend, rate:

Everything = 0

unless the reason lists the breakup as the cause of, for example, an adjustment reaction, then rate:

Depression = -1	Social Phobia = -1	General Anxiety = -1	Panic Disorder = -1	Adjustment D/O = 1

Avoiding, isolating, withdrawing, etc., rate:

Depression = 1	Social Phobia = 1	General Anxiety = -1	Panic Disorder = 1	Adjustment D/O = -1

Being perfect, rate:

Everything = 0

unless the reason or question refers to another diagnosis, e.g. "Do you see how your perfectionist thinking contributes to your anxiety and makes it hard to perform?", then rate:

Depression = -1	Social Phobia = 1	General Anxiety = 1	Panic Disorder = -1	Adjustment D/O = -1

When symptoms began, rate:

Everything = 0

unless it specifically identifies what symptoms or diagnosis, e.g. "When did you first start feeling depressed/lose weight/sleeping more/etc ?", then rate the question consistent with the disorder whose symptoms are inquired about (depression = 1, all others = -1 in the example)

2 different symptoms or problems, e.g. "depression and anger," or "are your thoughts supportive or deprecating?", rate:

Everything = 0

Possible earlier abuse or trauma, rate:

Everything = 0

Negative thinking, rate:

Depression = 1	Social Phobia = -1	General Anxiety = -1	Panic Disorder = -1	Adjustment D/O = -1

Questions that are not clearly related; e.g. "what negative events bother you the most?" or "do you know anyone who has killed themselves?" Most of these questions are probably related to a diagnosis, but are not specifically asking about symptoms or consequences.

In any event:
Everything = 0
Suicide or suicidal ideation, rate:
Everything = 0
unless the question or reasons identify a specific diagnosis, e.g. "Q: Have you ever thought about killing yourself? R: suicidal ideation common in depression", then rate the question consistent with the disorder whose symptoms are inquired about (e.g., depression = 1, all others = -1 in the example)
Any rule-out diagnosis, rate:
Everything = 0
except, of course, the diagnosis being ruled out, e.g., "Q: Have you ever thought about killing yourself? R: rule out depression", then rate the question consistent with the disorder being ruled out (e.g., depression = 1, all others = -1 in the example)

MISSION 2: LISTEN TO AND RATE AUDIOTAPES OF THE SESSIONS

During this portion of your duties, you will be listening to tapes made of the sessions. The sessions will generally proceed according to a rather set schedule. First, the client and therapist will be introduced. The therapist will then ask a number of questions of the client, or will listen to the client relay her problems. After 5 minutes of this, a beeper will sound. This will be followed by a long pause (the therapist will be filling out the second Diagnosis and Information Gathering Questionnaire at this point). When the therapist is finished with this, the session will resume. The second portion will last approximately 10 minutes, during which it will proceed along the same lines as the first 5 minutes. Following this, another beeper will sound, signaling the end of the session.

During all of this, pay attention to **WHAT THE CLIENT IS SAYING.** The therapist's verbiage is of minimal concern – we need only attend to what the client says. More specifically, your job is to rate 1) whether the client stayed "in role" for the entire session (i.e., maintained the facade of a plausible psychotherapy client), 2) portrayed the symptoms associated with Social Phobia; 3) did not allow other symptoms (e.g., delusions, hallucinations, compulsive rituals) to enter into her description of her problems.

FILLING OUT THE RATING FORM:

On the back of the rating form you filled out for each participant, there is a separate rating form for the tapes. It consists of 3 questions.

Question 1: After listening to the session, indicate the degree to which the client stayed in role on the provided scale (1 = not at all, even a little bit, 7 = completely, for the entire session). For any ratings less than 7, indicate what you felt the problem was and when in the session it occurred in the space marked, "specific comments."

Question 2: While listening to the session, indicate the degree to which the client portrayed the 4 major symptoms of social phobia (listed on the rating form) on the provided scales (1 = definitely not, 7 = very much so) For any ratings less than 7, indicate what you felt the problem was and when in the session it occurred in the space marked, "specific comments."

