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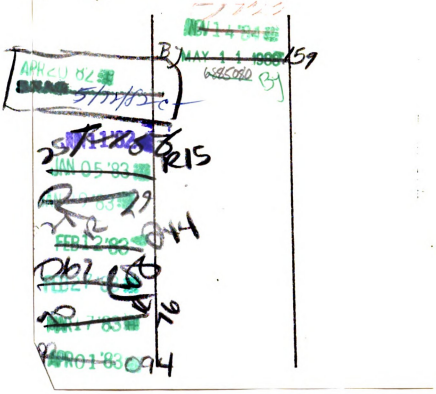

LANGUAGE AS A THERAPEUTIC TOOL: THE EFFECTS ON THE RELATIONSHIP OF LISTENERS RESPONDING TO SPEAKERS BY USING PERCEPTUAL PREDICATES

By

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ABSTRACT

LANGUAGE AS A THERAPEUTIC TOOL: THE EFFECTS ON THE RELATIONSHIP OF LISTENERS RESPONDING TO SPEAKERS BY USING PERCEPTUAL PREDICATES

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The relationship between counselor and client is an important element of successful counseling. The tasks of understanding the client and communicating that understanding are vital components of the therapeutic relationship. It was suggested that the focus of understanding be the process by which clients model their world. In explicating the process of modeling, the concept of representational system was introduced. Due to the limits on the capacity of the nervous system to process information, sensory data are grouped into patterns or representations, such as images. There is a representational system associated with each of the sensory modalities; the focus of this study, however, was limited to the visual, auditory, and kinesthetic systems. For the purpose of aiding in perception and memory functions, labels denoting the modality of the representation are stored along with the information itself. These labels manifest in speech

as perceptual predicates, for which the prototypes are "see," "hear" and "feel" and/or "touch" for the visual, auditory and kinesthetic systems, respectively. In communicating their experience people access at least one representational system, and the perceptual predicates in their speech signify which representational system is in consciousness at the time of speaking.

For ethical and practical reasons an interview situation with trained counselors as interviewers was used for the experimental setting instead of actual counseling sessions. Based upon the series of assumptions above, it was hypothesized that an interviewee would perceive a high degree of empathic understanding in an interviewer when the interviewer responded with perceptual predicates implying the same representational system being employed by the speaker. The purpose of this study was to examine the differential effects on perceived empathy of interviewers responding to speakers with either similar or dissimilar perceptual predicates.

A posttest only control group design with two factors was employed. The Treatment factor consisted of two levels representing the similar predicates and dissimilar predicates response conditions. An Interviewer factor was included as a control variable with three levels corresponding to the three interviewers. The sample consisted of 88 female students who volunteered to be interviewed about dormitory or sorority life. Students were

randomly assigned to the six cells of the design. The dependent measure employed was a revised version of the perceived empathy scale from the Barrett-Lennard Relationship Inventory.

A 2 x 3 fixed effects analysis of variance model was used to test the three hypotheses: one each for the Treatment and Interviewer factors and one for the two-way interaction. All hypotheses were tested at the .05 level of significance.

The hypothesis testing revealed a significant difference between the two treatment response conditions. The difference was in the expected direction with those students in the similar predicates condition rating their interviewers higher on perceived empathy than those students in the dissimilar predicates condition. No significant difference was found among interviewers nor was the interaction significant.

The two treatment response conditions accounted for 8.41% of the variance in the dependent variable. The Treatment and Interviewer factors together explained 9.6% of the total variance in perceived empathy.

Descriptive statistics revealed that the students used about twice as many auditory and kinesthetic predicates as visual predicates.

The type of perceptual predicates used by an interviewer in responding to a student had a significant

impact on the relationship. Language can be an effective tool when used to understand a speaker's representational system and then communicate that understanding through perceptual predicates.

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CHAPTER 1

THE PROBLEM

Almost every approach to counseling and psychotherapy emphasizes the importance of the relationship between counselor and client as a necessary, but probably not sufficient, condition for change. Many counselors, though they may have different theoretical reasons for saying so, consider the relationship to be the essential core of therapy (Snyder & Snyder, 1961). Others view the quality of the relationship as a major ingredient in determining whether change occurs (Goldstein, 1975). Research has supported these positions by showing that relationship variables are highly related to successful outcome (Barrett-Lennard, 1962; Rogers, 1965). Rogers (1965) in fact claims that the most frequent explanation of failure in therapy is that the counselor somehow failed to build a therapeutic relationship. The necessity for providing a proper relationship has been recognized in other areas besides individual psychotherapy: it also applies to play therapy (Dorfman, 1965), group

therapy (Hobbs, 1965), education (Rogers, 1965; Stanford & Roark, 1974; Stiltner, 1974), the ministry (May, 1967) and medicine.

While there are many components of a helping relationship, the particular focus of this study was on two broad but crucial aspects of interactions. The first, understanding the client, is a sine qua non of counseling. Understanding has been discussed in the literature as either accurate or empathic (Carkhuff & Berenson, 1967; Kurtz & Grummon, 1972; Truax, 1966). The second important aspect of the helping relationship is the communication of understanding to the client. Communication is as important as understanding for without such communication the counselor's knowledge is a sterile commodity and the client would do just as well to speak to an empty chair. As Mueller (1973, p. 14) states, "the value of the therapist's knowledge consists of its potential for awakening channels of communication between counselor and client and in deepening understanding." Mueller, in this statement, highlights the interrelated nature of understanding and communication; each contributes to the other. Other writers have also discussed the counseling relationship as understanding and communication (Barrett-Lennard, 1962; Snyder & Snyder, 1961).

Understanding

Rogers (1965, p. 30) states that it is necessary to "understand the client as the client seems to himself" and further that ". . . it is the counselor's function to assume, insofar as he is able, the internal frame of reference of the client . . ." (p. 29). Observing the client's attitudes from without is not enough; the counselor must "get under the skin" of the client (p. 29). Truax and Carkhuff (1967) expand on Roger's position by saying,

> . . . we come to know the person from his own internal frame of reference, gaining some of the flavor of his moment-by-moment experience. We see events and significant people in his life as they appear to him . . . we come to know him from his personal vantage point. . . . (p. 42)

Turning again to Rogers (1965, p. 32), we find that the counselor must "actively assume the client's perceptual field," to attempt an awareness of the whole perceptual field as it is being experienced by the client; to see the world through the client's eyes. As Hobbs (1965, p. 289) states in reference to the role of the group leader, "Essentially, what the therapist attempts to do is to reconstruct the perceptual field of the individual at the moment of expression. . . ." To accomplish this task the counselor must continually ask himself how the client views whatever is being discussed.

Similarly, in discussing attitude modification methods of counseling, Johnson and Matross (1975, p. 60)

define the expression of accurate understanding as the "taking of the perspective or frame of reference of another person and restating the content, feelings and meaning expressed in the other's messages." They further state that "perspective taking is the ability to understand how a situation appears to another person and how the person is reacting cognitively and affectively to the situation" (p. 60).

What is the nature of the internal frame of reference or perceptual field that must be assumed by the listener in order for understanding to occur? A clue can be found in the labels others have used for the same notion, labels such as representation (Grinder & Bandler, 1976), map (Korzybski, 1958), image (Miller, Galanter, & Pribram, 1960), world image (Watzlawick, 1978) and schemata (Neisser, 1976). Essentially, the concept refers to the process by which a person makes sense of the world and his experience in the world or the conception of reality that results from processing internal and external stimuli. The way in which a person perceives the world, the meaning or interpretation put on events and how one behaves toward these events are all a function of one's model of the world. It follows directly that the problems which a client brings to counseling and how the client perceives and behaves in therapy are also determined by the client's image of the world.

A client's internal frame of reference or world image provides the counselor with an important "avenue to understanding" (Mueller, 1973) and thus with a means of building a counseling relationship. But the question remains of how to gain access to the client's model of the world.

The Role of Language

The counselor's knowledge of the client's internal frame of reference depends primarily upon communication (Rogers, 1965). In any interaction there is a constant flow of messages back and forth. Watzlawick, Beavin and Jackson (1967) take the position that, in fact, one cannot not communicate. In the context of counseling words, gestures, voice tone and silence may all be considered as messages about how a client perceives the world.

To examine all ways in which people can communicate their individual perspective was, however, beyond the scope of this study. Consequently, the focus of this study was verbal communication. Verbal communication was a logical choice because virtually all counseling and psychotherapy uses language as the medium of exchange.

By attending to the client's language the counselor can identify or infer the client's world image (Putzel, 1976; Watzlawick, 1978). As clients talk they reveal both directly and indirectly the way they perceive themselves and their world. George Miller (1969, p. 167)

offers a quote from Ben Johnson which expresses this idea more poetically: "Language most showeth a man; speak that I may see thee."

Some aspects of the client's model of their universe are expressed directly as they describe the events and people in their world and their reaction to them. Here it is the content of language that is important. At other times the therapist must be attuned to underlying emotional themes that are implied or indirectly expressed by the client through the use of idiomatic* or metaphoric language (Mueller, 1973). In a similar vein the idea of listening for and understanding the symbolic meaning of a client's speech is central to the psychoanalytic method (Thass-Thienemann, 1968). Also referring to the psychoanalytic method Schafer (1976, p. 151) states that "understanding cannot be divorced from words." Bandler and Grinder (1975a) present another system for identifying a client's model of the world which involves attending to the structure of the client's language instead of the content.

Besides providing a means for the counselor to understand a client's world image, language is also the primary mode by which the therapist accomplishes the other component of building a therapeutic relationship, namely, communicating the understanding. Although there

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*See definition of terms which follow.

are a variety of ways a counselor can communicate understanding to a client, the focus in this study was on the method of using language which is similar to that used by the client. A number of authors have pointed out the efficacy of this method. In listing guidelines for helpers, Carkhuff (1969, p. 133) states that "the helper will find that he is most effective in communicating empathic understanding when he formulates his responses in language that are most attuned to the client." Goldstein (1975) emphasizes that when the helper and the client are matched in their personal characteristics the relationship will be enhanced and that one of the important characteristics is that the counselor and the client are similar in their use of language. Rollo May (1967, p. 129) in discussing methods of establishing rapport asserts that it is important for the counselor to have the "ability to use the other person's language. Language is the ordinary channel of empathy . . . when some degree of personal identification has been established people will automatically employ a common mode of speech." May provides examples of the potential harm to the relationship when the counselor engages in intellectualizing about the psychological processes of the client and when the counselor refuses to speak idiomatic or slang words which may have much meaning for clients. Deutch and Murphy (1955) present an interview technique which involves the counselor identifying and using the client's

somatic language. The purpose of the technique is to increase the client's identification with the counselor and facilitate the transference. They believe that using the same words as the client makes the client feel understood.

Introduction to Theory and Definitions

Recent clinical and theoretical work has suggested that understanding the process of constructing the world image is as important, or more important, than understanding the content (Elson, 1975; Grinder & Bandler, 1976; Horowitz, 1978). By attending to the process the counselor will be focusing on a basic and fundamental psychological function by recognizing the way in which individuals model and, in a sense, create their world. Such activity on the part of the counselor constitutes a deeper level of understanding than does the understanding of content alone. Based upon this premise, the discussion to follow directly parallels the one above in that language will again be shown to be the key to understanding and the tool for communicating. The difference is that the focus is on how individuals represent their world rather than on what is represented. Although the theories which underly this approach are discussed in depth in Chapter 2, a summary follows in order to define terms and establish lines of inquiry.

Representational Systems

Humans create their maps or models of the world from the information that comes to them through the five senses: seeing, hearing, feeling, tasting and smelling. Associated with each of the sensory input channels is a representational system by which individuals organize, store and access their experiences. In other words, the representational system is the name for the higher level, or in-depth, processing which takes place as individuals make meaning of their sensory experience (Craik, 1973). Thus, one can speak of visual, auditory, kinesthetic, gustatory and olfactory representational systems, corresponding to the type of sensory data which is being processed (Bandler, Grinder, & Satir, 1976; Gordon, 1978; Grinder & Bandler, 1976; Grinder, DeLozier, & Bandler, 1977). Because taste and smell are so rarely used to consciously organize experience in western cultures, the focus of this study was only the visual, auditory and kinesthetic systems.

The terms "visual," "auditory" and "kinesthetic" systems were employed in this study as elaborated by Grinder and Bandler (1976). The visual representational system refers simply to the processing of visual information through the formation of images. The often used metaphor for a visual representation is that of an internal picture which can be "seen" and further

processed by the person (Anderson, 1978). The auditory representational system refers to the processing of information that derives from the sense of hearing. The auditory system includes both words and sounds as representations which are sometimes labeled auditory digital and auditory tonal, respectively. The kinesthetic representational system refers to the processing of both tactile and proprioceptive information. Feelings, in the sense of affects or emotions, are also included as kinesthetic representations.

Phenomenologically, the higher level processing of the representational systems can be experienced as perceiving, thinking, feeling, remembering and recalling, as well as other types of cognitive activity. Each of these forms of cognition is either lexical or has a sensory quality as one of its characteristics. Thinking, for example, may be done in words or images where image refers to any representation that has a sensory quality, not just to visual images. As Horowitz (1978) states, when people discuss their thoughts they almost always are revealing the content and not the mode of representation, although they can report the mode if asked. Investigators into the nature of consciousness do just that; they ask their subjects to report the mode of their thought. They conclude from such studies that the events of consciousness embrace images in every sensory modality (Klinger, 1978). They have found that the stream of consciousness

can consist of mental activity such as internal dialogue, melodies and pictures (Singer, 1978).

Consider the following concrete examples to illustrate the nature of representational systems. A client is describing a painful situation to a counselor wherein a friend had expressed anger toward the client. If the client has represented the experience visually, he will have stored and be able to describe in great detail and clarity the image of, say, his friend's face as it was contorted and flushed with anger. An auditory representation of the experience may result in a description of the friend screaming and yelling. The emphasis may be on the words spoken or on the tone of voice used by his friend. If the representation was kinesthetic, the client may focus primarily on the tension in his own neck and shoulders, how his breathing felt constricted or his guilty feelings from having made his friend angry.

Another example is the experience of listening to music. One person, as she listens, may be able to "feel the music" in her body as patterns of rising and falling tensions in different areas. Another may represent the music visually by forming images as she listens. Later, neither may be able to recall the melody or theme with much accuracy but will likely remember the feeling or image with intensity and clarity. A third person, perhaps a musician, who has represented the piece using her

auditory tonal system may be able to describe and recall the pattern of rising and falling tones, the interplay of themes and the changes in pitch and intensity.

Two further assumptions need to be mentioned to complete the concept of representational system:

1. First, in any situation information is being received by all the senses and theoretically, therefore, any experience can be represented in any or all of the systems. The limits on the capacity of the human nervous system, however, usually means that only one system at a time comes into consciousness, or becomes primary.

2. A second, and related assumption, is that the representation need not match the input channel. For example, one can hear a dog barking in the distance and then form a visual image of the dog without ever having seen it. The input channel in this case is auditory but the representational system is visual. Similarly, one can make transformations between different representational systems.

To relate the above discussion to the notion of the "world image" or "internal frame of reference," it can be said that an individual's world image consists of their various representations of their experiences. Different parts of these models of the world are stored or organized in different modalities corresponding to the sensory modalities. Furthermore, it is suggested

that it is important for the purposes of achieving a high level of understanding such as that demanded of a counselor with a client that the counselor be able to identify the modality as well as the content of the representation. How to identify the modality or representational system in use by the client is the subject of the following section.

Perceptual Predicates

Rudestam (1978) states that language plays a crucial role in constructing an internalized, symbolic representation of a person's world. But language is also used expressively and as Grinder and Bandler (1976) assert, language, or the auditory digital representational system, can be used to present and discuss the experiences which have been modeled in any of the other representational systems. One can create language maps from other maps of the world. In creating language maps one chooses words, usually unconsciously, which correspond to the underlying visual, auditory or kinesthetic representational system. The set of words which are of interest, therefore, are the nouns, verbs, adverbs and adjectives which imply the use of a particular representational system. These words are labeled perceptual predicates.

Examples of perceptual predicates are presented in Table 1.1 organized by the representational system

which they signify. These words can be used by any listener to identify which representational system has been, or is being, used by the speaker to model or create a map of the particular experience being discussed. For instance, consider a friend telling of his experience of standing before a fire. He may say, "I watched the orange, red and yellow colors flickering around the logs and saw the billowing, curling smoke." The perceptual predicates in this sentence would indicate that he was using the visual system to represent that experience to himself as he describes it. If the same person were representing his experience auditorily, he might describe the sound of the crackling flames and the pops and hisses of wet wood. A representation in the kinesthetic system might be conveyed through the use of perceptual predicates such as "heat," "feeling warm" or "burning sensation." As another example, return to the client who has been telling his counselor about the angry friend. The client may say, "I could see the hate in his face (visual); he was yelling and screaming at me (auditory); my stomach was in knots (kinesthetic)."

The two preceding examples were of fairly concrete descriptions of identifiable perceptual experiences. People must be able, however, to represent more abstract experiences to themselves such as the experiences of understanding, knowing and communicating. For instance, students sometimes have the experience of understanding

what a professor is lecturing about. Such an experience could be represented in any of the three modalities and be communicated as follows: "I see what he's getting at (visual); that sounds right to me (auditory); I'm finally getting a grasp on this material (kinesthetic)." The same student in a less lucid moment, perhaps at a lecture the morning after an all-night party, might say, "I don't see the point(visual); that doesn't ring true to me (auditory); I can't get in touch with that (kinesthetic)." In a similar vein, counselors listening to clients who are struggling to identify their problem may have heard something like, "I don't seem to have any perspective on my problem (visual); I can't really get a handle on what's bothering me (kinesthetic)."

Table 1.1

Examples of Perceptual Predicates

Visual	Auditory	Kinesthetic
see	hear	touch
look	listen	grasp
watch	sound	feel
notice	sounds like	hard/soft
view	ring	cold/hot
perspective	buzz	handle
scene	scream	wrestle
picture	call	hold
stare	quiet/loud	grab
colors		

The presentation of the above examples may have implied that a speaker would use only one representational system and, therefore, only one set of perceptual predicates to model and communicate experiences. This is not necessarily the case. As discussed in the preceding section, a person can model a particular experience using any or all of the modes of representation. The more modes used the richer that person's experience will be and the richer their language will be. Clinical work has also suggested, however, that there are some clients who have used only one mode to represent much of their experience (Grinder & Bandler, 1976). This would in fact be one definition of their problem. But whether a person's world image is relatively impoverished or rich, the perceptual predicates in their speech will reflect which representational system is being used at any particular moment. As the mode changes, no matter how often or how little, the perceptual predicates will change correspondingly. Therefore, just as language was shown to provide access to the contents of the world image, it also is a key to the process by which that image is constructed.

Besides providing a means for better understanding the client, the perceptual predicates can also be used as the tool for communicating that understanding. As outlined previously, a number of counselors have suggested that speaking the client's language is an effective means of communicating empathic understanding.

Perceptual predicates provide the therapist with one more specific tool to do just that. For example suppose a client, in describing his or her problem to a counselor, uses predicates which signify a visual representational system. To give the client the experience of being understood, the counselor would respond using perceptual predicates which also indicate a visual representational system. The counselor might say, for instance, "I see what you mean"; or "Let's take a closer look at that." Grinder and Bandler (1976) claim that such replies will have a more positive impact on the therapeutic relationship than if the counselor were to respond with predicates which imply a different representational system. Examples of shifting representational systems would be, "I can get a feel for what that must be like (kinesthetic), or "I hear what you are saying" (auditory). Bandler and Grinder in fact suggest that much of the misunderstanding in therapy is a result of the participants using different representational systems; the use of different representational systems would manifest itself in the use of different types of perceptual predicates. Bandler and Grinder's assertion needs empirical validation.

Definition of Terms

The following are the definitions of special terms used in this study.

Coding.--The rule governed perceptual activity by which sensory stimuli are grouped or patterned into representations. A synonym for chunking.

Idiomatic (or metaphoric) language.--Words or phrases which symbolically express a belief, attitude or psychological state of the speaker, usually characteristic of a particular culture or subculture. Examples are, "I hit the ceiling" as a symbolic expression of anger, or "Going to college stinks" as an expression of displeasure with college life.

Internal frame of reference.--An individual's understanding, both conscious and unconscious, of what constitutes internal and external reality. The internal frame of reference consists of the whole of the person's representations of their experience. Words used synonymously in this study are map, model, world image and schemata.

Perceptual predicates.--Nouns, verbs, adverbs and adjectives which refer to, or imply, a particular sensory modality or representational system; any word which has a sensory quality. The prototypes of all the perceptual predicates are those words which directly describe sensory activity: see, hear, feel, touch, taste and smell. Refer to Table 1.1 for further examples.

Representation.--Any intermediate or end product of perceptual processing. The result of grouping, chunking or forming patterns from sensory stimuli. Examples of representations are visual images, affects and melodies.

Representational systems.--The extension of a sensory modality which processes information, or forms representations, using stimuli from that modality. For the purposes of this study only the visual, auditory and kinesthetic representational systems were considered.

(a) Visual representational system.--The system which processes visual stimuli by the formation of images.

(b) Auditory representational system.--The system which processes information derived from the sense of hearing. The auditory system forms words or tonal patterns.

(c) Kinesthetic representational system.--The system which processes tactile and proprioceptive information. Feelings are also considered products of the kinesthetic system.

Somatic language.--Words or phrases which refer to the body or to bodily processes. An example is, "He's a pain in the neck." In this study, somatic language, which is a subset of metaphoric language, would fall into the category of kinesthetic perceptual predicates.

Purpose

The purpose of this investigation was to test the validity of Bandler and Grinder's premise that using similar or dissimilar perceptual predicates in responding to speakers yields different degrees of satisfaction with the interaction. It was hypothesized that the use of similar perceptual predicates would be more effective in giving an interviewee a feeling of being understood than would the use of dissimilar predicates. The purpose was to determine if counselors can elicit more or less feelings of being understood by following Bandler and Grinder's paradigm.

Limitations

Bandler and Grinder's paradigm has never been empirically validated. It was, therefore, decided for both ethical and practical reasons to use the easily controlled interview situation rather than actual counseling sessions as the context for the test of the paradigm. While the interviewers in this study were trained counselors, the interaction between them and the interviewees was a nontherapeutic interaction. The relationship between interviewer and interviewee could therefore only approximate a counselor-client relationship. The purpose of this study was to first establish the validity of the paradigm in the limited interview setting.

Positive results would then justify conducting future studies with actual counseling sessions.

Research Hypotheses

The specific research hypotheses which derive from the above stated purpose were as follows:

Hypothesis I:

> Those individuals who are responded to in a mode similar to their mode of presentation will score higher on a measure of how well they believe the interviewer understood them than those individuals who are responded to in a dissimilar mode.

Hypothesis II:

> There are naturally occurring differences among the interviewers on how well they are able to leave the individuals they interviewed with a feeling of being understood.

The first hypothesis is the primary one for the study. The second hypothesis derives from the design; both are discussed in more detail in Chapter 3.

Need

All the writing on the use of perceptual predicates to improve or establish the therapeutic relationship was based upon clinical observation (Bandler, Grinder, & Satir, 1976; Gordon, 1978; Grinder & Bandler, 1976; Grinder, DeLozier, & Bandler, 1977; Watzlawick, 1978). Furthermore, the method was being presented in counselor training workshops on a wide scale. It remains to be

seen whether these clinical observations can be validated through empirical experimental research. No such attempt has yet appeared in the research literature. The use of perceptual predicates offers an explicit tool for counselors in understanding and in communicating their understanding to their clients. And it is a tool which is readily available since it is based upon the actual speech of the client.

The investigation reported here was also important with respect to two broader issues. First, the results could provide information relevant to the assertion that it is important for the counselor to understand the mode of representation of the world image as well as the content. Positive results could help to affirm this claim, although other explanations would of course be possible from other theoretical perspectives. Negative results could mean either that the claim could not be empirically supported or that the use of perceptual predicates as a particular means of implementing the notion was not an effective one. The results then could signal the direction of future research.

The second broader issue refers to the availability of language as a counseling tool rather than a diagnostic aid or a medium for abreaction. As Erickson, Rossi and Rossi (1976) emphasize, "We are just now beginning to appreciate the complexity and vastly unrealized potential for using language to effect therapeutic

goals" (p. 150). Given that one counseling goal is to establish a helping relationship, the use of perceptual predicates offers some hope of further tapping the resource of language to this end.

Overview of Dissertation

The two theoretical assumptions on which this study was based were (1) people model their world in the representational systems and (2) perceptual predicates in a person's speech reveal which representational system is being used at the time of speaking. Support for these assumptions is provided in the theory section of Chapter 2. Also in Chapter 2, research literature which addresses topics relevant to this study will be reviewed. In Chapter 3 the design and method of analysis and the experimental procedures used to investigate the problem are presented. The results of the hypothesis testing appear in Chapter 4, along with some supplementary analyses. These results and their implications are discussed in Chapter 5.

CHAPTER 2

REVIEW OF THEORY AND RESEARCH

The purposes of this chapter are twofold. First, the theory introduced in Chapter 1 will be discussed in more depth with the goal of providing additional support for the theoretical assumptions underlying the study. Specifically, the concept of representational systems will be expanded upon, primarily from the perspective of information processing theory. Some models will then be presented to establish the link between language and the representational systems.

The second purpose of this chapter is to review research literature related to the hypothesis under investigation in this study. The review will include identifying the context for this study based on psycholinguistic research in general as well as an examination of specific studies which make mention of those parts of language which in this study are labeled perceptual predicates. Some research on interviews will also be presented to delineate possible confounding variables.

Theory

Representational Systems

As discussed in the first chapter, the senses act as input channels which supply human beings with information about the world. Through these channels come the signals which are the raw materials for perception and the other cognitive functions. But perception is not a passive witnessing and registering of incoming signals. Perception is an active processing of the information available from the senses. As Paivio (1971) indicates, one of the assumptions of all cognitive approaches to psychology is that incoming information is elaborated and transformed within the person. The results of this elaboration are referred to in this study as representations. Representations are the links, or mediators, between external stimuli and behavior (Korzybski, 1958; Miller, Galanter, & Pribram, 1960; Neisser, 1976; Paivio, 1971).

"Chunking" is a term used by George Miller (1956) to describe this process of forming representations. He states that chunking is a matter of organizing or grouping the input into familiar and useful units. This grouping is an adaptive mechanism resulting from limits on the capacity of the human nervous system to process information. One chunk can represent a tremendous amount of information which, if it had to be considered in all its parts, would overload the nervous system. For example, a word or image of an object represents in combined form the sensory

information which comprises that object. Starker (1978) expresses a similar view in saying that mental representations are condensed forms of the stimuli which come from the senses. Thus, as Miller (1956) declares, chunking "is an extremely powerful weapon for increasing the amount of information that we can deal with . . ." (p. 95).

Coding is another term often used to describe the process of forming representations. A code is a set of rules for transforming information from the senses into representations. Each sensory modality can be said to have its own set of rules and can be considered as a complete (but not necessarily separate) information processing system. The notion of each sensory modality as a complete information processing system is the perspective taken by Craik (1973) in his "levels of analysis" model of memory (he considers memory a by-product of an essentially perceptual system). Craik presents recent research which suggests that within each perceptual modality there is a hierarchy of levels or stages running from features analysis to more complex analysis of semantic features. Each level of the hierarchy builds upon analysis of information at lower levels. For example, in the lower levels of the visual system there is processing of distinct features such as horizontal or vertical lines. This information may be combined at a higher level to yield a visual image (or representation) of an object and at still higher levels a verbal label.

There is also some support in neurological theory for the notion of representational systems. Myers (1967) contends that there are separate functional regions of the cortex for the several functional sensory systems. These functional regions include those supporting vision, audition, touch and the emotions. Bach-Y-Rita (1972) carries the argument further by stating that the cortex has primary areas for vision, audition and kinesthesis where there is a point-to-point mapping from the sensory surface to the cortical surface. Mapping from the senses to the cortex may be the neurological process by which representations are formed in each system.

Types of representations. While many writers have discussed the notion of representation, they differ in the modes of representation they recognize and in the categorizing and labeling of the different modes. There seems to be one group who recognize only words and images as modes of representation. This group would include Miller (1956), Paivio (1971), and Elson (1975). Although for Paivio image refers, at least hypothetically, to a representation in any sensory mode, his discussion is almost exclusively based on visual images. Lenneberg (1973) believes that other codes besides language and visual images are also available. He asserts that objects and relationships between objects can be mapped into words, images, sound patterns and tactual patterns. Carroll (1969) makes the

same point when he states that information does not have to be coded linguistically but may be coded by some other mode of learned response, for example, musical or kinesthetic responses. Investigators into the nature of consciousness (Pope & Singer, 1978) also generally recognize representations as occurring in all sensory modalities. For these writers language is usually subsumed under the auditory mode and discussed as internal dialogue.

Both Bruner (1964) and Horowitz (1978) define three broad categories of representations. Bruner labels his groups enactive (motor), ikonic (imagery) and symbolic (verbal). He believes that cognitive development follows a sequence from enactive to ikonic to symbolic. Horowitz uses a similar categorization but with slightly different labels. He defines the modes of representation as follows: the enactive mode, which includes facial expressions, gestures, posture and movement; the image mode, which has five sub-classes corresponding to the sensory modes; and the lexical mode, which is language. The categorization used in this study follows that of Grinder and Bandler (1976) in defining five types of representations corresponding to the sensory modes (as stated previously only three were used in this paper). In Bandler and Grinder's typology language is considered a subset of the auditory system. Bruner and Horowitz's enactive mode is a subset of the kinesthetic system.

Perceptual Predicates

Human beings have the capacity to represent their experience in language and in visual, auditory and kinesthetic modes at varying levels of abstraction. Furthermore, language can also act as a meta-system enabling people to present experiences which have been coded into the other three representational systems (Franks, 1974; Grinder & Bandler, 1976). Language can thus be a map of the individual's other maps of the world. An important assumption of this approach to language is that the words people unconsciously choose to create language maps reflect the underlying visual, auditory or kinesthetic representational systems.

That modes of representation can be realized in speech has been addressed by a number of writers. Paivio (1971) asserts that a common assumption underlying much of the imagery research is that imaginal processes are reflected in the semantic content of language. He further states that differences in imaginal and verbal symbolic habits may be associated with differences in habitual vocabularies. In imagery research the perceptual predicates, as they have been labeled in this study, are in fact taken as "evidence" or signs of the type of imaginal process being used by the subject (Horowitz, 1978; Pope & Singer, 1978). The most extended discussion of the relationship between representational systems and

perceptual predicates, from a clinical perspective, is found in the books by Bandler and Grinder and their associates. Watzlawick (1978) summarizes their work by saying that the semantics of an individual reveals the sensory modalities by which they perceive their world.

Miller and Johnson-Laird (1976) present a model in which they attempt to explicate the link between language and the perceptual modes. This model is built on the basic premise that any explanation of the relationship between perception and language must account for the processes of perception as well as the objects, events and relationships which make up the content. For example, a full analysis of the sentence, "I see the moon" must include, besides an account of the subject and object, an account of the verb "see."

It is useful in making an analysis of the linkage between language and perceptual modes to draw an analogy between the human mind and the computer. Comparable to the program in a computer the perceptual system can be thought of as having control instructions which code and store information. One of the arguments of the store command is the "location" where information is to be retained for further use. Location can be conceived as an identifier of the representational system which was used to process the information. Turvey (1974) makes exactly the same point when he says that the location of a word in semantic space (i.e., long-term memory) is specified

by the sensory properties of that word, a notion which is consistent with the Craik model discussed earlier which postulates that memory is a by-product of the processing of information in the perceptual systems. The more processing which takes place the more likely it is that the information will be stored in long-term memory, and one meaning of "more processing" would be the formation of representations.

In the Miller and Johnson-Laird model there is also a conceptual system whose function it is to aid in accomplishing tasks such as recall, speech and the understanding of sentences. One of the central instructions of the conceptual system is "search" and one of the arguments of the search command is the domain to be searched. For example, if a client is discussing his relationship with his roommate the conceptual system sets up a search for information from memory about the roommate. The information may be stored in the form of an image (visual), a voice pattern (auditory) or as a bodily sensation (kinesthetic). The conceptual system searches in the visual, auditory or kinesthetic domains in order to produce the necessary information which the client can then talk about.