Question 3: After listening to the session, indicate whether or not the client reported symptoms of any other DSM diagnosis that cannot be better accounted for by social phobia. For example, people with social phobia often have panic attacks, but those panic attacks are limited to social/evaluative situations. If the panic attacks come totally out of the blue, that's more indicative of Panic Disorder and should cause you to circle "yes" on this question. If you circle yes for any reason, please describe the non-Social Phobia symptoms and rate the extent to which the client manifested these symptoms on a 7-point scale (1 = definitely not, 7 = very much so)

FINAL DETAILS

CONFIDENTIALITY

It is very important for you to maintain the confidentiality of the participants in this study In order for the participants to ask questions candidly, they must be assured that their questions will remain private in the context of the study Please do not disclose any information about any participant to anyone not directly involved in this study ever, under any circumstances

Similarly, in order for this project to work, you must not discuss any information about the details of the study to anyone not directly involved in it. The participants must remain naive to the particulars of what's going on; if they knew, there would be no point in doing the study this way Please do not disclose any details about this study to anyone not directly involved in this study until after it is complete

M: Questionnaire Rating Form

Subject # _____ Rater ID: _____
Date: _____

Directions: Record all ratings for one subject on this form.

QUESTION 1: _____
CONFIDENCE: _____

QUESTION 2 **FOR DIAGNOSIS IN 1**
Question #1: _____
Question #2: _____
Question #3: _____
Question #4: _____
Question #5: _____

QUESTION 3: _____
CONFIDENCE: _____

QUESTION 4 **FOR DIAGNOSIS IN 1**
Question #1: _____
Question #2: _____
Question #3: _____
Question #4: _____
Question #5: _____

QUESTION 4 **FOR DIAGNOSIS IN 3**
Question #1: _____
Question #2: _____
Question #3: _____
Question #4: _____
Question #5: _____

QUESTION 5: _____
CONFIDENCE: _____

QUESTION 6 **FOR DIAGNOSIS IN 1**
Question #1: _____
Question #2: _____
Question #3: _____
Question #4: _____
Question #5: _____

QUESTION 6 **FOR DIAGNOSIS IN 3**
Question #1: _____
Question #2: _____
Question #3: _____
Question #4: _____
Question #5: _____

QUESTION 6 **FOR DIAGNOSIS IN 5**
Question #1: _____
Question #2: _____
Question #3: _____
Question #4: _____
Question #5: _____

QUESTION 7: Yes No

QUESTION 8: (total responses) _____
(DSM diagnoses) _____

N Informed Consent

Principal Investigator

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The following description contains details about a research study being conducted in the Department of Psychology. Please read carefully before signing.

Purpose of the Study

I would like you to participate in a study that investigates the ways in which people make decisions about clients undergoing psychotherapy. This study will measure your opinions about a client, what information you would be interested in gathering about the client and why. Finally, the study will look at some factors (such as demographic information) that may be related to the ways in which people make such decisions.

Procedures

a. After signing the informed consent, you will be asked to complete a brief initial questionnaire asking about your age, gender, ethnicity, some specific questions about your educational background, and so on. Additionally, you will be asked to complete a form that examines how you think about people in your social environment.

b. Following this, you will be provided with a list of common psychological disorders and asked to study them. When you have finished this, you will be given referral information about a client presenting for therapy. You will then be asked to answer a few questions about the client, particularly assessing your opinion and understanding of that client and what additional information you would like to gather to clarify your opinion. For each question you will be asked to provide reasons why you would consider asking that question.

c. After filling out this questionnaire, you will actually meet with the client for a brief, 15 minute interview. At one point during the interview, you will be asked to fill out the same questionnaire you did before you met with the client. When you have completed this questionnaire, you will continue your interview with the client.

d. When the interview is complete, you will be asked to fill out the questionnaire for the third and final time. When you have finished, the experimenter will return to discuss the experiment in more detail and to answer any questions that you may have.

Risks and Benefits

I perceive no risks for participating in this study. I expect that participation will require about 1 hour of your time.

I anticipate no direct benefits to you from being in this study, but hope that what I learn from your participation will help to improve the understanding of decision making and possibly impact the training of future therapists.

Your participation in this project is completely voluntary.