Another theorist, Kolers (1973), writes that "We cannot any longer believe that all information that we have acquired is stored in a common 'dictionary' in our

heads; rather, we believe that the means by which information was encoded can affect our subsequent access and retrieval" (p. 42). By encoding Kolers means the modality in which the information was processed and the rules for interpretation and storage which are associated with that modality. Anderson (1978) expresses similar arguments in his discussion of representations. He suggests that retrieval schemes may require verbal labels in order to provide access routes to stored information.

It was the premise of this research that the perceptual predicates are the labels or tags which become associated with the stored information according to the kind of processing that was done on the information. Words such as "see," "hear" and "touch" are the manifestations in speech of the arguments of the store and search control instructions which signify the domain where the information is placed and can subsequently be found. Each representational system processes information in different ways and thus each has a different set of predicates associated with it.

Support can also be found in the neurological literature for the association between language and specific representational systems. Magoun (1967) discusses a model of the orienting reflex which postulates a cortical cell assembly which preserves information about the modality, intensity, duration and order of presentation

of earlier stimuli. This idea parallels the psychological theories presented above which argue that information about the modality is stored along with the information itself. Myers (1967) provides additional support when he hypothesizes that "each of the several functional sectors of the cortex may make its own contribution to speech and language functions . . ." (p. 68).

Having outlined the theory supporting the notion of representational systems and linking these systems with their perceptual predicates, the line of reasoning needs to be carried one step further. In order to discuss their experience people must access at least one representational system. Grinder, DeLozier and Bandler (1977) maintain that the perceptual predicates used by people in their speech signify which representational system is in consciousness at the time of speaking. Anything that an individual experiences is processed to some degree by all the sensory systems. The information is thus coded into all the representational systems. But due to the limits on the amount of information which can be processed, only one of these representational systems may enter consciousness at a given point in time (Miller, 1956). The perceptual predicates used by the person in speaking about their experience thus reveals which of the representational systems has come into consciousness.

Related Research

The purpose of this section is to review the research literature relevant to the hypothesis that in responding verbally to a speaker, using perceptual predicates of a similar type will result in a more positive relationship than will using dissimilar predicates. Unfortunately there do not appear to be any research studies which address the question directly. That this is so is not surprising since Bandler and Grinder's first presentation of the hypothesis did not appear until 1976. The time required to do research and the current lag in publication would mean that any such studies may not be in print. Consequently, this section will consist of three parts. First, a broad review of some psycholinguistic research will be presented with the goal of providing a context for the present study. Second, and more specifically, a number of investigations which directly or indirectly incorporated those parts of speech called perceptual predicates will be examined. And third, research on interview behavior will be examined with respect to how it may impact the design of the study.

Psycholinguistic Research

In discussing the goals of psycholinguistics, DiMascio (1961) states that

> One aim of psycholinguistics is to study verbal interaction with the aim of delineating it into objective and logical units or dimensions descriptive of its form, structure, and/or content that

> have emotional meaning and import for, or are related to the psychological status of the individuals involved. (p. 139)

This statement provides a twin focus for a review. On the one hand the kind of units or dimensions that have been delineated can be examined and on the other the types of "psychological status" which have been of interest to researchers may be reviewed.

Gottshalk (1961) summarizes psycholinguistic approaches by indicating that some researchers are working in the areas of meaning, themes, and verbal content. Others are doing work with structural variables such as grammatical, morphemic and phonemic units. Some are focusing on vocal changes such as pitch, timbre, intensity and cadence. Others are examining gestures and movement patterns. Gottshalk's own approach was to invite a number of psycholinguistic researchers to analyze the same set of transcribed psychotherapy interviews from different perspectives. The result was an examination of variables such as type of therapeutic activity, type-token ratios, rate of verbal output, tense analysis, silence quotients and content or thematic categories.

Two of the most widely used variables in psycholinguistic research have been the Type-Token Ratio and the Verb-Adjective Ratio (Miller, 1969). The Type-Token Ratio is the ratio of the number of different words (types) in a passage to the total number of words in

the passage. This variable has been used in so many different contexts and related to so many different psychological variables that its usefulness is now questionable.

The Verb-Adjective Ratio is the direct ratio of the number of verbs to adjectives in the person's speech. The ratio has been related to emotional stability but with mixed results. Furthermore, the Verb-Adjective Ratio has been found to be very task specific.

Other investigators have used a shotgun approach to the study of language (Balken & Masserman, 1940; Putzel, 1976; Sanford, 1942). Putzel, for example, counted the frequency of occurrence of 126 variables which were elements of such categories as expressions of feeling, logical connectives (if, but), intensifiers (more, better) among others. There did not appear to be any theoretical or clinical reasons for choosing these particular categories. He attempted to relate the occurrence of the categories to Jung's personality typology.

Trager (1966), in a review of research on language and psychotherapy, concludes that one of the most common types of analysis of language is content or thematic analysis. Researchers have attempted to use words and phrases alone, or in conjunction with other variables such as voice tone, facial expressions, and nonverbal behavior, to identify themes such as motivation, affects and interpersonal strivings. This kind of analysis forms the foundation for the use of many projective tests.

After surveying 110 studies of the relationship between linguistic and personality variables, Mahl and Schulze (1969) conclude that most studies relate linguistic phenomena to diagnostic status or emotional states. Considering diagnostic status, Vetter (1969) has made an extensive review of the literature on linguistic and paralinguistic phenomena which occur as concomitants to conventional psychiatric syndromes. He states that "linguistic phenomena are of concern to the psychopathologist primarily as symptoms of an underlying pathological condition" (p. 20). Overall he finds that most of this research is of poor quality; there are many descriptive studies and little quantitative work.

The research by Putzel mentioned above was a quantitative study. Putzel attempted to demonstrate an association between language style and Jungian types. He considers the Jungian types manifestations of different world views or Weltanschauung. Although he found significant correlations between the typology, as measured by Myers-Briggs Type Indicator, and his grammatical categories, it is impossible from Putzel's work to ascertain, given the large number of hypotheses tested, which of the correlations were significant by chance alone and which reflect real associations. Putzel's study needs replication.

Studies incorporating perceptual predicates. Balken and Masserman (1940) made a comparison of verbal behavior among the three psychiatric categories: (1) conversion hysteria, (2) obsessive-compulsive and (3) anxiety state. Verbatim recordings were made of stories given in response to 20 cards from the Thematic Apperception Test by 15 patients, 5 in each of the 3 diagnostic categories. One of the categories of verbal behavior was called "reference to narrator" which included such phrases as "It seems to me," "I see" and "I would say." Balken and Masserman comment, somewhat obtusely, that these phrases are examples of "re-introjection of the subjects imagery" (p. 78). Significant differences were found on the "references to narrator" between the conversion hysterics and the obsessive-compulsives with the latter using the phrases more frequently.

Sanford (1942) conducted a comparative case study of two male college students whom he named Chatwell and Merritt. Recordings were made of the two subjects in response to specified stimuli and analyzed on the basis of some 50 categories of language. The analysis consisted of counting the occurrence of the language variables in the speech samples. No hypothesis testing was performed. One of the categories examined was labeled "psychological verbs" which consisted of sensory verbs (e.g., seeing, hearing), cognitive verbs (e.g., thinking, deciding) and affective verbs (e.g., loving, hating). Sanford combined

this category and the others into various dimensions of personal style which he used to characterize the two speakers. One such dimension was the static versus active quality of the responses with a low occurrence of all psychological verbs being indicative of the active dimension and high frequency with the static dimension. Sanford concluded that the active and static dimension was one way of characterizing personality differences.

A similar type of comparative study was conducted by Brown (1970) using two subjects more accessible to the general reader than Chatwell and Merritt. Brown examined the writings of Emerson and Thoreau for differences in "conceptual style." One index of conceptual style was the ratio of sensory - and - motor verbs to the total words in a passage. This ratio was proposed as a measure of concrete, analytic thought (high ratio) versus abstract, synthetic thought (low ratio). Sensory verbs were defined as those that make reference to sensation in a particular modality such as "see," "hear," "smell" and "feel." Motor verbs refer to some definite picturable activity such as walking, running and bouncing. Both sensory and motor verbs were considered perceptual predicates in the present study. Brown found great differences in style between the two writers with Thoreau being the more concrete and analytic.

Horowitz (1978) reports a study using the perceptual predicates which is indicative of much of the imagery research. He was interested in references to imagery, by subjects who viewed either a neutral or a traumatic film. Based on subjects reports after watching the films a content analysis was performed which counted as references to imagery such phrases as "I saw . . ." or "In my mind's eye. . . ." Not counted were phrases such as "I see what you mean . . ." which Horowitz considered nonvisual uses of the verb "see." More references to imagery were found after the traumatic film than after the neutral one. The relevant issue in relation to the present study, however, was not the results but the definition of references to imagery. As discussed in Chapter 1 the definition of perceptual predicates includes the abstract ("I see what you mean") as well as the concrete ("I saw his face"). This definition follows that of Grinder and Bandler (1976) since their hypothesis regarding the use of the predicates to impact the relationship is based upon the use of both concrete and abstract words (also, see Gordon, 1978).

Interview Variables

A number of other studies were also reviewed with the purpose of delineating potential confounding variables deriving from the interview situation. These studies address two classes of variables, client/counselor

characteristics and counselor interview behavior, which impact the client's feelings of being understood. Variables representative of each of these classes are discussed in the following. The manner in which such variables are accounted for in the research design is presented in Chapter 3.

Rice (1965) was interested in the effect of the therapist's style of participation on the outcome of therapy. Style was defined by three variables: (1) voice quality, (2) functional level (inner versus outer focus) and (3) amount of "connotative language." Connotative language described therapist speech containing a large number of words or phrases indicative of visual, auditory or kinesthetic imagery. Although Rice does not define connotative language in great detail, her usage seems similar to the definition of perceptual predicate. From combinations of these three variables three therapist styles were delineated as follows: Style I consisted of low to medium use of connotative language, even voice quality and outer focus; Style II was identical except that these therapists had a distorted voice quality; Style III was characterized by a high level of connotative language, expressive voice quality and inner focus. In relating style to outcome, Rice found that Style II was associated with unsuccessful therapy as defined by both client and therapist and that Style III was correlated

with, although not predictive of, success in therapy. Rice concludes that the style of therapist participation is related to the success of therapy. And as discussed in Chapter 1, therapy outcome has been shown to be highly related to relationship variables, which are the particular focus of this study.

Interviewer behaviors have also been investigated by other researchers. Natale (1978) notes that inappropriate timing such as interruptions and prolonged response latencies by interviewers contributed to lessened perceived empathy in a face-to-face interview situation. Also, telephone interviewers were rated more favorably by subjects, and seen as more trustworthy, when they engaged in high verbal activity, defined as short response latencies and long periods of talk. Examples of other variables shown to be important in counseling situations are self-disclosure (Jourard, 1968), congruence, positive regard, and genuineness (Barrett-Lennard, 1962; Carkhuff & Berenson, 1967; Rogers, 1965), and experience level of therapist (Barrett-Lennard, 1962; Rice, 1965). Regarding client/counselor characteristics, sex has been shown to be an important variable. Herbert (1968) found that a counselor of the same sex was rated higher by the client on a measure of perceived empathy than was a counselor of the opposite sex.

Summary of Theory and Research

In the theory section it was suggested that due to the limits on the capacity of the nervous system to process information sensory data are grouped into patterns or representations. Each sensory modality can be thought of as a separate information processing system resulting in modality specific representations. To aid in storing and retrieval, labels delineating the modality are stored along with the information itself. At the level of speech, these labels are the perceptual predicates. When people speak about their experience they must access at least one representational system and the perceptual predicates in their speech thus signify which representational system is in consciousness at the time of speaking.

Most of the research reported in the literature addresses the issue of the use of language in one of two ways. One approach is to relate various categories of language to diagnostic groups or to underlying emotional states. The other approach is to group categories of language together in an attempt to delineate an individual or characteristic style. Both approaches tend to be descriptive in nature.

No previous research was found investigating the use of perceptual predicates as a tool for establishing a helping relationship. Only five studies were discovered which even mentioned the perceptual predicates. In the studies by Rice (1965), Balken and Masserman (1940) and

Sanford (1942), the predicates were combined with other parts of speech or other behavior, thus making it impossible to identify the specific contribution of the predicates to the question under investigation. On the other hand, Horowitz (1978) and Brown (1970) restricted themselves to words similar to perceptual predicates and used them as indicators of the cognitive activity of their subjects. All five of these studies have in common the fact that they were designed for purposes different from the one being pursued in the present study. As in studies reviewed above, the interest was in what language reveals about a person. Specifically, what language can tell a counselor about the client's representational system. But underlying this study was an additional interest in how language can be used as a tool. As Mahl and Schulze (1969) conclude after surveying the literature on the relationship between linguistic and personality variables, there is a neglect of the social and interpersonal aspects of language use. It was on that neglect which the present research was focused.

CHAPTER 3

EXPERIMENTAL DESIGN AND PROCEDURES

Introduction

The purpose of this chapter is to present the experimental design and procedures used to investigate the hypothesis raised in the preceding chapters. The design and procedures must control for possible confounding variables as outlined at the end of Chapter 2. A description of the sample and an explication of the statistical model used to analyze data from the sample are presented. Finally, the assumptions inherent in the design and procedures are delineated and related to this particular study.

Design

The design used in this experiment was a posttest only relative control group design with two factors (Campbell & Stanley, 1963). The Treatment factor had two levels, similar predicates and dissimilar predicates, corresponding to the type of predicates used by the interviewer in responding to the student. The Interviewer factor had three levels corresponding to the three different interviewers. The factors were completely crossed and students

were randomly assigned to the resulting six cells. The design features and the rationale for their inclusion are described in more detail in the following sections.

Treatment. For the purposes of this study, treatment consisted of the use of perceptual predicates by the interviewer in response to the occurrence of perceptual predicates in the speech of the student. The interviewers were first trained to identify perceptual predicates in the speech of the student and then structure their next communication so that it also contained perceptual predicates. Two different response conditions were defined: (1) the use of similar perceptual predicates in the interviewer's communication or (2) the use of dissimilar perceptual predicates.

In the similar predicates condition interviewers were required to introduce perceptual predicates into their speech which implied the same representational system as was just used by the student. It was not required, or desired, that interviewers use the exact perceptual predicates as used by the student. Such a restriction would result in unnatural mimicry and sterile interpersonal communication. It was assumed for the purpose of the student feeling understood, it was sufficient to use any perceptual predicates which signified the same representational system.

In the dissimilar predicates condition interviewers responded with predicates which were indicative of a representational system other than the one implied

by the student. It was deemed sufficient for giving the student the feeling of not being understood that either of the other two representational systems could be implied by the interviewer. Which particular system was employed was not important as long as it was different from the one used by the student.

To illustrate the two response conditions, consider the case where a student has modeled some facet of experience with a visual representational system and consequently used the word "see" in describing that experience to the interviewer. In the similar predicates condition an interviewer might have responded with: I see what you mean; Could we take a look at that?; or, So that's something you have to watch out for. In all these examples, the interviewer has structured the communication to the student so that it contains a visual perceptual predicate. In the dissimilar predicates condition an interviewer might respond to the visual predicate in the student's speech with: I can get a feel for what that must be like (kinesthetic); I hear what you are saying (auditory); or, You seem to have a handle on your future (kinesthetic). These responses imply the use of the kinesthetic or auditory systems and not the visual system used by the student.

In both response conditions, the treatment consisted of continually tracking the student's representational system and responding appropriately depending upon

which condition was operative for that particular interview. This procedure was used because different experiences or even different parts of the same experience may be coded into different representational systems. Furthermore, the perceptual predicates used by the interviewer could be imbedded in any response format such as questions, reflections or self-disclosure. The actual number of predicates used by the interviewer was not important, provided the ones that were used reflected the appropriate representational system.

Interviewers. The women who were the interviewers for this study were all doctoral students in Counseling Psychology at Michigan State University. All had completed at least two years of doctoral level course work including three terms of supervised practicum experience with college students. There were differences among the interviewers in the degree of previous counseling experience. The amount of counseling experience was five, one and six years for Interviewers A, B and C, respectively.

An Interviewer factor was included in the design for two reasons. One reason was to enable a comparison of the size of the treatment effect to a general interviewer effect. As discussed in Chapter 2, a number of interviewer characteristics and behaviors can impact the helping relationship. There was, however, no theoretical rationale for a priori selection of any one or any number

of these variables as independent factors to be systematically varied. There was nothing in the theory underlying the use of perceptual predicates to suggest that any particular interviewer variable would interact with the treatments in a significant way. There likely were such variables, but they remain for future studies to test specifically. For the purposes of this investigation, the Interviewer factor represented naturally occurring individual differences among interviewers. Including an Interviewer factor allowed for a comparison of the effect of these individual differences with the treatment effect and at the same time acted as a control variable for the whole class of interviewer characteristics and behavior variables. The second reason for including an Interviewer factor was to increase the precision of the experiment. The interviewer variables could have been controlled for in a number of ways, such as using only one interviewer, or assigning students randomly and equally to interviewer/treatment combinations. The former method would have hindered external validity; the latter method would have created a considerable amount of "noise" which the treatments would then have had to overcome in order to be concluded significant. Including Interviewer as a factor reduced the within-cell variance against which the treatment effect was tested.

Power analysis. Once the design was determined, a power analysis was performed to determine an adequate

sample size for the experiment. The power of the significance testing for the factors in this experiment was not the same for each factor because of the different number of levels in the two factors. Since the Treatment factor was the primary one for this study, it was decided to set the power of this test first. The power of the interviewer effect was then derived on the basis of the sample size resulting from the power analysis of the treatment effect. The desired level of power for determining treatment effects was set at .80. Thus there would be an 80% chance of concluding that a specified difference between treatment means in the sample was statistically significant, if that difference existed in the population. In order to determine a sample size which would yield a given level of power, the following information was needed: (1) the number of means to be compared, which was the number of levels of the factor under consideration; (2) the alpha level at which the hypothesis was tested; and (3) an estimate of the effect size, or the size of the difference between the means which are deemed significant or are expected to occur. For the present study the number of means to be compared was two, corresponding to the two levels of the Treatment factor. In determining the alpha level, it was decided that .05 was an acceptable level for the probability of a Type I error.

The effect size (ES), usually discussed as a ratio of the difference between the means to the standard deviation of the population (Cohen, 1969; Glass & Stanley, 1970), also had to be estimated. Ideally, the effect size would be estimated from previous research, using means and standard deviations from similar dependent variables and samples. However, since the treatment in this study has never been subjected to experimental investigation it was not possible to estimate effects by calculation. Cohen (1969) suggests certain rules of thumb for such cases. He defines small, medium and large effects as .2, .5 and .8 standard deviation difference, respectively, between the means. Reason, and whatever available information, must then be used to estimate which of these categories was most appropriate.

Barrett-Lennard (1962), with a sample of clients from a college counseling center, used the same dependent variable employed in this study to determine differences between more and less changed clients and between more and less experienced therapists. The effect size for the client comparison ranged from .64 to 1.65 and was .75 for the therapist comparison. Perceived empathy seemed to be a sensitive dependent variable, at least in discriminating between those categories. It was believed that treatment effects in the present study would likely be less than this for a number of reasons. First, Barrett-Lennard used what would probably be a more

homogeneous sample than the one used in the present study, thus decreasing the error variance. Second, he took his measures after five interviews and at termination of counseling. In contrast, the dependent variable in the present study was measured after one interview, 15 to 30 minutes in duration. It is likely that the less time allowed for the relationship to develop, the more variance there will be in the dependent measure. On the other hand, Grinder and Bandler, in their writings (1976) and their workshops, have claimed that the difference in effects on the relationship of using similar compared to dissimilar predicates will be large and immediate and may in fact determine whether the client stays in therapy or prematurely terminates. Another argument for the possibility of finding large effects is that the two levels of the Treatment factor are operationally defined to represent extremes. Cases in which the treatments are not "pure" were excluded from the analysis. Balancing these considerations led to a decision to look for treatment effects in the medium to large range. Entering the power tables provided by Cohen (1969, p. 377) at $\underline{ES}$ = .70 resulted in a sample size of $\underline{N}$ = 66 to reach the desired .80 level of power. Given this sample size and estimating the same effect size, the power of the interviewer effect was found to be .75. In practice it was decided to collect more students than 66 to allow for possible exclusion of cases.

Sample

Because sex has been shown to be an important interview variable and because all of the interviewers were female, only female students were sought for the sample in order to avoid any cross-sex confounding. A total of 88 female students from Michigan State University volunteered to participate in the study. Volunteers were obtained by first contacting representatives of sororities and dormitory floors, explaining the study to them (see Appendix A) and requesting that they ask for volunteers at their next group meeting. As a result the sample consisted of 48.9% sorority residents and 46.6% dormitory residents. The remaining 4.5% of the students did not report their residence. The mean age of the sample was 19.8 years (SD = 1.27). The distribution by class was as follows: freshmen and sophomores, 26.1% each; juniors, 25%; seniors, 21.6%; alumna, 1.1%.

Students were also asked if they spoke English as their native language. The plan was to exclude from the sample anyone who answered no to this question because of the questionable link between representational systems and perceptual predicates when English was a second language. All students, however, were native speakers of English.

Dependent Variable

Perceived empathy was the dependent variable which seemed to come closest to capturing the student's

perception of being understood by the interviewer. The instrument used to measure perceived empathy was a revised version of the empathy scale of the Barrett-Lennard Relationship Inventory (1962, pp. 34-36). Both validity and reliability issues were considered in selecting this particular scale.

There are a number of ways of measuring therapist empathy. Kurtz and Grummon (1972) compared six different approaches including client and therapist perceived empathy, objective ratings by clinicians, affective sensitivity of therapist and predictive empathy. They found a low correlation between the different measures and concluded that therapist perceived empathy, predictive measures of empathy and affective sensitivity were not useful measures of the construct. Client-perceived empathy, as measured by the empathy scale of the Relationship Inventory after three counseling interviews, was the best predictor of a composite outcome score. Barrett-Lennard (1962) found client-perceived empathy, measured after five counseling interviews, to effectively discriminate between more and less changed clients and between more and less experienced therapists. He also found a low correlation between client- and therapist-perceived empathy (r = .09). There is some evidence to suggest then that client-perceived empathy is superior to some other possible measures of empathy and that the predictive and construct validity seemed to be adequate when the

empathy scale of the Relationship Inventory was administered to college counseling center clients.

The empathy scale seemed to have good face validity (see Appendix C for the items on the revised form). A number of the items directly tap the notion of the interviewer seeking to understand the student from the student's own internal frame of reference. Other items attempt to measure a global kind of understanding.

The reliability of the scale also seemed adequate. Barrett-Lennard (1962) reported a corrected split-half reliability coefficient of r = .86 for a sample of 42 clients after five counseling interviews. He also found little change in the scores over four measure points (after 5, 15 and 25 interviews, and at termination), although he did not translate this observation into a test-retest coefficient. He does report test-retest reliability of r = .89 on a sample of 36 students rating family members and friends over a four-week period. Kurtz and Grummon (1972) report a test-retest coefficient of r = .66 from the third interview to termination.

Revision of the empathy scale. The empathy scale from the Barrett-Lennard Relationship Inventory was revised for the purposes of this study. The revisions were of two kinds: first, changes in wording (of the items and the anchors for the rating scale) and, second, dropping three items from the scale. Changes in wording of the items

consisted of switching the masculine gender pronouns to feminine gender to reflect the fact that all three interviewers were female. Also, all present tense verbs were changed to past tense, a form that seemed more appropriate to describe the one-time nature of the interviews.

A change was also made in the wording of the anchors for the rating scale. Originally, students rated each item on a six-point scale (+3 to -3), with all anchors being of the form "I feel (different degrees of truth or untruth)." Because this study was an investigation of the impact of perceptual predicates, and "feel" is a kinesthetic predicate, it was replaced in the anchors by the word "believe," which is neutral with respect to representational systems. All but four of the items also contained perceptual predicates. However, the predicates are such an integral part of some of these items (a point which is interesting in itself) that to change them would have meant creating an entirely different measuring device. Moreover, the predicates were distributed about evenly and randomly throughout the items and so did not appear to introduce any systematic bias into the measurement. For these reasons, and because the overall scale seemed reliable and valid for the purposes of this study, it was decided to retain the scale and to delay the investigation of these important measurement issues for a future study. It was believed that

changing the word "feel" in the anchors was sufficient to remove any overall bias in the instrument.

The name given to the revised scale reflecting these changes was the Interviewer Rating Scale, which appears in Appendix C as it was administered to the students, including the demographic questions. The measure consists of 16 items rated on a six-point scale. Half of the items are worded negatively. Scoring is done by reflecting the negatively worded items and then summing across all items, yielding a possible range of -48 to +48 for the total score.

A reliability coefficient, Cronbach's alpha, was computed for the Interviewer Rating Scale on the entire sample of 88 students. Cronbach's alpha is a generalization of KR-20, the average correlation obtained from all possible split-half reliability estimates, for items which are not scored dichotomously (Mehrens & Lehmann, 1973). Alpha was found to be .71 for the sample. However, an examination of the item statistics generated by the program used to analyze the data (Specht, 1976) revealed that the reliability could be improved by dropping certain items from the scale. An item was dropped from the scale if doing so would increase alpha by .01 at least. These criteria resulted in items 9 and 15 being dropped (Item 9: She understood what I said from a detached, objective point of view; Item 15: She tried to understand me

from her own point of view.) While both items 9 and 15 are negatively worded, some students apparently read them as positive descriptions of interviewer behavior, thus the low reliability of the two items. Further argument for the exclusion of these items was that the corrected item-total correlation (the correlation of that item with the remaining items of the scale) was only .05 and -.09 for items 9 and 15, respectively. The next lowest item-total correlation, once item 9 and item 15 had been removed, was .23 for item 12. Discarding item 12 would have increased alpha by .01 when rounding to two decimal places. While completing the instrument, four students asked what item 12 meant. The decision was made to also drop item 12 because of its marginal face validity and statistical strength. Removing all three items (9, 12 and 15) raised alpha to .79, which was a somewhat low, although acceptable, level for an instrument of this type. This scale, the Revised Interviewer Rating Scale, was the dependent variable on which the hypotheses were tested.

Procedures

The procedures for collecting and analyzing the data are outlined below. A description of the interviewer training procedures is presented. The definitions of perceptual predicates and treatments are also explicated.

Data collection. Volunteers for the study were sought by first contacting representatives of sororities and dormitories, explaining the study to them and requesting that they ask for volunteers at their next group meeting. When the response from a group was sufficient to justify the effort, arrangements regarding time and place were made with the group representative. The interviews were conducted in various conference and residential rooms around the Michigan State University campus in close proximity to the living quarters of each dormitory or sorority which participated. In all, 88 women were interviewed in six different interview blocks of time between January 20, 1979, and February 18, 1979.

When the women appeared for the interviews, they were given a typed description of the study to read (Appendix A) and a consent form to sign (Appendix B) if they still agreed to be in the study. Once they had signed the consent form, they were instructed to proceed to an interview room where they were greeted for the first time by their interviewer. At the conclusion of the interview the students returned to the investigator and completed the Interviewer Rating Scale.

Students were assigned a subject number as they appeared for the interview. Since the initial plan was to interview 90 students, subject numbers 1 through 90 had previously been randomly assigned to treatment/interviewer combinations. These numbers were then

rank ordered for each interviewer so that within each block of interviews the interviewers knew beforehand which treatment conditions were to be used. The subject numbers were also coded onto the Interviewer Rating Scale. Two students did not appear for their interviews, leaving a total of 88 students in the sample. Interviewers A and B interviewed 30 students each. Interviewer C interviewed 28 students.

The topic of the interviews was the student's experience of living in the sorority or dormitory. This topic was chosen on the assumption that the students would be more likely to use perceptual predicates in speech if they were describing personal experiences rather than discussing an abstract subject. Also, the topic may be similar to what a counselor of college students may hear from his or her clients in initial interviews. For a list of the kind of questions asked in the interview, see Appendix D. The interviewers were instructed to use all of their counseling skills to attempt to understand what each student's experience was like from the student's own frame of reference. The interviews averaged about 15 minutes in length, with the majority falling between 13 and 16 minutes. All interviews were audiotaped.

Training of interviewers. Each interviewer was provided with a manual containing an introduction to

representational systems, examples of perceptual predicates, definitions and examples of the two response conditions, a list of questions to use as a guide and a list of phrases they could use that did not contain perceptual predicates (Appendix D). The training was conducted in three phases. In the first phase the interviewers conducted straight-forward interviews with students in order to familiarize themselves with procedures and with the suggested questions. They were instructed to concentrate only on conducting a good interview. The second phase of training consisted of conducting a few more interviews with the purpose of becoming aware of the occurrence of perceptual predicates in the speech of the students and themselves. The third phase of the training consisted of practicing the interviews as they were to be performed in the study, that is, to respond with similar or dissimilar predicates. All interviews were audiotaped and the interviewers met afterward as a group with the investigator and discussed the definitions of perceptual predicates. None of the training interviews were included in the analyses.

There were three sub-tasks related to the treatments which the interviewers had to learn. First was to identify perceptual predicates and the associated representational system being used by the student. Second was to structure their communication to the student so that it contained either similar or dissimilar predicates,

depending upon which response condition was in effect for that student. And third, the interviewers had to learn to not use perceptual predicates in their own speech unless they first heard them used by a student. Furthermore, the interviewers were instructed to track the use of predicates by the students throughout the entire interview. When the type of predicates changed in the student's speech, the interviewer's use of predicates was to change accordingly, depending upon response condition. At times a student would speak for a long period, frequently switching the type of predicates, sometimes within the same sentence, without giving the interviewer opportunity to respond. In such a case the interviewers were instructed to respond to only the last type of predicate used. The last predicate used was assumed to signify the last representational system in consciousness and, therefore, the one the interviewer was to respond to.

As would be predicted by psycholinguistic research on language comprehension and production (Aitchison, 1976), it was at first a complex and difficult task for the interviewers to respond in the manner required by this experiment. Learning to recognize perceptual predicates in the students' speech was fairly easy. However, structuring their own communication to contain the correct type of predicates was not so easy. Research

has shown that listeners develop perceptual strategies which enable them to interpret the meaning of sentences before the speaker is finished uttering them. Based upon these expectations the listener is formulating his or her own responses while the speaker is still talking. By having to wait until the student was finished speaking in order to identify the type of predicate last used, an interviewer's strategy was disrupted and it took what was sometimes a frustrating effort to develop a new one. Also, it is not surprising that the interviewers found the dissimilar predicates condition easier to perform, since in that condition they had the choice of two types of predicates to use in responding. Even harder for the interviewers was the elimination of noncued and/or habitual predicates from their own speech. A list of responses and questions containing no perceptual predicates was provided in the interviewer's manual to aid them in this task. It was suggested, for example, that an interviewer say "I understand" instead of "I see" when presented with a statement that was neutral with respect to perceptual predicates.

Defining perceptual predicates. At the conceptual level perceptual predicates are defined as those words which imply the use of a particular representational system by the speaker. Furthermore, representational system is the name given to the activity of information processing

in any given sensory modality. Therefore, a perceptual predicate is a word that makes reference to the information from, or the processing of information in, any of the sensory modalities. The prototypes for all the perceptual predicates are the verbs of perception such as "see," "hear" and "touch." And for the kinesthetic system the verbs "move" and "feel" could also be included since they can represent ways of, or results of, processing information. The nouns, adverbs and adjectives which further constitute the perceptual predicates are considered derivatives of these prototypes. To further define the perceptual predicates, they can be contrasted with neutral words such as "understanding." The word "understanding" implies no specific representational system; no processing of information in a particular sensory modality. A person could, of course, "understand" by using one of the representational systems: forming a visual image of the subject, relating it to something he or she has heard, or has felt or is feeling. Or it may be, as Anderson (1976) argues, that understanding refers to an abstract propositional representation with no sensory properties. Whatever the stance taken on this point, the use of the word "understanding" in a sentence does not reveal a particular sensory modality and, therefore, is not considered a perceptual predicate.