You do not have to participate in this study if you do not want to. Your decision about whether or not to participate in this project will have no effect on your standing in your program. You can also change your mind and withdraw from the study at any time without penalty.

Confidentiality. All information collected as part of this study will be confidential to the extent allowed by law. The information will be used for purposes of scientific publication and presentation. Your identity will not be revealed in any publication or oral presentation of the results of this research. I will take the following steps to ensure your confidentiality: (1) Participants in this study will be randomly assigned an identification number. That number will be the only identifying information on questionnaires. A master list of names and identification numbers will be maintained separately and will be destroyed at the conclusion of the study. (2) In reporting data from the study, no names will be used and information will be reported as group averages.

Who to contact with questions? Questions about this research project can be directed to Joel Martin or Dr. Whelan. If you have questions regarding research subjects' rights, please contact the Chair of the Committee for the Protection of Human Research Participants (678-2533).

If you agree to participate in this research project, please sign and print your name below. Your signature indicates that you have read the information provided above and that you have decided to participate.

I freely and willingly consent to participate in this research project. All of my questions have been answered, and I am encouraged to ask any questions that I have concerning

this study in the future I also understand that The University of Memphis does not have funds budgeted for compensation for injury, damages, or other expenses

Signature	Date
Printed Name	
Witness	Date

O: Debriefing Statement

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Faculty Supervisor	James P. Whelan, Ph.D. Department of Psychology The University of Memphis Memphis, TN 38152-6400 (901) 678-2147

The study in which you just participated is exploring the ways in which people make decisions about clients in psychotherapy. A significant amount of research in social psychology indicates that people make decisions about others using various cognitive "short cuts". One of these short cuts occurs when people develop hypotheses about another person and then seek additional information that confirms that hypothesis while disregarding information that disconfirms the hypothesis. Some research in the clinical setting suggests that under certain circumstances therapists use the same short cuts in making decisions about their clients.

The experiment in which you participated was looking at three variables in particular. The first variable assessed whether training and experience in psychotherapy had an impact on the hypothesis-testing strategies employed. One half of the participants were Ph.D. candidates in clinical or counseling psychology and have had prior training in clinical issues. The remaining half of the participants were undergraduate students taking psychology classes. These participants have not received training in advanced clinical issues. It was hypothesized that participants with advanced training will use significantly fewer confirmatory decision-making strategies than participants without such training.

The second part of the experiment in which you participated was looking at whether a particular set of instructions had an impact on the hypothesis-testing strategies employed. One half of the participants were asked to consider as many alternative diagnoses as possible when interviewing the client. These participants were encouraged to bear in mind that the diagnostic hypothesis they thought was correct may, in fact, be wrong and to determine what psychological problems the client was definitely <u>not</u> having. The remaining half of participants in this study were not asked to do this. These participants were left to develop and test hypotheses about the client's psychological problems as they normally would. It was hypothesized that participants who received the

former set of instructions would engage in less confirmatory hypothesis-testing than those who received the latter set of instructions.

The third part of the experiment in which you participated examined whether people's hypothesis-testing strategies changed over the course of the therapy session. It was hypothesized that participants would begin with a predominantly confirmatory information-gathering strategy, but switch to less confirmatory strategies as the session progressed.

Your answers to all questions will be kept confidential. The questionnaires will all be recorded according to randomly assigned identification numbers so that your name will not be associated with your information

The client with whom you met was not a real therapy client. Rather, she was an advanced undergraduate student acting as a client for the purposes of this experiment. The information discussed during your interview with this mock client should, nevertheless, be kept confidential. The actor may have disclosed personal information in order to make the interview seem as realistic as possible Therefore, please do not disclose information gathered during the session to anyone.

Until the experiment is completed, it is important that you do not discuss either your participation in the study or the purpose of the study with anyone else. This is being asked of you because the specific conditions of the experiment must be withheld from future subjects in order to ensure the authenticity of the results.

Thank you for participating If you have any questions, please be sure to ask Joel Martin or Dr James P Whelan.

By signing this form I understand that the nature of this experiment is research and that my answers will be kept confidential In addition, any questions that I have concerning this project have been answered to my satisfaction.

_____ _____

Signature Date

_____

Printed Name

_____ _____

Witness Date