The general principle outlined above still allowed for a great deal of flexibility, and disagreement, as to

whether a specific word would be counted a perceptual predicate. It depended upon how the phrase "reference to a sensory modality" was interpreted. This interpretation needed to be made more explicit in order to arrive at an operational definition of perceptual predicates. None of the writers who have discussed perceptual predicates have made the necessary clarification; theirs being a clinical and not a research orientation. The exception is Horowitz (1978) who, although he does not use the class of words as they are used here, excludes from his definition of visual words those which are used in an abstract sense. The procedure used by the rest of the authors is to present the general conceptual definition as stated above and then extend it by examples. One of the problems with this approach is that there are inconsistencies both within the same author's work and across different authors as to which words are or are not perceptual predicates.

The procedure followed in the current study involved the development of rules for deciding issues of inclusion. The first step was to consult all of the sources which discussed perceptual predicates in order to become familiar with the examples. The following works were used as sources: Bandler and Grinder (1975b), Bandler, Grinder and Satir (1976), Gordon (1978), Grinder and Bandler (1976), Grinder, DeLozier and Bandler (1977), Horowitz (1978) and Watzlawick (1978). From this

literature the lists found in Table 1.1 and in Table D.1 in the Manual for Interviewers were constructed. Using these lists as guides the interviewers attempted for a number of weeks to identify and discuss the use of perceptual predicates in their own and in others' speech. In these discussions questions were raised as to whether the occurrence of particular words did or did not constitute the use of perceptual predicates. The answers to these questions were formulated into rules which could then be applied to further questionable words. Once the rules were constructed it was possible to achieve 100% agreement among the interviewers as to whether a particular word was a perceptual predicate. The rules then, along with the general principle of reference to a sensory modality, constitute the operational definition of perceptual predicates as used in this study. The rules, which are instructions for handling special cases, are presented below with examples and rationale:

Rule 1. Count as a perceptual predicate <u>abstract</u> as well as <u>concrete</u> uses of words. For example, "I see what you mean" as well as, "I see the tree." Counting abstract uses goes against the definition of Horowitz (1978) but follows that of Bandler and Grinder, whose hypothesis is being tested. Furthermore, the inclusion of abstract uses is consistent with those theorists such as Paivio (1971) who conceptualize a substrate of imagery beneath even metaphorical and abstract thought.

Rule 2. Count negative as well as affirmative statements. For example, "I don't see what you mean" as well as "I see what you mean." This directly follows Bandler and Grinder. The rationale is that a person who uses "don't see," for instance, is either attempting to use his or her visual system or is using it and is aware from other cues that the image does not match the speaker's intended meaning.

Rule 3. Count words which occur in the context of other- as well as self-references, except when those words occur within quotes (see Rule 4). Rule 3 applies to a number of different kinds of other-references. For example, "He looked angry" is counted as the use of a visual predicate, as is "She looked at me." Also, "She said that she wanted to join us" implies the use of the auditory system by the student. In a phrase such as "She's always telling me to watch out" there is both an auditory and a visual predicate. Also, the use of sensory words in sentences containing second person plural pronouns such as "You can feel real lonely in the dorm" are counted. In all of these examples it is assumed that speakers have a choice about what part of their perceptual experience they choose to attend to and then represent to others. For example, a speaker who says, "She said that she wanted to join us" has used her auditory system to represent her experience of the other person in that

situation. What was attended to in that instance were the words of the other.

Rule 4. Do not count as the occurrence of a perceptual predicate those sensory words which occur within the body of the quote itself. Count as an occurrence of the use of the auditory system changes in tone of voice when describing one's own or another person's speech even if these changes are not always prefaced by a perceptual predicate. In other words respond to the implied auditory predicate "I heard." For example, a student may relate a conversation with a friend: "She told me, 'Look out.'" "Told" is counted as an auditory predicate. "Look" is not counted as the use of a perceptual predicate because it occurs within the quotes implied by the student. These implied quotes are easily identified in speech by a change in voice tone and the lack of a connecting preposition indicating a qualifying clause. If the same student had said instead, "She told me to look out" without altering her voice tone and including the preposition "to" the sentence would contain two predicates, one auditory and one visual, by Rule 3 above. To return to the case where the speaker uses quotes, however, the slang expression "goes" was found to be a frequent substitute for "said" as in "She goes 'Look out'" and was counted as the occurrence of an auditory predicate. In either case, the speaker's use of a quote was counted as implying the auditory system

because what was represented was the speech of the other person. What occurs within the quotes is not counted since it represents an auditory tape of someone else's speech and not a representation of the current speaker's experience.

Rule 5. Do not count as a perceptual predicate a verb within an idiomatic phrase which cannot be related to its object in one particular sensory manner. For example, "I held the office of president" or "I ran for president." The verbs "held" and "ran" are used here as idiomatic expressions each of which is constituted by a large number of activities, not necessarily kinesthetic. For instance, for some people "running for office" might be an auditory experience involving talking to many potential voters.

Interview coding system. The audiotapes made of each interview were used to determine whether the treatment response conditions actually occurred as intended. The investigator, blind to the student's scores on the dependent variable, listened to each tape and transcribed in sequence every use of a perceptual predicate by both student and interviewer. For the purposes of coding the interaction a unit of treatment was most broadly defined as the use of perceptual predicates by the interviewer. The interviewer was not required (1) to respond to every perceptual predicate used by the student or (2) to respond

immediately. For example, an interchange could occur whereby the student uses five predicates of three different types in her speech; the interviewer makes a response which contains no predicates; the student replies with speech also devoid of predicates; the interviewer responds using one predicate based upon the last type of predicate used by the student. The type of predicate used by the interviewer depended upon which response condition was in effect. In transcribing such an interaction, all five predicates used by the student were recorded in one row and column in the sequence in which they occurred. The interviewer's predicate was recorded in an adjacent column in the same row. This manner of transcribing the interviews carried with it an implicit theoretical assumption about the student's response to the use of perceptual predicates by the interviewer: what occurs between the last use of a predicate by the student and the first use of a predicate by the interviewer is unimportant from the point of view of representational systems.

Each interaction appearing on the transcript was coded in one of seven ways. Six of the codes exhausted the possible interviewer behaviors which could be counted as either positive or negative instances of the treatment. The seventh code represented unratable interactions. An example of an interview transcript illustrating all seven codes is presented in Table 3.1.

Table 3.1

Example of an Interview Transcript with Coded Interactions

	Perceptual Predicates Used By		Code
	Student	Interviewer	
1.	--	look	B
2.	feel, hear	listen	S
3.	see, touch	hear	D
4.	(a) watch	see, look	S
	(b)	feel, hear	ID
	(c)	look	IS
5.	loud	?	U
6.	grasp	--	M

Notes. ? = inaudible speech

-- = no speech or speech containing no perceptual predicates

Key: B = introduced predicates without cue from student

S = responded with predicates of similar type

D = responded with predicates of dissimilar type

ID = introduced dissimilar predicates

IS = introduced similar predicates

M = did not respond to a predicate used by a student

U = interaction not ratable

In the first interaction recorded in Table 3.1, the interviewer has erred by introducing a predicate into her speech without first hearing one from the student (B). In the second interchange the student uses two predicates, each of a different type. The interviewer, cued by the auditory predicate (hear) which was the last one used by the student, responded with an auditory predicate resulting in a code of Similar (S). The interviewer again used an auditory predicate (hear) in the third interaction but since the last predicate used by the student was kinesthetic (touch), the code was Dissimilar (D). In the fourth interaction the student used a visual predicate and the interviewer responded with two visual predicates. Since the quantity of predicates was not important, only the type, the interaction was coded Similar (S). The interviewer, however, continued talking and in doing so first introduced a kinesthetic and an auditory predicate, and then a visual predicate. These were coded ID and IS respectively, referring back to the type of predicate last used by the student. In other words, if it is assumed that the response condition was similar predicates, it can be said that the interviewer responded appropriately, then made a mistake by introducing dissimilar predicates and then recovered and returned to using similar predicates. In interaction five the interviewer's response was inaudible on the tape and thus the code of Unratable (U). In the

sixth interaction the student used a kinesthetic predicate and the interviewer used no predicates in her response; this was coded as a miss (M).

A frequency count was made of each code for each interview and used to determine treatment effectiveness. An effectiveness rate variable, computed for each interview, was designed to give an objective measure of how successful the interviewers were in performing the treatment. The equation defining effectiveness rate for the similar predicates response condition (ER_s) is as follows:

$$ER_s = \frac{S + IS - D - ID - B - M}{RU} \times 100 \qquad (1)$$

where the elements of the numerator were the frequencies of the interviewer behavior codes and RU was the number of ratable units or interactions in the interview. So for the similar predicates condition an effective treatment was defined as the interviewer responding with predicates similar in type to those used by the student (S) and/or the interviewer re-introducing similar predicates (IS) after having used dissimilar predicates. Errors in the similar predicates condition would be the use of dissimilar predicates (D or ID), introducing any predicate before the student does (B), and/or missing the opportunity to respond with a predicate at the end of the interview (M). Both of the latter two interviewer behaviors were always considered errors, regardless of response condition. The

effectiveness rate for the dissimilar predicates condition is exactly analogous to ER_s; the only change was that the signs of S, IS, D and ID are reversed. It should be noted that the above definition of effectiveness rate implied a fairly stringent conception of successful treatment, there being twice as many ways of making errors as there were ways of scoring hits. Also, inherent in the formula was an assumption about the relative impact of the different interviewer behaviors on the student. All behaviors are equally weighted in the equation since there was no theoretical or empirical reason for assigning weights differentially. The results of varying this assumption remain to be explored.

There are essentially four types of clerical errors possible in the procedures outlined above. In order to determine the various error rates and their possible effect on the analysis, a 10% sample (N = 9) of interviews was chosen randomly for recoding. The investigator performed exactly the same transcription and coding procedures on the new sample, compared them to the corresponding original nine transcripts and computed error rates.

One type of error involved inconsistencies in applying the definition of perceptual predicate, resulting in some words which were not predicates being incorrectly transcribed and counted. For example, the

phrase "hold an office" was mistakenly transcribed from one tape. Seven such mistakes were discovered for an error rate of 0.9%, there being 755 total perceptual predicates in all nine transcripts. The second error of transcription involved failing to record perceptual predicates that were spoken in the original interviews. These words were clearly perceptual predicates but were missed when the tapes were first listened to, usually because of the rapidity of speech. In all there were 55 more predicates counted in the new sample than in the original sample for a 7.3% error rate. Once the predicates had been transcribed, there were two possibilities of mistakes in coding procedures. No errors were found in coding the interactions, given the same predicates in the original as in the new sample, and there were likewise no errors in frequency counts of the codes. There were, however, some changes in coding, and thus in the frequency counts, due to the errors of transcription. But because coding was based upon the use of predicates by the interviewer and the last use of a predicate by the student, and because most of the transcription errors occurred within the body of speech of the student, there was relatively little effect on the coding. Transcription errors resulted in nine total changes in coding over six interviews, out of a possible 201 interactions in all nine interviews, for a 4.5% error rate.

The result of the coding changes was a decreased effectiveness rate in five cases and an increase in one case. However, the point which was important for the purpose of analysis was that in none of these cases was the change in the effectiveness rate anywhere near sufficient to change the classification of the interview as successful or unsuccessful treatment.

Hypotheses

There are three hypotheses which derive from the design of the experiment. They are presented below first in null form and then in directional form when appropriate.

Hypothesis I

Null: No difference will be found in perceived empathy as measured by the scores on the Revised Interviewer Rating Scale between the similar predicates group and the dissimilar predicates group.

Directional: The similar predicates group will score higher than the dissimilar predicates group on perceived empathy.

This hypothesis is the primary one for the experiment.

Hypothesis II

Null: No difference will be found in perceived empathy as measured by the scores on the Revised Interviewer Rating Scale among the three interviewer groups.

Alternate: There will be differences among the three interviewers on perceived empathy as measured by the student's scores on the Revised Interviewer Rating Scale (direction not specified).

This hypothesis is a test of the Interviewer control variable. There is no theoretical rationale for a priori prediction of specific differential interviewer scores. Any differences which are found will be explored with post hoc comparisons.

Hypothesis III

Null: There will be no interaction of treatment and interviewer effects on perceived empathy as measured by the Revised Interviewer Rating Scale.

There was no theoretical reason for testing this hypothesis; the necessity for doing so derives from the design. In an unbalanced, or nonorthogonal, two-way design such as used in this experiment, the main effects are not independent from each other nor are they independent from any interaction effects. This design required a test for interaction which, if found, would preclude an independent test of the main effects. Also, to provide further information about the primary hypothesis in this experiment, it was desirable to arrive at an estimate of the variance in the dependent variable which can be accounted for by the treatment difference, once any interviewer effects had been removed. Such an estimate was meaningless if an interaction effect exists (Nie, Hall, Jenkins, Steinbrenner, & Bent, 1975), and therefore a specific test for such an effect was necessary.

Analysis

Of the 88 interviews in the original sample, 25 were excluded from the analysis. The majority of these (N = 22) were excluded by the definition of successful treatment which was adopted. Any interview for which the effectiveness rate was less than or equal to 25% was considered an unsuccessful treatment and was consequently dropped from the sample. This criterion resulted directly in the exclusion of 19 interviews. An additional three interviews were dropped because the number of unrateable interactions in each was high enough so that had these interactions all been errors the effectiveness rate would have been below the criterion level. It can be shown algebraically that the 25% cut-off point is equivalent to saying that in a successful treatment there were two-thirds more hits than there were errors. In other words, in the dissimilar predicates condition, for example, a successful treatment would occur when the interviewer responded with about 70% more dissimilar predicates than with similar predicates, or predicates introduced at the beginning without being cued, or missed predicates at the end of the interview, combined. This was the most stringent criteria for successful treatment that could be adopted and still maintain replications in each cell of the design, as well as an adequate level of power.

Three other interviews were excluded from the analysis for procedural and theoretical reasons. In

one case the student was discussing in an emotional manner at the end of the interview her difficulty in talking to other people. The interviewer, who later reported wanting to end the interview on a positive note, gave the student a strong reward at the very end of the interview. In the second case, in the dissimilar predicates condition, the student and interviewer were discussing an issue of women's rights about which they shared similar strong feelings. At the conclusion of the interview, the interviewer responded with a number of similar predicates instead of dissimilar ones. These two cases clearly stood out from the other interviews as abnormal interviewer behavior. The decision to exclude them was made before the interviews were coded and with the investigator blind to the scores on the dependent variable. Finally, an interview was excluded because a fire occurred in a room adjacent to the interview room, necessitating a long disruption of the interview and resulting in a shared experience of danger between the student and interviewer.

The final sample upon which the hypotheses were tested consisted of 63 students. The experimental design and the final cell frequencies are displayed in Table 3.2. The design is quite unbalanced due to Interviewer C's performance in the similar predicates condition. Ten cases were excluded from the Interviewer C / Similar

predicates cell because they did not meet the criterion for successful treatment. Interviewer C, the one with the most counseling experience, had the greatest difficulty in eliminating noncued perceptual predicates from her own speech. Another case was excluded from the Interviewer C / Similar predicates cell because of the high number of unrateable interactions. The interview during which the fire occurred was also lost to this cell.

Table 3.2

Final Cell Frequencies

Interviewer	Similar Predicates	Dissimilar Predicates	Total
A	15	13	28
B	11	13	24
C	2	9	11
Total	28	35	63

The program used to analyze the data (Nie et al., 1975) was designed to handle unbalanced designs. But as stated above, the main effects in such a design are not independent from each other nor are they independent from an interaction effect. Therefore, the hypotheses must be examined in the order in which they were tested by the program: interaction, treatment, interviewer. Interpretation of the F-tests from the ANOVA may then proceed only as far as the first significant hypothesis.

Once a significant test is reached, any further significant tests are meaningless. The small number of cases in one cell of the design makes replication of the experiment desirable.

Analysis model. The model used to analyze the data was a two-way fixed effects analysis of variance model (ANOVA). With this model all hypotheses were tested at the .05 level of significance. Underlying the use of this model are the three assumptions of normality, independence, and homoscedasticity of within cell scores (Glass & Stanley, 1970). The assumption of normality seemed tenable for a number of reasons. First, the distribution of scores for the whole sample on the Revised Interviewer Rating Scale approximated a normal distribution; there was, however, a somewhat negative skewing. However, the F-test from the ANOVA is very robust with respect to deviations from normality. The assumption of independence between and within cells was likewise considered valid given the random assignment of students to cells and the fact that all interviews were conducted separately. The additional precaution was also taken of asking students not to discuss the interview or the dependent measure with anyone who was yet to be interviewed. Because of its importance in an unbalanced design, the assumption of homogeneity of within cell variances was tested directly for the whole sample,

using the Bartlett-Box F statistic (Nie et al., 1975). The hypothesis of no differences among variances could not be rejected at the .05 level ($F = 1.25$, $p = .29$), indicating that the assumption was valid for this sample.

Supplementary analysis. A number of analyses were performed in addition to the significance testing of the hypotheses. One was a Multiple Classification Analysis (MCA) which displayed the results of the ANOVA in terms of the deviation of each level of each factor from the grand mean of the dependent variable (Nie et al., 1975). The MCA scores were computed for each factor alone and for each factor when the effects of the other factor had been adjusted for. Thus, the treatment effect could be examined when the effect of different interviewers was controlled for. In addition, the MCA computed statistics which displayed the proportion of variance in the dependent variable which was explained by each factor alone, each factor adjusted for the other and the additive effects of the two independent variables. This entire analysis was based upon the assumption of no interaction effects and was thus contingent upon the outcome of the significance testing of Hypothesis III.

All the perceptual predicates used by the students were classified by type, either visual, auditory or kinesthetic, and frequency counts were made of each category for the entire sample. The distributions of

these variables and the correlations among them were also computed. The purpose was to provide descriptive information about the use of perceptual predicates in the interview situation. Descriptive statistics were also computed for the interview codes.

Summary

A posttest only control group design with two factors was used in this study. The Treatment factor consisted of two levels, representing the similar predicates and dissimilar predicates response conditions. The Interviewer factor had three levels corresponding to the three interviewers used in the study. The sample consisted of 88 female students who agreed to be interviewed about dormitory or sorority life and who were randomly assigned to cells of the design. The dependent measure was a revised version of the perceived empathy scale from the Barrett-Lennard Relationship Inventory. Before analysis 25 interviews were excluded from the sample because they did not meet established criteria for successful treatment and for procedural reasons. A 2 x 3 fixed effects ANOVA was used to test the three hypotheses (one for each factor and one for the interaction), each at the .05 level. Additional analyses were performed to further describe and explicate the results and the interview process.

CHAPTER 4

RESULTS

Introduction

The purpose of this chapter is to present the results of the testing of the hypotheses listed in Chapter 3. The results of each hypothesis are considered separately and then summarized in an ANOVA table. In addition, the Multiple Classification Analysis results are presented. Finally, descriptive statistics on the students' speech, the interviewer behavior variables and effectiveness rates are displayed.

Hypothesis I

Following are the results of the null and directional alternate hypotheses tests for the treatment effect.

Hypothesis I

Null: There will be no difference between the mean score of the similar predicates group and the dissimilar predicates group on the Revised Interviewer Rating Scale.

Directional alternate: The mean of the similar predicates group will be higher than the mean of the dissimilar predicates group on the Revised Interviewer Rating Scale.

The null hypothesis of no difference between the two treatment groups was rejected, F (1,57) = 4.96, p < .05. The research hypothesis was accepted with the similar predicates group scoring higher than the dissimilar predicates group on the Revised Interviewer Rating Scale.

Hypothesis II

Following are the results of the hypotheses testing for the interviewer effect. The alternate hypothesis is nondirectional.

Hypothesis II

Null: There will be no differences among the mean scores for the three different interviewers on the Revised Interviewer Rating Scale.

Alternate: There will be differences among the three interviewers on the mean scores of the Revised Interviewer Rating Scale.

The null hypothesis of no differences among interviewers was not rejected, F (2,57) = 1.29, p > .05.

Hypothesis III

Following are the results of testing the interaction hypothesis.

Hypothesis III

Null: There will be no interaction of the Treatment and Interviewer factors on the Revised Interviewer Rating Scale.

The null hypothesis of no interaction effect was not rejected, F (2,57) = .51, p > .05.

The results of testing Hypotheses I, II and III are summarized in Table 4.1 in which the full ANOVA table is displayed.

Table 4.1

Results of the ANOVA on Scores from the Revised Interviewer Rating Scale

Sources of Variation	SS	df	MS	F
Main Effects	443.77	3	147.92	2.06
Interviewer	185.91	2	92.96	1.29
Treatment	356.17	1	365.17	4.96*
Interaction	72.88	2	36.44	.51
Explained	516.65	5	103.33	1.44
Residual	4097.06	57	71.88	
Total	4613.71	62	74.42	

Note. N = 63

*p < .05

The full ANOVA table allows examination of the additive main effects and of the combined effects of the two factors plus the interaction. As can be seen from the table, the additive effect of the treatment and interviewer main effects was not significant nor was the total explained effect of the factors and their interaction together significant. The only significant test was the main effect for treatment. In examining

this table, it should be noted that the sums of squares of the two factors did not add to the sums of squares of the main effects because the design was nonorthogonal.

The means and standard deviations of the factors and for each of the cells on the Revised Interviewer Rating Scale are presented in Table 4.2.

Table 4.2

Means and Standard Deviations for the Sample on the Revised Interviewer Rating Scale

Interviewer		Treatment		Combined	N
		Similar Predicates	Dissimilar Predicates		
A	M	23.53	16.69	20.35	28
	SD	8.96	10.44	10.10	
B	M	23.18	20.92	21.96	24
	SD	9.65	2.96	6.81	
C	M	29.00	22.33	23.55	11
	SD	9.90	8.15	8.38	
Combined	M	23.79	19.71	21.52	
	SD	9.05	7.94	8.62	
	N	28	35		

Note. N = 63

It can be seen in Table 4.2 that the difference between the means of the two treatment groups was 4.08 points on the Revised Interviewer Rating Scale. The largest difference among interviewers was 3.2 points between Interviewers A and C. In Chapter 3 the effect

size (ES) was defined as the difference between the means divided by the standard deviation common to the two groups. Using the standard deviation of the total sample for the denominator, ES = .47 for the Treatment factor. In other words, the differential effect of the two treatment response conditions is about one-half of the standard deviation of the Revised Interviewer Rating Scale.

Supplementary Analyses

Following are the results of the Multiple Classification Analysis and the descriptive statistics computed on the interview variables.

Multiple classification analysis. Because the analysis of Hypothesis III revealed that the interaction effect was not significant, it became possible to examine the results of the Multiple Classification Analysis (MCA). These results are presented in Table 4.3 as deviation scores around the grand mean, for each factor unadjusted and for each factor adjusted for the effects of the other.

The deviation scores in Table 4.3 reveal the average magnitude of the effect of each level of each factor in terms of the units of the dependent measure. On the average the interviewers were rated about 2.3 points higher by using similar predicates and about 1.8 points lower when they used dissimilar predicates; the

differential effect of the two response conditions was thus 4.07 points on the Revised Interviewer Rating Scale. The average difference between the treatments increased to 4.95 points once the effects of the interviewers was controlled for. The largest average difference between any two interviewers was 3.19 points and increased to 4.94 points after adjusting for treatment differences.

Table 4.3

Multiple Classification Analysis

Factors	n	Unadjusted Deviation Score	Eta	Adjusted Deviation Score	Beta
Interviewer			.14		.21
A	28	-1.17		-1.62	
B	24	.43		.37	
C	11	2.02		3.32	
Treatment			.24		.29
Similar Predicates	28	2.26		2.75	
Dissimilar Predicates	35	-1.81		-2.20	

Note. Grand Mean = 21.52

There are two additional statistics reported in the MCA table for each factor. Eta is equivalent to a simple beta coefficient resulting from regressing the dependent variable on that factor. Eta squared indicates the proportion of variance in the dependent variable explained by the factor. Thus, the Interviewer factor

accounts for 1.96% of the variance ($.14^2$) while the Treatment factor explains 5.76% of the variation ($.24^2$) in the scores of the Revised Interviewer Rating Scale. The beta statistic in the MCA table is a standardized partial-regression coefficient which when squared indicates the proportion of variance in the dependent measure which is explained by each factor when the effects of the other factor are controlled for. The squared partial-beta's reveal that the Interviewer and Treatment factors account for 4.41% and 8.41% of the variance, respectively, when the effect of the other factor is controlled for.

Although not shown in the table, the MCA procedure also computes $\underline{R}^2$, the proportion of variance in the dependent variable explained by the additive effects of the Treatment and Interviewer factors. The additive effects account for 9.6% of the total variance in the scores on the Revised Interviewer Rating Scale.

It should be noted that both the adjusted deviation scores and the adjusted proportion of variance statistics are larger than the corresponding unadjusted figures. The effect of each factor increases whenever the effects of the other factor are controlled for. The meaning of this observation will be discussed in the next chapter.

Descriptive statistics. In this section descriptive statistics regarding the students' use of perceptual

predicates, the interviewer behavior codes and the effectiveness rates are presented. Only the data are presented here; their meaning is discussed in Chapter 5. In the case of the use of perceptual predicates, these statistics provide quantitative information not previously available in the literature about the occurrence of perceptual predicates in speech. Such information can form the foundation of future theory development and research. Presenting data on the interviewer behavior codes and the effectiveness rates is a means of further describing the interview process and explicating the definition of treatment. Both kinds of data should be compared with data collected from other sources, such as counseling interviews, to help assess the applicability of these findings to other settings.

Every perceptual predicate used by a student in the interview was recorded on the interview transcript. The predicates were then classified by type, either visual, auditory or kinesthetic, and the frequency of each type was counted. The descriptive statistics computed from these data appear in Table 4.4 for the entire sample of 88 students. (See following page.)

As can be seen from Table 4.4, the students used, on the average, twice as many auditory and kinesthetic predicates as visual predicates. In the interview containing the 140 auditory predicates, the majority of the woman's conversation about her experiences in the sorority

consisted of recalling conversations with her friends; two-thirds of the predicates she used in doing so were auditory.

Table 4.4

Descriptive Statistics on Type of Perceptual Predicates Used

Type	Mean	SD	Min	Max	Total
Visual	9.71	6.74	0	34	854
Auditory	22.78	18.55	2	140	2005
Kinesthetic	19.40	11.37	3	50	1707
Total	51.89	28.76	10	203	4566

Note. N = 88 interviews

Pearson product-moment correlation coefficients were computed for each of the three pairs of type variables for a sample of 87 students. The correlations are as follows: between visual and auditory $r = .21$, $p < .06$;* between visual and kinesthetic $r = .35$, $p < .01$; and between auditory and kinesthetic $r = .48$, $p < .01$. The number of kinesthetic predicates used by the students correlated significantly in a positive direction with both the number of auditory and visual predicates.

The descriptive statistics for the interviewer behavior codes defined in Chapter 3 are presented in Table 4.5 for the entire sample of 88 interviews.

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*All p values for correlations are for significance from zero.

Table 4.5

Descriptive Statistics on Interviewer Behavior Codes

Code	Mean	SD	Max Frequency	Total Frequency
S	7.26	7.40	31	639
D	8.06	6.56	36	709
IS	.97	1.21	5	85
ID	1.16	1.35	6	102
B	.31	.59	2	27
M	.24	.43	1	21
U	.89	1.20	6	78
NRU	17.99	6.30	42	1583

Note. N = 88

Min = 0 for all codes except $NRU_{min} = 7$.

Key:
S = responded with predicates of similar type.
D = responded with predicates of dissimilar type.
IS = introduced similar predicates.
ID = introduced dissimilar predicates.
B = introduced predicates without cue from student.
M = did not respond to a predicate used by a student.
U = interaction not rateable; poor audio quality.
NRU = number of rateable interactions.

As can be seen in Table 4.5, there were an average of 18 rateable interactions in each interview. Most (85%) of these interactions involved the interviewer directly responding to a student with a similar or dissimilar predicate. Whether these responses constitute a positive occurrence of the treatment would depend upon which response condition was in effect. Responses which were always errors, introducing predicates without a cue from the student (B) and missing the chance to respond with a predicate (M), together made up only 3% of the total rateable interviewer behaviors. The number of interactions which could not be coded (U) because of poor audio quality constituted 4.7% of the total number of interactions.

As stated in Chapter 3, the interviewer behavior codes were used to define two effectiveness rate variables, one for each of the treatment response conditions. The distributions of these two variables appear in Table 4.6.

Table 4.6

Descriptive Statistics on Treatment Effectiveness Rates

Predicate Response Mode	Mean	SD	Min	Max	95% Confidence Interval:	
					From	To
Similar predicates	43.32	30.54	-19	92	34.04	52.60
Dissimilar predicates	59.71	24.85	0	100	52.15	67.26

Note. N = 44 for each condition; all numbers are percentages; therefore, 100% would signify a "pure" treatment.

It can be observed from Table 4.6 that the distributions of the effectiveness rates for the two response conditions are different, with the dissimilar predicates condition being skewed toward the positive end of the continuum. There is almost no overlap between the 95% confidence intervals around the two means. These differences can also be expressed in another fashion. A mean of 43% for the effectiveness rate in the similar predicates condition translates into the number of correct responses (responding directly with similar predicates and introducing similar predicates) being, on the average, 2.5 times greater than the number of errors. For the dissimilar predicates condition the average ratio of correct responses to errors had to be 4:1 to yield a mean of 60%. The difference in the effectiveness rates for the two response conditions was not surprising in light of the fact that an interviewer had greater flexibility in responding to a student in the dissimilar predicates condition.

Because the distributions were different, the cut-off point used as the criterion of successful treatment (effectiveness rate greater than 25%) resulted in the exclusion of different numbers of cases from the two conditions. With this criterion 13 interviews were excluded from the similar predicates condition and 6 from the dissimilar predicates condition for the purposes of the analysis. Of the 13 interviews excluded from the similar predicates condition, 10 were performed by the

same interviewer (C). Interviewer C, the one with the most counseling experience, had the greatest difficulty in altering her normal interview style, particularly in changing certain phrases which contained perceptual predicates (e.g., "How did you feel about that?").

Summary

The null hypothesis of no differences between the two treatment groups was rejected at the 5% level. Furthermore, the difference was in the expected direction with the similar predicates group rating their interviewers about four points higher on the average than the dissimilar predicates group on the Revised Interviewer Rating Scale. No significant differences were found among the interviewers. The interaction between Treatment and Interviewer was likewise not significant. In addition, neither the additive effects of the two factors nor the total explained effect was significant.

The Multiple Classification Analysis indicated that the treatment differences accounted for 8.41% of the variance in the dependent variable. The Interviewer and Treatment factors together explained 9.6% of the total variation in the Revised Interviewer Rating Scale.

Descriptive statistics on the students' use of perceptual predicates revealed that there were about twice as many auditory and kinesthetic predicates used than visual predicates.

CHAPTER 5

DISCUSSION

Overview of the Study

Due to the limits on the capacity of the nervous system to process information, sensory data are grouped into patterns or representations, such as images, for instance. Thus, there is a representational system associated with each of the sensory modalities. The focus of this study was limited to the visual, auditory and kinesthetic systems. For the purpose of aiding in storing and retrieval functions, labels denoting the modality of the representation are stored along with the information itself. These labels, or modality identifying information, manifest in speech as perceptual predicates, for which the prototypes are "see," "hear" and "feel" and/or "touch" for the visual auditory, and kinesthetic systems, respectively. It was postulated that in speaking about their experiences people access at least one representational system. The perceptual predicates in an individual's speech thus reveal and signify which representational system is in consciousness at the time of speaking.

Based upon the above series of theoretical assumptions derived from information processing theory, it was hypothesized that a student would perceive a high degree of empathic understanding in an interview when the interviewer responded with perceptual predicates implying the same representational system as that used by the student. The purpose of this study was to examine the differential effects on perceived empathy of interviewers responding to students by using either similar or dissimilar perceptual predicates than those employed by the students.

Design and Procedures

A posttest only relative control group design with two factors was employed. The Treatment factor consisted of two levels representing the similar predicates and dissimilar predicates interviewer response conditions. The Interviewer factor had three levels corresponding to the three interviewers. Interviewer was included as a control variable. The associated alternate hypothesis predicted nondirectional differences among interviewers.

A power analysis was performed to determine an adequate sample size. It was concluded that 66 students were needed to achieve the desired .80 level of power. To control for cross-sex interviewer/student differences, and because the interviewers were female, only female

students were selected for the sample. The original sample consisted of 88 female undergraduates who volunteered to be interviewed about dormitory or sorority life. The 88 students were randomly assigned to the six cells of the design.

The dependent measure employed was a revised version of the perceived empathy scale from the Barrett-Lennard Relationship Inventory. The original scale was reworded to eliminate a systematic kinesthetic bias in the instrument. In addition, three items were dropped from the scale when an item analysis revealed that the reliability for this sample could be considerably improved by doing so.

All interviews were transcribed and each interaction was coded into one of seven interviewer behavior categories. The codes were used to determine whether the interviewer had successfully implemented the treatment response conditions. Twenty-five interviews were excluded from the analysis because they failed to reach the established criteria for successful treatment (an effectiveness rate over 25%).

A 2 x 3 fixed effects analysis of variance model was used to test the three hypotheses: one hypothesis for each of the factors and one for the two-way interaction. All hypotheses were tested at the .05 level of significance. Multiple Classification Analysis was

performed and descriptive statistics were computed to further describe and explicate the interview process.

Results

The hypothesis testing revealed a significant difference between the two treatment response conditions at the .05 level. The difference was in the expected direction with those students in the similar predicates condition rating their interviewers about four points higher on perceived empathy than those students in the dissimilar predicates condition. No significant differences were found among interviewers nor was the interaction between Treatment and Interviewer significant.

The Multiple Classification Analysis indicated that the treatment differences accounted for 8.41% of the variance in the dependent variable. The Treatment and Interviewer factors together explained 9.6% of the total variation in perceived empathy.

Descriptive statistics on the students' use of perceptual predicates revealed that there were about twice as many auditory and kinesthetic predicates used as visual predicates.

Limitations

The purpose of this section is to provide a context for interpretation of the results of the study. This context was defined by the choice of variables,

design, sample, definitions, procedures and dependent measure. Each of these elements has inherent limitations, an understanding of which is needed to provide a perspective for discussion of the results of this study and for any study attempting to replicate these results.

Internal

Internal limitations refer to the internal validity of the experiment as defined by Campbell and Stanley (1963). By this definition an experiment is internally valid to the extent that the results of the experiment can be attributed only to differences in the levels of the independent variables chosen by the investigator. Any variables present because of design or procedures which potentially offer rival hypotheses for treatment effects must be controlled if an experiment is to be considered valid. The primary manner of controlling for extraneous or confounding variables in this experiment was the use of random assignment of students to the treatment/interviewer combinations that defined the cells of the design. In a posttest only control group design, this procedure controls for all of the general threats to internal validity listed by Campbell and Stanley.

Regarding the variables specific to this experiment, the use of three different interviewers could potentially introduce effects confounded with treatment

effects. As stated earlier, this problem was handled by including Interviewer as a factor in the design. Another possible source of extraneous variation, cross-sex interview situations, was eliminated by selecting only female students as volunteers, and using only female interviewers. To control for experimenter bias all transcription, coding and analysis procedures were carried out with the investigator blind to the students' scores on the dependent measure.

There remains one rival hypothesis resulting from the particular interviewers chosen for this study. Prior to the experiment the interviewers were familiar with the work of Bandler and Grinder and were likely aware of their hypothesis regarding the use of perceptual predicates to build a therapeutic relationship. If this knowledge, for whatever reason, led to systematic non-treatment interviewer behavior designed to "help along" the hypothesized differential effects of using similar or dissimilar perceptual predicates than those used by the student, then these behaviors would represent a variable which would be confounded with treatment effects.

It would probably have been possible to find volunteers with minimal or no interviewing skills who also had no knowledge of Bandler and Grinder's work and then train them to conduct the interviews using perceptual predicates. However, since the subject matter of the

interviews made it likely that students would disclose personal information, it was decided to use trained counselors as interviewers, both to insure confidentiality and so that a trained counselor would be immediately available in the unlikely event that a student became emotionally distressed during an interview. In addition to these ethical concerns, trained counselors were also desirable so as to increase the strength of generalizations from this study to counseling situations. The question of interest was the effect of the use of perceptual predicates by counselors with established interview skills. Using inexperienced interviewers would have made generalizations to the desired setting that much more difficult. One solution to this problem would have been to seek experienced counselors who were not familiar with the work of Bandler and Grinder to serve as interviewers. While this was possible, it was not practical. Due to the limited financial resources available for the experiment, it was necessary that the interviewers volunteer a considerable amount of time and effort to the training and interviewing. The three graduate students chosen as interviewers were willing to undertake such a commitment.

Given that, for the reasons stated above, the possibility of a confounding variable does exist, it remains to be assessed the degree of likelihood that it was actually operating during the experiment. To

paraphrase an extended argument by Campbell and Stanley (1963), logic must suffice where design cannot. There are a number of reasons leading to the conclusion that the possible confounding variable of systematic non-treatment interviewer behaviors was an unlikely occurrence. One is that the interviewers did not know the nature of the dependent variable used in this study; at most they would have had only a general idea from Bandler and Grinder's writing. To be considered a problem, the nontreatment interviewer behaviors would have to have had a direct impact on perceived empathy as measured by the Revised Interviewer Rating Scale or have interacted with the treatments in such a way as to have a direct impact. Second, any relevant nontreatment interviewer behaviors would have to have been systematically employed by all three interviewers, since in all three cases the means for the similar condition were higher than the means of the dissimilar condition. An interaction effect would have been more likely if only one or two of the interviewers had engaged in relevant nontreatment behaviors. It can be seen from the ANOVA table (Table 4.1) that the sums of squares for the interaction term is very low, and, in fact, results in an F-ratio of less than one. And it is considered unlikely that all three interviewers would have engaged in behaviors that would have resulted in the appearance of significant treatment differences.

External

External limitations refer to the generalizability of the results. It is theoretically possible to make generalizations to populations of students, interviewers, treatments and the setting, broadly defined as the remaining stimuli to which the students were exposed. In a very strict sense none of these generalizations are appropriate in this study because of the lack of random sampling from any of these populations. The choice was made at the beginning of the study to focus resources on achieving internal validity, this being the first experimental investigation of the topic. It was deemed more important, given limited resources, to determine whether the phenomenon existed at all than to determine how widely applicable it was. It remains for future studies to extend and/or modify these results.

Using the Cornfield-Tukey (1956) argument, readers may decide for themselves the appropriateness of generalizations to their own samples of interest. This argument states that when statistical techniques (such as random sampling) are not available to bridge the gap between sample and population, then a logical bridge may provide an alternative. The logical bridge is constructed by comparing the two samples in as much detail as possible to determine the likelihood that the samples are drawn from the same population. The reader must then decide whether any differences that do exist between the samples

would be relevant in terms of the theory underlying the study. The larger the potentially relevant differences the less tenable the generalization.

Definitions and Procedures

There are a number of theoretical assumptions inherent in the definitions and choice of procedures which may limit interpretations. Hopefully these assumptions have been stated explicitly enough that they can be identified and systematically explored in future research. A number of the most important assumptions are reiterated here.

First is the definition of perceptual predicates. It was assumed that both concrete and abstract uses of sensory words constituted the use of a perceptual predicate. It was also pointed out that at least one author (Horowitz, 1978) would likely disagree with this definition and include only concrete uses. Second, the theoretical definition of treatment, or what constituted a relevant interaction, carried with it assumptions about the effects on the students of the interviewers using or not using perceptual predicates. Specifically, any interchange between student and interviewer that did not contain a perceptual predicate was deemed irrelevant in terms of the treatments. Third, the operational definition of the treatments contains at least three assumptions. One is the definition of the treatments

in terms of the six categories of interviewer behaviors. Another is the fact that these six interviewer behaviors were all weighted equally in the effectiveness rate equations used to determine the quality of the treatments. And finally, the use of a 25% effectiveness rate as the cut-off point for considering a treatment successful implies a certain relationship between hits and errors, as computed in Chapter 4. Fourth, an assumption was imbedded in the decision to eliminate two interviews from the analysis because the investigator believed that they were anomalies in terms of overall interviewer behavior. Fifth, an assumption was made that the inaccuracies in coding and counting were random and, therefore, would not affect the outcome.

All of these assumptions are deemed reasonable and to a large extent come with the territory. Any alternative definitions or procedures would likewise have inherent assumptions.

Measures

There are two ways in which the particular dependent measure used in the study, the Revised Interviewer Rating Scale, may have limited interpretation of the results. One was conceptual and had to do with extending results based upon a particular operational definition of the variable to a general construct of perceived empathy. That caution must be exercised in

making such a leap is evidenced by Kurtz and Grummon's (1972) discovery that various measures of empathy correlated poorly with one another and showed different degrees of success in predicting other process or outcome variables.

The second way the dependent measure may have impacted the interpretation involves the reliability of the instrument for the sample used in this study. As reported in Chapter 3, the reliability estimate for the entire sample was $\underline{r}$ = .79. This is a somewhat low, although acceptable reliability given that the students were asked to assess the relationship after interviews which lasted an average of 15 minutes. A low reliability may attenuate treatment differences by adding random "noise" to the hypothesis testing procedures.

Conclusions

This study was designed to test, at the .05 level, hypotheses regarding treatment effects, interviewer effects and an interaction effect. The results of the significance testing are as follows:

1. There was a significant main effect for Treatment. Furthermore, the difference was in the expected direction with students receiving similar perceptual predicates rating their interviewers higher on perceived empathy than students exposed to dissimilar perceptual predicates.

2. There were no significant effects due to different interviewers.

3. There was no significant interaction effect between Treatment and Interviewer.

In addition, the following conclusions were reached on the basis of the Multiple Classification Analysis and the computation of descriptive statistics:

1. The size of the treatment effect was about four points on the Revised Interviewer Rating Scale, or about one-half the standard deviation of the scale.

2. The effects of each factor increased when the effects of the other factor were controlled for.

3. The treatment factor accounts for 8.41% of the variance in the dependent measure when the interviewer effects have been removed.

4. The Treatment and Interviewer factors together account for 9.6% of the variance in the dependent measure.

5. The students used, on the average, twice as many auditory and kinesthetic predicates as visual predicates.

6. Responding with similar perceptual predicates was more difficult for the interviewer than responding with dissimilar perceptual predicates. There were more choices to be made in the latter case.

In conclusion, perceived empathy is affected by the type of perceptual predicates used in responding to a speaker. It will remain for future replications to determine if these effects are, indeed, stable and generalizable to other populations.

Discussion

The type of perceptual predicates used by an interviewer in responding to a student has a significant effect on the student's perception of being understood. Specifically, those students who were responded to with perceptual predicates similar to their own perceptual predicates rated their interviewers higher on perceived empathy than those students who were exposed to predicates dissimilar from their own usage.

It was postulated, on the basis of the theory presented in Chapters 1 and 2, that the increased empathy effect is due to the relationship between perceptual predicates and representational systems. Perceptual predicates signify and express the representational system currently being accessed in consciousness by speakers who are attempting to describe their experiences. When a listener responds in the same mode as the speaker's perceptual predicates, the listener is essentially gaining an understanding of how a speaker is modeling his world, or constructing his internal frame of reference. The communication is then on the

process of how the internal model was constructed rather than on the perceptions, attitudes, feelings or judgments. This is not to say that contents are not important but that the process of representing experience is also a vital dimension when one person seeks to understand another.

A number of authors have discussed means for increasing understanding in clinical settings which are relevant to the above. Horowitz (1978) suggests that one way a therapist can generate empathic understanding is to allow him or herself to form an image like the one being described by the patient. In light of the present study, this would be considered an effective technique because the therapist's speech would then contain visual predicates, as would the patient's. The therapist and patient would thus be sharing similar language, which would imply the same way of processing information. The same would hold for the technique suggested by Deutch and Murphy (1955) who taught interviewers to identify and match a client's somatic language as a means of helping the client feel understood. To summarize, the present study has provided support for the clinical observations that the structure of language can indeed be used as an effective tool for improving the perception of empathy in an interaction.

How effective is the use of similar perceptual predicates in improving the communication of empathy?

The differential effect on perceived empathy of using similar versus dissimilar predicates was computed to be .47 units, or about one-half the standard deviation of the measuring instrument. Cohen (1969) classifies effects of this magnitude as medium-size effects. Such effects are considered by Cohen to be large enough to be visible to the naked eye. As examples he cites the difference in height between 14- and 18-year-old girls, or the difference in intelligence between professional and managerial occupational groups. These comparisons provide some perspective for interpreting the amount of variation in perceived empathy explained by the Treatment factor (5.76%, unadjusted). Given the size of this effect, the results of this study are deemed to have practical as well as statistical significance. It would be valuable to examine whether there is a criterion level for perceived empathy below which the interviewee is more likely to terminate the interaction. If so, the use of perceptual predicates as a relationship building method may have considerable practical significance.

Regarding the size of the treatment effect, an interesting phenomenon was revealed by the Multiple Classification Analysis (see Table 4.3). The effect of each factor on perceived empathy increased when the effects of the other factor were taken into account, or adjusted for. There are two potential explanations for such an occurrence. One involves the possibility of a

mutual masking of the effects of each factor by the other. The second explanation depends upon the way in which the variance in the dependent variable was partitioned between the factors.

Consider that treatment effects may have masked interviewer effects. Once the variation in the dependent variable was adjusted for treatment effects, the differences between the interviewers increased. Conversely stated, performing the two different treatment response conditions made the interviewers more alike, when measuring perceived empathy, than they presumably would be normally. This similarity could be accounted for by the fact that both treatment conditions required the interviewers to alter their normal speech patterns and interview styles. Their struggle to accomplish the task made them behave more alike in the experiment.

Interviewer effects may have masked treatment effects. The differences between the interviewers may have introduced extraneous variation into the dependent variable which attenuated the differential effects of the two response conditions. The extraneous variation could be due to differences in interviewer personality variables or differences in how the interviewers implemented the treatments, or a combination of the two. Whatever the reason, treatment effects are observed to increase once the differences between interviewers are accounted for.

Another explanation for the increase in the adjusted effects over unadjusted effects could be artifactual. If there were little or no overlap between the effects of the two factors then removal of the effects of one factor would have left less overall variation in the dependent variable. The remaining factor would have, therefore, accounted for a proportionately greater amount of variance. And since the treatment effect was larger than the interviewer effect, the greatest change in proportion of variance accounted for when moving from unadjusted to adjusted deviation scores would have been in the interviewer effect. This phenomenon was in fact what was observed in this study.

Turning from outcome to process variables, it was observed that overall, students used more auditory and kinesthetic predicates than visual predicates. It may be that the higher frequency of occurrence of auditory predicates derived from the fact that the student's descriptions of their experiences were cued by spoken questions from the interviewers. The cues were thus transmitted through auditory channels. Or it may be that the errors made by the interviewers in introducing predicates of their own were primarily in the use of auditory and kinesthetic predicates. Such explanations, however, would run counter to the theory of representational systems (Grinder & Bandler, 1976;

Grinder, DeLozier, & Bandler, 1977) as well as findings from research on imagery (Klinger, 1978). Both sources would contend that the modality of the stimulus does not necessarily determine the modality of the responding representation. So the reason for the differential frequencies in types of predicates used remains to be explored.

Implications

The results outlined above have implications for future research and for counseling practice. The implications for research are defined by the theoretical and procedural assumptions discussed previously which underly the hypotheses and the experiment. Of particular interest was the definition of perceptual predicates. Perhaps it was only a subset of the broad class of words defined as perceptual predicates (the concrete words, for example) which was responsible for the effect. Or it may be that words referring to any kind of cognitive or information processing activity would have been just as effective. Another alternative is that the type of word is unimportant and that just repeating any word used by a speaker would have a similar impact. These questions are open for investigation.

Another potentially rewarding area for research would be the definition of treatment as contained in the treatment effectiveness rate equations and the criterion

level. Observing the effect on outcome of different weightings of the interviewer behavior variables and different criterion levels for successful treatment would be valuable both theoretically and practically. From the standpoint of theory, trying different weights may yield some hypotheses about the varying psychological meaning of the different interviewer behaviors. This procedure could result in direct applications to practice and training. For example, it may be that the negative effect of interviewers introducing predicates of their own is minimal as long as they respond to the speaker's predicates with similar predicates when given the opportunity. Such a condition would make training and implementation of the method much easier because the greatest difficulty from the point of view of the interviewers was eliminating habitual phrases containing perceptual predicates from their own speech.

The rival hypothesis discussed earlier of possible systematic nontreatment interviewer behaviors needs further exploration. Although it was considered an unlikely explanation of treatment effects, it still remains as a possibility. One approach to the problem would be to use interviewers who were naive regarding the effect of perceptual predicates. Another method would be to have all the interviews rated by trained judges for other interviewer behaviors that may effect the relationship.

Given the focus on internal validity in this experiment, the whole area of external validity is an open question. Each of the limiting external variables such as students, setting, questions, interviewers and dependent measure offers opportunity for extending the results.

One next logical step for research in this area would be testing the same hypothesis of this study using a different experimental design. A repeated measures design whereby the same interviewer would use both treatment response conditions with the same student at different times would be a potentially valuable source of information. Hypotheses regarding treatment effects, interviewer effects, ordering effects and interaction effects could all be tested. Such a design could answer some of the questions raised by this study, such as the possibility of a mutual masking effect between the Treatment and Interviewer factors.

While any research into a new area raises more questions than it answers, the results of this study are encouraging enough to have implications for counseling practice. Knowledge of a client's representational system and communication of that knowledge through the use of perceptual predicates appear to have an impact on the relationship as perceived by the student.

Counselors may begin to use language consciously as an impact and interactional tool and not just as a medium for exchange.

APPENDICES

APPENDIX A

DESCRIPTION OF THE STUDY GIVEN TO POTENTIAL VOLUNTEERS

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DESCRIPTION OF THE STUDY GIVEN TO POTENTIAL VOLUNTEERS

Description of the Study

My dissertation is designed to examine the effectiveness of different interview techniques, and I need your help. Specifically what I need are students who would be willing to be interviewed about dormitory or sorority life. The interviews will last from 15 to 30 minutes and will be audiotaped. Since the focus of the study is on the interviewers, the tapes are necessary to evaluate how well they have done their job. Your identity will be kept confidential. When the study is completed the tapes will be erased. I would also need you to take five minutes to fill out a short questionnaire about the interviewer when you are done. That will be the extent of your participation. I cannot promise you any direct benefits from being in the study, but I would very much appreciate it if you could spare the time to help me.

APPENDIX B

CONSENT FORM

APPENDIX B

CONSENT FORM

1. I have freely consented to take part in a scientific study being conducted by Allen Hammer under the supervision of Dr. William Farquhar.

2. The study has been explained to me and I understand the explanation that has been given and what my participation will involve.

3. I understand that I am free to discontinue my participation in the study at any time without penalty.

4. I understand that the results of the study will be treated in strict confidence and that I will remain anonymous. Within these restrictions, results of the study will be made available to me at my request.

5. I understand that an audiotape will be made of my interview for the purpose of evaluating the interviewer; the audiotape will be erased in my presence at any time if I so request; the audiotape will be erased at the conclusion of the research.

6. I understand that my participation in the study does not guarantee any beneficial results to me.

7. I understand that, at my request, I can receive additional explanation of the study after my participation is completed.

Signed_____

Dated_____

APPENDIX C

INTERVIEWER RATING SCALE

APPENDIX C

INTERVIEWER RATING SCALE

Please do not write your name on this form. It will be coded anonymously and your answers used for research purposes only.

Below are listed a variety of ways that one person could feel or behave in relation to another person. Please consider each statement with respect to whether you think it is true or not true in terms of the interviewer you have just talked with. Mark each statement in the left margin according to how strongly you believe it is true or not true. Please mark every one. Write in +1, +2, +3, or -1, -2, -3, to stand for the following answers:

+1 I believe that it is probably true, or more true than untrue.
+2 I believe it is true.
+3 I strongly believe that it is true.

-1 I believe that it is probably untrue, or more untrue than true.
-2 I believe it is not true.
-3 I strongly believe that it is not true.

1. ____ She tried to see things through my eyes.

2. __R*__ She understood my words but not the way I felt.

3. ____ She was interested in knowing what my experiences meant to me.

4. ____ She nearly always knew exactly what I meant.

5. __R__ At times she jumped to the conclusion that I felt more strongly than I actually do.

6. __R__ Sometimes she thought that I felt a certain way, because she felt that way.

7. ____ She understood me.

8. __R__ Her own attitudes toward some of the things I said, or did, stop her from really understanding me.

*R = reflected items

9. __R__ She understood what I said from a detached, objective point of view.

10. ____ She appreciated what my experiences felt like to me.

11. __R__ She did not realize how strongly I felt about some of the things we discussed.

12. __R__ She responded to me mechanically.

13. ____ She usually understood all of what I said to her.

14. ____ When I did not say what I meant at all clearly, she still understood me.

15. __R__ She tried to understand me from her own point of view.

16. ____ She could be fully aware of my feelings without being distressed or burdened by them herself.

Do not write your name on this form.
Please answer the following questions:

1. Age _____

2. Year in school
   - Freshman _____
   - Sophomore _____
   - Junior _____
   - Senior _____
   - Other _____

3. Is English your native language?
   - Yes _____
   - No _____

4. Where do you live during the school year?
   - Dorm _____
   - Sorority _____
   - Apartment _____
   - Home _____
   - Other _____

APPENDIX D

MANUAL FOR INTERVIEWERS

APPENDIX D

MANUAL FOR INTERVIEWERS *

Introduction

As interviewers for this study your job will be to interview from 20 to 30 undergraduate women. The interviews will last from 15 to 30 minutes and will focus on the student's experience of dorm life. You will be provided with a list of questions around which to structure the interview. Each interview will be audiotaped for later analysis.

In general, you have two tasks to accomplish during the interview. First, you are to listen carefully for any words or phrases used by the student which signify the perceptual mode the student is using to organize her experience. These words will be called "perceptual predicates" throughout this manual; specific examples will follow. The second part of your task concerns formulating your responses so that with half the students you use similar perceptual predicates and for the other half you use dissimilar perceptual predicates in your own speech. You will be told before each interview which response condition to use, based upon random assignment of students to conditions. At the end of the interview

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*This was the manual as given to the interviewers at the beginning of training when the rules and procedures outlined in Chapter 3 had not yet been established.

each student will be asked to complete a short questionnaire about their interview with you.

Identifying Perceptual Predicates

Perceptual predicates are those words which signify the perceptual mode a speaker is using to represent his experience to himself and others. Stated another way, the perceptual predicates reveal which representational system a person is currently using to organize his experience. In this study we are concerned only with the visual, auditory and kinesthetic systems.

For example, a person may describe some experiences in the following three ways. First, "I called out loudly as I heard the squeal of tires in the quiet street." Second, "I could see the look of terror in the driver's face as the yellow car spun in circles." And third, "I jerked my hand back as I felt the heat of the metal I had touched." The nouns, verbs, adverbs and adjectives in these three sentences reveal that the speaker used the auditory, visual and kinesthetic systems, respectively, to represent his experience.

Another example common to most people is the experience of a fire in the fireplace. A person using a visual representation system might describe the sight of flickering flames, the billowing, curling smoke, and the red, orange and yellow bursts of light. If the same person had represented his experience auditorily he might talk of the sounds of the crackling flames and the pops and hisses of wet wood. A representation in the kinesthetic system might be conveyed by the person describing the feeling of heat on his face

and cool on his back and the choking sensation of the smoke in his lungs (he forgot to open the flu).

These examples have been of fairly concrete descriptions of identifiable perceptual experiences. However, the perceptual predicates can also be signs of more abstract experiences such as the experiences of understanding, knowing or communicating. For example, a student's experience of understanding what his professor is saying may be represented in any of the three systems and communicated as follows: I see what he's saying (V); that sounds right to me (A); I'm finally getting a grasp on what he's saying (K). The same student, at a lecture the morning after an all night party, might say: I don't see the point (V); that doesn't ring true to me (A); I can't get in touch with what he's saying. Table D.1 below lists some more perceptual predicates, classified by representational system.

Table D.1

Examples of Perceptual Predicates

Visual	Auditory	Kinesthetic
see	hear	touch
look	listen	grasp
watch	sound	feel
notice	sounds like	handle
view	ring	wrestle
perspective	buzz	hold
scene	scream	grab
picture	call	hard/soft
stare	yell	hot/cold
mention of colors	quiet/loud	

Your task then is to listen for the occurrence of the perceptual predicates in the speech of the person you are interviewing and decide which representational system is being used. It is important that you continue to track the students' speech throughout the interview as the person may switch representational systems at any time, even when describing different aspects of the same experience. If a student uses two perceptual predicates within one phrase or paragraph, you should use the last identified predicate as the one which indicates her representational system. For example, if a student would say "I can't see any way I could feel differently," this would be identified as the use of a kinesthetic system.

In general, a representational system can be identified by listening to the perceptual predicates which follow the self-referents that the speaker makes. In all of the examples above the speaker used a self-referent, namely, the personal pronoun "I." As a listener, however, you must also be aware of implied self-referent statements such as use of the pronouns "we" and "you," especially when "you" is used in the third person plural. For example, a statement like "We couldn't get a clear picture of what was happening," is indicative of a visual rep system; and "You can really get in touch with being lonely when you're so far from home," implies a kinesthetic system. Another form of implied self-referent occurs when the pronoun is omitted altogether from the sentence. For example, in the statement "He looked angry," the self-referent "I" is implied and if complete the statement would read "He looked angry to me," and would thus indicate a visual rep system.

Response Conditions

Once you have decided which representational system is currently being used by the student through identification of perceptual predicates, you now formulate your responses using either similar or dissimilar perceptual predicates, depending upon which response condition is in effect for that particular student. Remember, however, that on one level your goal is to understand what it is like for these students to be living in a dorm at MSU. Use all of your skills as experienced interviewers (e.g., questioning, requests for clarification, reflection, summation, self-disclosure) to accomplish this task. For this study, you need only learn the additional skill of choosing certain perceptual predicates to use in your speech. To help you add this technique to your repertoire of interviewing skills, the training period will consist of the following stages:

1. Conduct a straight-forward interview of a few students using the prepared list of questions as a rough guideline. Concentrate only on conducting a good interview.

2. With a few more students do the same as above but now listen for perceptual predicates in the students' speech and your own. Make no attempt to introduce perceptual predicates into your own speech or to remove any which you would use naturally. Just become aware of the occurrence of the predicates during the interview.

3. Gradually begin to use perceptual predicates consciously in your own speech. This involves three steps:

   (a) identify the perceptual predicates used by the student

(b) choose similar or dissimilar predicates for your own speech. Try one interview using all similar and another using all dissimilar predicates.

(c) learn to not use perceptual predicates in your own speech unless you first hear one used by a student.

4. Continue practicing identifying and choosing perceptual predicates in other conversations. With enough practice you will be able to use this skill automatically.

Remember, your ultimate task is to track the students' use of predicates with your own responses. If the student uses a sentence or phrase that contains a perceptual predicate, your job is to word your next response so that it also contains a perceptual predicate. Note that this does not mean you are to match the exact number of perceptual predicates used by the student. For example, if the student uses four predicates implying a kinesthetic rep system in a sentence or phrase you need only respond with one predicate--a kinesthetic one if you are in the "similar" condition and an auditory or visual one if you are in the "dissimilar" condition. Also, "similar" does not mean "equal." A response made in the "similar" condition need only imply the same representational system; it does not have to be the exact perceptual predicate used by the student. A response in the "dissimilar" condition should imply a rep system other than the one being used by the student, but it doesn't matter which other one.

You may imbed your perceptual predicates in any response format that seems appropriate to you in the context of the interview. For example, in response to a statement by a student who uses a visual

perceptual predicate you could reply as follows if you are in the "similar" condition:

I see what you mean.

Could we take a closer look at that?

So you see yourself living off campus next year.

If you are in the "dissimilar" condition you might respond with:

Yes, I can get a feel for what that must be like.

I hear what you're saying.

You seem to have a handle on your future.

As you can see from these examples, you may use perceptual predicates within questions or reflections, with self or other-referents. Table D.2 presents some more examples of responses in each system corresponding to certain meanings you may wish to communicate to the student. Note that all these statements use self-referents, which you are not restricted to.

One aspect of using perceptual predicates as tools is to unlearn some habits you may have already acquired. Try to become aware of your automatic use of phrases such as "It sounds like . . ." or "If I hear you . . ." or "So you feel . . ." Use these phrases only when appropriate, i.e., when you hear a perceptual predicate used by a student and depending upon the response condition you are in.

Procedures

The students will be asked at dorm and sorority meetings to volunteer for the study. When they appear for the interview, they will be asked by the investigator to read and sign a consent form.

Table D.2

Examples of Responses

Meaning	Kinesthetic	Visual	Auditory
I (don't) understand you	What you are saying feels (doesn't feel) right to me.	I see (don't see) what you are saying.	I hear (don't hear) you clearly.
I want to communicate something to you.	I want you to be in touch with something.	I want to show you something (a picture of something).	I want you to listen carefully to what I say to you.
Describe more of your present experience to me.	Put me in touch with what you are feeling at this point in time.	Show me a clear picture of what you see at this point in time.	Tell me in more detail what you are saying at this point in time.
I like my experience of you and me at this point in time.	This feels really good to me. I feel really good about what we are doing.	This looks really bright and clear to me.	This sounds really good to me.
Do you understand what I am saying?	Does what I am putting you in touch with feel right to you?	Do you see what I am showing you?	Does what I am saying to you sound right to you?

Note. Reprinted by permission of the authors and the publisher from Richard Bandler and John Grinder, The Structure of Magic Vol. II (Palo Alto, Calif.: Science and Behavior Books Inc., 1976).

After doing so they will be introduced to you at which time the interview will begin. You are responsible for starting and stopping the tape recorder. Part of the consent form states that the students may request that the tape be erased in their presence. If such a request is made, terminate the interview and bring the tape to the investigator.

Although very unlikely, a student who becomes upset for some reason during the interview should be responded to as you would any person in distress. This takes priority over the study. Also, these interviews are confidential.

If the student asks for more information about the study, inform her that the investigator will answer her questions after she has been interviewed and has filled out the questionnaire.

Following is a list of questions you could ask during the interview. It is provided as a guide, not as a requirement.

1. How long have you been living in the dorm/sorority?
2. What is your living situation? i.e., are you in a single, double, triple, etc.?
3. What do you like about living in the dorm/sorority?
4. What do you dislike about living in the dorm/sorority?
5. How could dorm/sorority life be made better?
6. What advice would you give to a student who was just moving into the dorm/sorority?
7. Do you participate in dorm/sorority activities and if so, what?
8. In general, how would you evaluate your experience in the dorm/sorority so far?

Other questions you might ask to elicit material

- What do you do with your alone time?
- How do you use the dorm? (e.g., living, sleeping, studying, socializing)
- What are the pluses (or minuses) of dorm/sorority life?
- If they live on a co-ed floor ask them about it.
- What are some difficult decisions you have had to make on your own?
- What are the differences between living in the dorm and living at home?
- How has it been having more responsibility?
- Do you get enough privacy?
- What would be helpful or important for others to know?
- Where do you plan to live next year? How will it be different?

Phrases you could use to avoid using predicates yourself

- Ask for their responses to facts instead of just the facts.
- How do you cope with . . .?
- What does that mean to you?
- What kind of adjustments have you had to make to . . .?
- How does that affect you?
- In what sense . . .?
- How do you think that might happen?
- How do you find that?
- How do you experience that?
- What are the qualities of . . . that you find important?
- How do you react to that?
- That makes sense to me.
- I understand, or I know that must be . . . difficult, new, etc.
- Expand on that; elaborate on that; describe that.

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